PELICAN – Pricing Experiment Library Information Co-operative Network

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INTRODUCTION

BACKGROUND TO THE PELICAN PROJECT

Despite the well-known attachment to print, communication and computing technologies have arguably become the most important technologies for scholars in recent years. The move to electronic delivery poses many problems for those involved in the scholarly communication chain. Indeed, JISC (Joint Information Systems Committee of the UK Higher and Further Education Funding Councils) has set up a "Scholarly Publishing" sub-committee to examine some of the issues and their implications. There are many stakeholders who have been affected by this change, or might be in the future. These include: academics (both as users and producers of content), non-academics as authors, Reproduction Rights Organisations (RROs) such as the CLA (Copyright Licensing Agency), aggregator and intermediaries such as HERON (Higher Education Resources ON Demand), libraries in the Higher Education (HE) sector, publishers, and students as users.

One of the most important issues in the current phase of technological development is the provision of digitised materials to students in Higher Education Institutions (HEIs). The pressure to offer such materials comes from libraries, which find that demand for printed materials in high demand places unacceptable costs on the library if they are to fulfill their patrons' needs, or patron frustration if insufficient copies are available. In any case, the current generation of student, brought up as it has been on computers at school and at home, cannot see a good reason why the HEI they are studying in cannot supply the recommended materials in machine readable form.

This problem is a medium term issue. In the longer term, virtually everything required by students will have been "born digital" (i.e., was created in a digital form suitable for, or intended for, online or Web use) and will therefore be readily available to students in digital form, probably on the Web. Currently, however, much of the material recommended by lecturers to students was printed from typesetting tapes, which are not in suitable format for online exploitation. We have called such previously printed materials "born analogue", even though in many cases they were, strictly speaking, in digital format once. The problem PELICAN attempts to address is to achieve agreed charging mechanisms for the distribution electronically of such born analogue materials. However, we recognise that any solutions that we may come up with may well also apply to the future generation of born digital materials.

For a number of years, the JISC and the Publishers Association (PA) have co-operated by means of Working Groups to address issues of mutual concern. The work of these groups has helped in establishing good relations between the academic and publishing communities. One of the most important outcomes of this co-operation has been the publication of a number of joint reports. Since the publication of these JISC/PA (now called PALS) reports on clearing digitisation rights[1], a number of key events have occurred:

- HERON has been established – a one-stop copyright clearance and digitisation service for Higher Education). HERON is described further elsewhere in this Report.
- The CLA has launched its Higher Education digitisation licence, known as eCLA.
- Adoption by the CLA of models similar to those recommended by JISC/PA.

HERON (Higher Education Resources ON demand) was established to build on the experience gained in the OD/ER eLib projects, in particular SCOPE and Phoenix. It is a consortium of Napier, South Bank and Stirling Universities, and until recently Blackwell Retail Ltd. Work began in August 1998, and HERON is providing a valuable service to over 45 Higher Education Institutions in the UK. The service has remained partly funded by JISC with the intention of becoming self-supporting in the future.

In December 2001, the Copyright Tribunal reached its decision[2] on the case of Universities UK (UUK) versus Copyright Licensing Agency Ltd. The implications of this decision on costs of photocopying licences in UK Higher Education, which largely favoured the applicant UUK, have yet to be considered in detail, but it is possible that under some scenarios it could lead to increased business for HERON.

The CLA announced its Higher Education Institution (HEI) digitisation licence in August 1999. This provides for both digitisation of printed textual material and its subsequent use. In principle, the licence provides for royalty-free digitisation combined with two types of usage fee, one broadly corresponding to the "bookshop substitution" model and the other to the "library substitution" model, first developed by Bide *et al*.[3].

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[1] These are described further below

[2] Copyright Tribunal Interim Decision, Case Numbers CT71/00, 72/00, 73/00, 74/00, 75/01, http://www.patent.gov.uk/copy/tribunal/tribnews4.htm (December 2001)

[3] M. Bide, C. Oppenheim and A. Ramsden, Some proposals regarding copyright clearance and digitisation in higher education, *Journal of Information Science*, 1997, **23** (6) 393-406.

The "bookshop substitution" model is drawn from those texts that students would be expected to buy. The rights owner issues a limited term licence (probably covering an academic year) with the price linked to the number of students on a particular course. The licence permits students to download and/or print and/or annotate the texts during the academic year. The licence must be renewed each year. The publisher could expect the same sort of cyclical income stream from this model that it currently enjoys from bookshops in or near Universities for its textbooks.

The "library purchase substitution" model would apply to those texts that students are unlikely to buy, but that libraries would be expected to buy. The rights owner issues a perpetual licence in return for a one-time fee, which would not be modified by any "usage" metric. This would provide the publisher with a single payment broadly analogous with a library purchase. The term "perpetual licence" is loosely used in connection with this model. In practice, the licence could be indefinite, for the lifetime of the copyright in the text, or for some other period significantly longer than a year.

The success of any system[4] for copyright clearance in Higher Education (HE) and Further Education (FE) depends ultimately on the implementation of a pricing mechanism for digitised texts, which satisfies all players involved. There must be a fair rate of return to those in the supply chain, including authors and the middlemen who ease access to the authors' output, such as publishers, RROs and service suppliers such as HERON. The level of fee passed to the CLA and to rights holders is a crucial factor in determining the price set.

For publishers, the impact of digitisation potentially threatens sales returns of textbooks to students and journals to libraries. Academic staff request easier access to copyright materials in digitised form for teaching and research, and would like to see a clear pricing model for their secondary use of publications. Libraries, already working under financial constraints, prefer to work with a fixed cost model, as only this would allow for the success of a long-term planning control system. After the introduction of tuition fees for undergraduate and increasing prices for postgraduate programmes, students reject additional payment for library resources and request easy access to suggested reading in digitised form.

It has also become clear that there are problems associated with the new eCLA licence. This is the licence developed by CLA specifically for permission to digitise born analogue texts, and then to disseminate the materials to students.

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[4] The best known such system at the moment is, of course, HERON.

The first is that it is for text only, and does not apply to images or other types of copyright materials. The second is the assessment of the size of the student body for which fees are payable; this takes no account of the diversity of practice in UK HEIs (since it assumes that all students will register for individual course segments). Finally, it can only be activated at the end of the course segment, making it difficult to forecast costs reliably; and it places time limits that may be unacceptable on the duration of a course element.

The final issue, the suggested royalty level, however, is probably the most serious. The Publishers Licensing Society (PLS) recommended to its members the "bookshop substitution" model as the default model, although it stated that the "library substitution" model is appropriate for scholarly monographs and journal articles. Out of a large number of journal publishers that have mandated the CLA to participate in the eCLA scheme[5], only a few have opted for "library substitution". Most have chosen the "bookshop substitution" model. Many of these were at the PLS-recommended default rate of 5p per page of print per enrolled student. Because the licence only lasts the duration of the course module, the fee has to be paid each time the module is run. The rationale for this charging level is that, if in paper, the material would either be provided as part of a course pack, or the student would make a library short loan photocopy. Under the CLA photocopying licence, the royalty fee payable to CLA is 5p per page. Anecdotal evidence, e.g., from HERON, indicates that many librarians and academics consider this 5p rate as being too high.

This model is, however, simplistic. Although a book may be 'background reading' at one HEI (or on one course), it may be 'essential reading' and a best-seller at another. Furthermore, the "bookshop substitution" model requires payments for all students on a course, whereas there is much data (for example, the eLib OD/ER[6] evaluations) to show that actual use varies greatly, but is typically around 50% of a class. Uptake depends on a variety of factors, such as subject matter. For example, in engineering, there may be one key text, while in many arts/social science subjects, students are often required to choose from a large variety of texts, so that they may view a topic from a range of different perspectives. In the latter case, they are much less likely to buy every recommended text.

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[5] eCLA is an opt in scheme whereby publishers choose to enter it, rather than the CLA photocopying opt-out scheme where publishers must inform the CLA if they do not wish to participate.

[6] Part of the eLib programme involved experiments with On-Demand Publishing and with Electronic Reserves. These acquired the acronym OD/ER.

It is clear, therefore, that eCLA is unsatisfactory from a librarian's point of view both because of the fundamental nature of the model, and because the price set per page is too high.

Most HE libraries would prefer a "library substitution" model, as it better reflects methods of text provision and usage, and is also, of course, the pricing model they are used to. Furthermore, it is in accord with librarians' wishes that students should not be asked to pay for access. Even subscriptions to electronic resources are typically based upon annual licence fees with unlimited usage, rather than being tied to numbers of students on a module. However, rightsholders are reluctant to adopt this model for two reasons. Firstly, their priority is to ensure that sales of textbooks are not jeopardised, and secondly, because there is no precedent for establishing what a suitable "library substitution" fee should be.

Although various technical developments are underway, at present there are no systems appropriate for HEIs which can satisfactorily monitor all usage[7] (e.g., print-outs, loading onto disk), including usage at remote sites, and most payment systems within HEIs are not sufficiently sophisticated to handle differential charging and payment. As a result, it is unlikely that a significant proportion of learning material will be delivered electronically in HEIs using the current eCLA pricing model. This is of considerable concern, because it inhibits HEIs exploiting the advantages of the electronic medium. Publishers and authors are also keen to encourage electronic delivery. However, publishers' priority seems to be not damaging present income streams, and it is this factor that makes them in many cases reluctant to experiment with alternative pricing models, or lower price levels.

There are a number of areas where there is a lack of awareness or understanding among rightsholders, academics and librarians:

- Publishing economics
- What costs do publishers seek to recover with digitisation fees?
- What do authors seek from the process?
- What sort of courses and reading is OD/ER appropriate for?
- How should costs be apportioned among departments, students, and libraries?
- Should there be guidelines within HEIs on these matters?

[7] In any case, there is a major debate whether measures that might be obtained (such as number of pages printed, number of screens viewed, numbers of characters downloaded, or length of time screen was viewed) accurately reflects the usage of the material by the student (or indeed the usefulness of the material to the student).

- Are there surpluses from photocopying/print charging within HE and where do they/should they go?

This ignorance means that all parties are arguing from a position of ignorance, which cannot be helpful.

The development of a suitable pricing mechanism, satisfying all stakeholders in the HE community, is a pressing and immediate task. If successfully achieved, it could provide the foundation for a holistic distribution model of academic literature in digitised form for the future.

THE PROJECT

PELICAN[8] was a JISC funded project under the 5/99 call. It ran for 12 months to the end of October 2001. A copy of the project proposal can be found in Appendix A. The project was based at Loughborough University, with Stirling University as project partner. It was guided by an Advisory Board.

It covered elements of §46 (extending the range and effectiveness of JISC projects, which are developing into services), §47 (more general proposals for extending the usefulness of JISC services in ways not specifically covered) and §71 (digital library service development) of the 5/99 call.

In recognition of the complexity of the research field, the PELICAN project team aimed to address strategic, methodological and practical issues, assess current practices in electronic delivery of text to students and establish existing usage patterns. It identified models most likely to be acceptable to students, to HEIs (including academics, policy makers and the libraries), to publishers, authors and to the CLA. It also aimed to act as a facilitator to provide a communication network for the development of a suitable pricing mechanism and to help all recognise the diverse interest of all stakeholders involved in the HE community.

PELICAN aimed to assist the learning activities of HEIs in a number of ways:

- Through the leadership of Loughborough, it would build on the experience and confidence building of the JISC/PA Working Parties to help develop mutually acceptable ways of charging for distributing digitised materials to students;
- Through the participation of Stirling, which plays a leading role in HERON, close co-operation with HERON would be maintained;

[8] The name "PELICAN" is notionally an acronym, but in reality it was chosen to be analogous to "HERON".

- Through an active evaluation and dissemination programme, HEIs would gain a better understanding of the issues involved, and thus be able to plan their own provision with more confidence.

PELICAN could lead to an environment whereby electronic texts may be delivered to students in HEIs in an efficient and acceptable manner, whilst at the same time ensuring an adequate return to the rights owners.

AIMS AND OBJECTIVES

The PELICAN project intended to develop mutual agreement amongst stakeholders regarding charging mechanisms for distributing commercially published electronic texts to students. This, in turn, would help the relevant stakeholders to develop appropriate business plans so as to ensure medium to long-term viability of any systems developed for this purpose. It is worth stressing that the primary focus of PELICAN was those materials that were initially published in print format, but that HEIs wished to distribute in digital form. They would achieve the digitisation either by their own efforts, or by obtaining an authentic digital copy of the text from the publisher. However, the PELICAN team recognised that in doing so, it was addressing what is likely to be a short to medium term problem, as in the longer term most material required by HEIs would be born digital. Nonetheless, the pricing algorithms developed by PELICAN might well turn out to be appropriate for these materials as well. Since PELICAN started, JISC extended its remit to cover Further education. However, the PELICAN team decided not to extend its work to the FE Sector, because of the very different characteristics of book and library purchasing of that sector from the HE sector.

The aim of PELICAN was to develop a pricing mechanism for the delivery of electronic text[9] to students, which satisfies all stakeholders in the HE community. A recent Editorial in the *Times Higher Educational Supplement*[10] expressed concern

[9] It should be noted that although we did not deliberately exclude consideration of materials other that text - "Literary Works" as defined in the Copyright Act - in practice we did not consider the issues unique to images, moving images, sound and other media in any depth. In any case, the pricing and technical issues for distribution of such materials electronically is in its infancy.

[10] Editorial, *THES*, 28/12/01

that litigation between Universities and the CLA in regard to electronic texts was a real possibility. **The primary aim of PELICAN is to avoid such a dangerous possibility.**

PELICAN's initial objectives were:

- To review what has happened since the JISC/PA recommendations on charging mechanisms were published
- To undertake research to inform areas of difficulty/uncertainty which have been revealed
- To clarify HEI institutional policy on apportionment of costs (library, academic department, student)[11]
- To promote better understanding of the issues among senior HE policy-makers, authors, rightsholders and librarians
- To provide a scoping study for further investigations
- To assist publishers to develop good charging models
- To promote awareness of the different policies, and pricing strategies that are available for the delivery of commercially published electronic texts to students within the various stakeholder groups.
- To identify, document and disseminate strategic frameworks within which individual HEI libraries can develop budget strategies for electronic texts that are appropriate to their needs and resource limitations[12].
- To investigate, document and promote research into the most appropriate pricing strategies that satisfy the needs of all stakeholders.
- To investigate, document and promote the most appropriate hardware and software solutions to the problems that are identified for the delivery of the electronic texts.[13]

The PELICAN team made use of work and evaluated the suitability of pricing mechanisms that have already been developed elsewhere, nationally and internationally, and took advice from experts in the publishing industry and the HE community. The project team focused on digitising of texts for teaching activity, recognising that research needs are very different. Inevitably, then, our focus was on textbooks rather than journal articles. Although in principle our results could be applied to journal articles, and to research needs, in practice this may not be possible.

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[11] This objective was subsequently dropped, as it was found that the necessary data to achieve it was not available.

[12] This objective was subsequently abandoned as being too ambitious in the time available.

[13] This objective was also abandoned, though it is recognised that the technology is a key determinant of what charging mechanisms can be implemented.

The PELICAN work is not going on in isolation. The JISC e-books Working Party is also examining pricing models for e-books in HEIs, and it is hoped that our Report will help inform that Working Party's discussions.

This report includes a literature survey focusing on pricing models and mechanisms, a description of the methodology adopted to conduct the research, the results of the interviews conducted, the results of the conference we held, the conclusions reached and recommendations made by the team.

At the end of the Project, the PELICAN Team asked Anthony Watkinson to write an evaluation of the PELICAN Project. His Report, which was checked by and approved by the Advisory Board (subject to some minor amendments) is shown in Appendix H. Other than a change of font, this report is presented precisely as the Advisory Board approved it.
Readers should, however, note that the footnotes in Appendix H are comments made by the PELICAN Team regarding particular points made in the Evaluative Report.

LITERATURE REVIEW

INTRODUCTION

Although there is considerable literature on electronic journals[14] and many descriptions of the various projects involving e-journals in Higher Education, there is, perhaps surprisingly, only a relatively limited literature discussing pricing models and strategies for such journals. This review covers the literature from 1995 to the present, and concentrates on the issues concerned with the pricing of digitised texts for the Higher Education community. A useful starting source for this subject area, although somewhat dated, is[15]. A more general review of electronic information economics can be found in [16].

It has been argued that print has been the most significant scholarly communication technology for over three hundred years. However, since the late twentieth century, technological developments have revolutionized attitudes towards scholarly communication and increased our ability to communicate ideas and research results electronically.

"It has become a truism to say that technology is changing everything".[17] However, there seems to be an inherent belief that the printed monograph will survive alongside its electronic counterpart. This belief, which is supported by objective evidence of the value of print as a medium of information communication[18], appears also to be based upon fundamental cultural perceptions regarding the printed book.[19] [20] Nonetheless, as was noted in the Introduction, the use of IT has led to significant economic issues regarding the delivery of digitised texts.

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[14] Treloar, A. (1999) 'Rethinking the library's role in publishing' *Learned Publishing*. 12 (1) p. 25-31

[15] Eckman, R. and Quandt, R.E., *Technology and Scholarly Communication*, University of California Press, 1999.

[16] Shapiro, C. and Varian, H.L., *Information Rules*, Harvard Business School Press, 1999; Kahin. B. and Varian, H.R., *Internet Publishing and Beyond,* MIT Press, 2000.

[17] Sykes, P. (1997) 'On-Demand Publishing in the humanities'. *Learned Publishing* **10, (4) p. 305 –311.**

[18] Sellen, A.J. and Harper, R.H.R (2002), The myth of the paperless office, MIT Press.

[19] Armstrong, C.J and Lonsdale, R. (1998) 'The Publishing of Electronic Scholarly Monographs and Textbooks', eLib study: http://www.ukoln.ac.uk/dlis/models/studies/elec-pub

[20] Kingston, P., Gadd, E. and Poulter, A. (1997) 'Project ACORN: user reactions'. Learned Publishing (1997) 10. 165-166

The digitisation of printed texts involves the scanning or digitising[21] of an original (once copyright has been cleared), and mounting the digitised text onto the University Intranet or similar system for use by students, researchers and staff. The roles of those involved have all been, and may continue to be, subject to change as a result of these, and other electronic developments. As a result, University libraries have begun to redefine their twin roles as guardians and gatekeepers of knowledge repositories, and have started to enter an area that was previously the concern of commercial and university presses, i.e., publishing.

PRICING

As Taylor[22] pointed out, any commercial system will not function where there are no mutual benefits, a shortage of funds, and a lack of mutually agreeable and strict rules. Ojala[23] commented that the greatest enigma in the online world remains pricing. She wrote: "It's amazing that, after a quarter-century of information being sold online, no one has a definitive pricing model."

The issue of pricing is perhaps one of the most confusing and frustrating phenomena facing publishers and subscribers. "Different publishers are exploring the marketplace to see what makes sense and how to protect their revenue streams from declining print sales."[24] These varying pricing algorithms make budgeting difficult.

If electronic libraries are to develop, they need a pricing model for the delivery of digitised texts because of the wealth of printed literature and other academic publications currently available that are not yet in digital form. In the years to come, "born digital" materials will no doubt be much more heavily used in HE and eventually may represent virtually 100% of the materials used in HE. However, at the moment, there is insufficient "born digital" material available,

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[21] We are aware that there are important differences between the creation of a page image by scanning, and the digitisation of texts to produce ASCII data. The former reproduces the look and feel of the original, but the resulting digitised material cannot be amended. The latter results in a smaller-sized database, and one that can be amended, but which may lose some of the look and feel of the original. PELICAN did not distinguish between the two methods. Both still require copyright clearance. It is, however, possible (though undesirable) to adopt different charging mechanisms for the two methods.

[22] Odlyzko, A. (Editor) (1999) 'The Evolution of Electronic Scholarly Communication', http://www.research.att.com/%7Eamo/doc/evolution.communications.txt

[23] Ojala, M. (Editor) (1998) 'The Linear File: To Pay or Not to Pay, That Is the Question'. See: http://www.onlineinc.com/database/DB1998/linear4.html

[24] Ming, D.C. (2000) 'Access to digital information: some breakthroughs and obstacles'. Journal of Librarianship and Information Science, 32 (1) 26-32

and for most topics, a HE library can only achieve a critical mass of digital material with a range of digitised " born analogue" materials. We do not, incidentally, necessarily subscribe to the view that in the future, HEI libraries will be purely electronic. We believe hybrid libraries (i.e., libraries that comprise a mixture of electronic materials and other materials in traditional formats, including print[25]) are likely to exist for many years, but that over time the proportion of materials in the hybrid library that are electronic will steadily increase.

BACKGROUND TO PRICING MODELS

The first approaches of UK HEI librarians to publishers for permission to digitise were seen in the early 1990s. In reaction to this, the Publishers Association issued policy statements making clear that what they called electrocopying (a term that has now fallen into disuse) without permission is copyright infringement.[26] [27] By 1993, Higher Education and publishers had moved into opposing positions. The Follett Report[28] that considered the problems facing libraries in HE laid the foundation for a solution. As a result of the Follett Report, the electronic libraries programme (eLib) was launched. This programme was set up with the aim of aiding staff, students and libraries in UK HEIs to create, index and use electronic information, and to create cultural change within the fields of HE and publishing to understand and therefore utilise electronic information to a greater degree.

As a result of the eLib programme, publishers began receiving a large number of uncoordinated approaches by projects requesting permission to digitise their materials. Publishers felt alarm at these requests, and communicated their concerns to JISC - the body responsible for all aspects of information and IT provision in UK HE.

A JISC/PA committee (now named PALS) was set up as a result, and has held regular meetings to discuss issues in the field of digitisation, and other areas of

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[25] C. Oppenheim and D. Smithson, What is the hybrid library?, *Journal of Information Science,* 1999, **25** (2), 97-112.

[26] Muir, A. and Oppenheim, C. (1993) 'Electrocopying: The Publishers Association and Academic Libraries' Journal of Librarianship and Information Science. 1993. 25. 175 – 186

[27] Oppenheim, C. JISC/Publishers Association work on developing guidelines for copyright issues in the electronic environment, in P. Connolly and D. Reidy (editors), Proceedings of the International Conference on the Digital Library: Challenges and solutions for the new millennium, 2000, 39-43 (Boston Spa, IFLA, ISBN 0 9532439 7 4)

[28] Follett, B. (1993) 'A Report for Higher Education Funding Council for England, Scottish Higher Education Funding Council, Higher Education Funding Council for Wales, Department of Education for Northern Ireland

mutual concern. A number of issues were raised early on, for example, the nature of fair dealing in an electronic environment, charging algorithms, archiving of materials, the role of interlibrary loans and document supply in the networked environment, and the need for generally accepted standard contractual terms. Various studies were initiated by the JISC/PA. These resulted in two seminal reports and a journal article regarding pricing models for digitisation in Higher Education entitled 'Charging Mechanism for Digitised Texts.'[29] [30] [31] In addition, the JISC/PA model licence that provided the framework for material supplied in electronic form was published on the JISC Web site. It was subsequently adopted, with minor changes, by NESLI[32] as its standard licence.

The first JISC/PA report stated, "a mutually acceptable solution to the problem of what level of price it is reasonable for an HEI to pay for digitisation and subsequent use in digital form is essential if any progress is to be made in making use of the potential of digital delivery".[33] The report placed pricing models in four broad categories:

- **Digitisation fee:** initial fee for permission to digitise with additional usage-based fees.
- **Pre-paid licence fee:** cost-per-page-per-student or on the price of a book.
- **Fee for Printing**
- **Fee for Access**

The report concluded that "the experience of many of the projects shows that rates may well prove to be negotiable – particularly if placed in the hands of an experienced rights negotiator…many projects find what appears to be an inconsistent approach from the publishing industry. It is the strong preference on the part of both users and rights owners for straightforward, simple and, above all, brief contracts for licensing. It is clear that many of the issues which

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[29] Bide, M., Oppenheim, C. and Ramsden, A. (August 1997) 'Copyright Clearance and Digitisation in UK Higher Education: Supporting Study for the JISC/PA clearance Mechanisms Working Party' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/clearance/

[30] Bide, M., Oppenheim, C. and Ramsden, A. (October 1997) 'Charging Mechanisms for Digitised Texts: Second Supporting Study for the JISC/PA' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/charging/

[31] Bide, M., Oppenheim, C. and Ramsden, A. Some proposals regarding copyright clearance and digitisation in higher education, Journal of Information Science, 1997, 23 (6), 393-406

[32] NESLI: See: www.nesli.ac.uk

[33] Bide, M., Oppenheim, C. and Ramsden, A. (August 1997) 'Copyright Clearance and Digitisation in UK Higher Education: Supporting Study for the JISC/PA clearance Mechanisms Working Party' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/clearance/

apparently divide librarians from publishers are solved or soluble. However, there is the major economic issue over pricing of digital use, which is proving, extremely difficult to resolve for both rights owners and rights users."[34]

The second study conducted by Bide *et al*[35] considered possible pricing models for digitised texts. The issues surrounding the pricing of digitised texts were discussed as being; the problem of calculating student numbers; the rights issue; the changing content of reading lists and course packs; and who pays (library, academic, department). Other factors can be added to the list: risk to publisher; library budget; loss of direct sales to students; duration of licence; clearance of copyright; monitoring usage, and volume of actual use. Bide *et al* also argued that "rights owners wish to differentiate between the pricing of textbooks for sale to large bodies of students and those items which the students would normally consult in the library…this should be reflected in the pricing mechanisms".[36] The report also identified the key features of any pricing mechanism, which should be adopted in the area of digitisation. These should be: simple; susceptible to centralised administration; economically efficient; where appropriate, allowing for a recharge of licence fees to the individual student; producing predictable costs for users – and revenues for rights owners; and easily understood.[37]

The report proposed two models for payment: "textbook/bookshop purchase substitution model" and "library purchase substitution model". The former involves a limited term licence (perhaps for a semester, or an academic year) with the price linked to the number of students on a course. This would provide the publisher with annual revenue broadly analogous with multiple sales of textbooks. The latter involved the rights owners issuing a perpetual licence in return for a one-time fee, analogous to a library purchasing a book or journal volume.

The report concluded that "on the whole, publishers are in favour of payments for storage rather than pay-per-use…academics, libraries and publishers appear to be in favour of licences rather than pay-per-use model". However, it was suggested that the pricing schemes in the HE market would be best served by a mechanism based on a 'per-page' measure, thus "allowing for some flexibility in perceptions of value on the part of the rights owner."[38]

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[34] ibid.
[35] Bide, M., Oppenheim, C. and Ramsden, A. (October 1997) 'Charging Mechanisms for Digitised Texts: Second Supporting Study for the JISC/PA' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/charging/
[36] ibid.
[37] ibid.
[38] ibid.

The textbook substitution model recommended by the Bide *et al* report was examined in detail by Halliday and Oppenheim[39] . They argued that at the then suggested default price of 5p per student per page, it is prohibitively expensive and that this model of charging is not viable. As we have already noted, this appears to be the case in practice. They recommended that alternative charging models for delivering teaching and learning materials in an electronic environment be explored.

As recommended by the second supporting study for the JISC/PA,[40] HERON (Higher Education Resources ON-demand), a one-stop copyright clearance service was set up with JISC and other funding as a centralised system for obtaining copyright clearance, and for the conversion of the text into digital format for UK HE. HERON, which was set up in August 1998, under the eLib programme, negotiates on behalf of the HEIs, and works closely with CLARCS, the one-stop rights clearance shop set up by the CLA, to provide clearance for any HEI seeking to clear digitising rights. HERON is discussed further later in this Report.

ECONOMICS OF INFORMATION IN THE DIGITAL AGE[41]

The starting point for the study of a pricing mechanism for the delivery of materials in digitised form to HEIs must be informed by an understanding of some of the market characteristics of information services in the digital age. Halliday[42] implied that economic models tend only to be tested after solutions have been found to the more pressing technical, cultural and legal issues involved in providing digitised materials. Despite the importance of all these issues, there is an urgent need to explore viable pricing mechanisms that would satisfy all stakeholders involved in the academic information delivery chain before services are launched. However, since the digital library is still in its early stage of development, any economic model with its corresponding pricing mechanism must be adaptable and responsive to change. The economics of digital library services are characterised by fluidity, making it unlikely that a static model will be appropriate during the evolution of this young market.

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[39] Halliday, L. and Oppenheim, C. (2000) 'Comparison and Evaluation of some Economic Models of Digital Only Journals'. Journal of Documentation; 56 (6) September 2000. 660 – 673

[40] Bide, M., Oppenheim, C. and Ramsden, A. (October 1997) 'Charging Mechanisms for Digitised Texts: Second Supporting Study for the JISC/PA' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/charging/

[41] A version of this chapter appears in: R. Hardy, C. Oppenheim and I. Rubbert, Pricing Strategies and Models for the Provision of Digitised Texts in Higher Education, *Journal of Information Science*, 2001, **27**, in the press.

[42] Halliday, L. (2000) 'Copyright and Digitisation in UK HEIs'. VINE (118) 2000. 27-34

From the supply side, one of the most fundamental features of information goods is that their cost of production is dominated by the 'first-copy costs'.[43] [44] With recent advances in information technology and more materials becoming available in digitised formats, first-copy costs are likely to comprise an even greater fraction of total costs to the producer than hitherto. This is because of the extremely low costs involved in making further copies of something in digital form. High fixed costs with low variable costs lead to substantial economies of scale. The last two decades have seen an explosion of scholarly information combined with a consistent increase of journal prices above the rate of inflation. With academic libraries facing significant budget restrictions, the advent of electronic publishing has been welcomed by some as an opportunity to solve these problems. Since electronic publishing has been argued as cheaper than traditional hard copy publishing,[45] [46] there was hope that the digital library would be one way out of the dilemma. However, publishers respond that over 70% of the publishing costs are still fixed. Therefore, they claim, the distribution channel used has little impact on the existing cost structure.[47] In addition, some users request improved functionality such as multimedia elements, hot links to references, etc., from electronic publications, driving initial cost savings to the fringe.[48] Publishers further argue that in the interim stage of parallel publishing in both print and electronic forms, they have the worst of both worlds, with significant extra costs due to this parallel publishing, combined with pressure from subscribers to reduce charges. Since the demand for digitised materials is increasing, publishers are forced to respond.

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[43] **Sykes, P. (1997) 'On-Demand Publishing in the humanities'. Learned Publishing 10, (4) p. 305-311.**
http://dandini.catchword.com/vl=1345760/cl=15/nw=1/fm=docpdf/rpsv/catchword/alpsp/09531513/v10n4/s3/p305

[44] Tenopir, C. and King, D.W. (2000) 'Towards Electronic Journals'. SLA, Washington DC.

[45] Bot, M. et al. (1998) 'The cost of publishing an electronic journal: a general model and a case study', D-Lib Magazine,
http://mirrored.ukoln.ac.uk/lisjournals/dlib/dlib/dlib/november98/11roes.html

[46] Fishwick, F. et. al. (1998) 'Economic Implications of Different Models of Publishing Scholarly Electronic Journals for Professional Societies and Other Small or Specialist Publishers' London: South Bank University,
http://www.ukoln.ac.uk/services/elib/papers/tavistock/scholarlyjournals/cranelib.html

[47] Frey, K.L. (1997) 'Business Models and Pricing Issues in the Digital Domain', Journal of Library Administration, 24(4), 27-37

[48] Halliday, L. and Oppenheim, C. (2000). 'Comparison and Evaluation of some Economic Models of Digital Only Journals'. *Journal of Documentation*; 56 (6), 660 – 673

In the short-term, the academic community will remain dependent on existing literature that is published by the traditional publishing houses. With the advancement of new technologies and the availability of software that allows the easy publication of materials in-house, Universities and other research centres will be more likely to create their own substitutes for the traditional journals market in the years to come. In the long-term, this should cause prices to become more elastic. This, in turn might lead Universities to recognise digital publishing as an additional source of revenue. Currently, Universities face an administration problem coping with the complexity of monetary flows implicit in electronic publishing for themselves. However, recent developments of micropayment systems should resolve these issues in the long-term. A more difficult problem lies with the development of a transparent copyright clearance system. If copyright remains with each author and is administered by the institution that has published the material, it is these bodies that will have to deal with copyright violations. As a result, it will be in the best interest of all stakeholders to work jointly on an economic model that satisfies their needs, provides one stop copyright clearance, and is responsive to change in the future.

Frey[49] and Arms[50] reviewed a number of economic models that could form the basis for the digital library. Rather than assuming that any one model will emerge as *the* solution for the digital library, it is more likely that mixed forms will emerge and co-exist alongside each other, depending on user needs and their ability to pay for certain services. Non-print material, e.g., multimedia, will probably develop different business models to text based models.

One of the most interesting models on the Web is Harnad's open access model, associated with the Open Archive Initiative, that provides free content to users. Harnad's primary focus is to "free" the academic research literature from the "tyranny" of its Gutenberg past. However, its primary focus is research output, whereas ours is teaching materials. In any case, these Web sites are not free to create or maintain, and their costs have to be recovered, either through advertising or external funding. To date, academic publishers have worked little with advertising.[51] There is also some doubt that academics will be happy with the idea of advertising associated with their materials[52]. In practice, it seems to be assumed that HEIs will absorb the costs.

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[49] Frey, K.L. (1997) 'Business Models and Pricing Issues in the Digital Domain', Journal of Library Administration, 24(4), 27-37

[50] Arms, W.Y. (2000) 'Economic Models for Open Access Publishing', *iMP*, March, See: http://www.cisp.org/imp/march_2000/03_00arms.htm

[51] Sairamesh, J., Nikolaou, C., Ferguson, D.F. and Yemini, Y. (1996) 'Economic Framework for Pricing and Charging in Digital Libraries'
See: http://www.dlib.org/dlib/february96/forth/02sairamesh.html

[52] Oppenheim C., and Wills, J. (2001), details to be inserted.

There are a number of subscription models that are evolving in the digital domain. Most are password based. In some cases, access to digital services is restricted to on-campus use only.[53] Part-time and distance learning students are disadvantaged by such contractual terms. ATHENS is one way to achieve a solution to the problem of data transmissions to authenticated users. This system allows for rapid user authentication. Even though these technical facilities are necessary for the introduction of the digital library into the academic community, they do not in themselves solve the issues of an appropriate pricing mechanism.

Frey[54] has drawn attention to so-called control circulation models. (This is not the same as the controlled circulation model used by the many trade journals that are free to registered users, and are paid for by advertising). In Frey's model, a user must be affiliated to a professional society to obtain society-published materials. This model could be tied to a publisher's gateway service or portal. Such services would include access to certain types of journals paid for by a general subscription charge from the end user. Even though such an economic model would be relatively easy to administer, it causes considerable concern to users since all the costs for the use of information services are ultimately shifted to the end user. Library substitution payments are not accounted for in this model, and a mechanism would need to be found to share these payments over all departments. This is a task that is likely to cause some upheaval among academics and publishers alike.

Transactional pay-per-use models are more likely to establish themselves at least initially within the digital library. Typically with such models, the end-user pays a fixed charge for every page or article viewed or downloaded. It appears that many in the academic and publishing communities currently favour this model since actual use of materials can be easily monitored. Nevertheless, micropayment systems are technically not yet sufficiently advanced, costs are difficult to predict, and costs are again shifted to the end user. The most controversial model that has been suggested is a payment system based on submission fees.[55] This means charging the academic for publication. Such an economic model would have a long-term impact on the social structure of the academic community and should only be considered if all other models fail.

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[53] Sairamesh, J., Nikolaou, C., Ferguson, D.F. and Yemini, Y. (1996), *op. cit.*

[54] Frey, K.L. (1997) 'Business Models and Pricing Issues in the Digital Domain', Journal of Library Administration, 24(4), 27-37

[55] Fishwick, F. et. al. (1998) 'Economic Implications of Different Models of Publishing Scholarly Electronic Journals for Professional Societies and Other Small or Specialist Publishers' London: South Bank University, http://www.ukoln.ac.uk/services/elib/papers/tavistock/scholarlyjournals/cranelib.html

Young academics, interdisciplinary research centres, and the new universities are already facing tight budget restrictions; the introduction of such a model is likely to further divide the HE community, and in any case, there is no evidence of any publisher yet adopting such a model.

Halliday and Oppenheim[56] evaluated six economic models of the production and delivery of specific digital library services that derived from the general models above. Four of the models simulated the production of a single journal under varying conditions, and the other two models evaluated were a resource discovery network and a National Electronic Reserve Service (NERS). The study revealed that the variation of costs for overheads and initial production costs had a considerable impact on the journal price. This could be of particular interest if the impact of a reduction of these costs is considered over the market as a whole. With an increase in technological innovation to produce digitised materials, it is most likely that further cost reductions can be achieved which in principle could be passed on to the end user.

PAST PROJECTS AND CURRENT SERVICES

In the past five years, many studies and projects have considered electronic resources and pricing mechanisms adopted. A number of these are mentioned briefly below.

Machovec[57] considered the variations in pricing strategies adopted by publishers of electronic journals. Examples included:

Johns Hopkins University Press offers access to its electronic serials at a reduced amount compared to the cost of the print version. It offered different subscription models for individuals, stand-alone libraries and consortia.

The Institute of Physics offers free online access to its electronic version of journals if a print subscription is maintained.

Academic Press offers its 176 titles to library consortia at 10% above the cost of the print rate. At the time of writing, AP only offered their electronic versions to consortia. The consortium had to take the collective price of the entire print journal line being subscribed to by the entire consortium (at the 1995 subscription level, but at 1996 prices) and pay 10% above that base for full access to all of the AP titles. In this way, many libraries in the consortium that do not have many of

[56] Halliday, L. and Oppenheim, C. (2000) 'Comparison and Evaluation of some Economic Models of Digital Only Journals'. *Journal of Documentation;* 56 (6), 660 – 673

[57] **Machovec, G. (1997) Elec**tronic Journal Market Overview', http://www.coalliance.org/reports/ejournal.htm

the AP titles will automatically receive full access to its entire electronic journal product line. Whether this is beneficial or not depends on the relevance of the AP electronic journal product collection to the particular library.

Time Warner and Ziff Publishing offers free access to a selection of articles from many of its popular news stand magazines. Since the online versions only offer selected material from the print versions, the publisher views this as advertising for the print copies.

Academic presses are conducting other projects both internationally and nationally. *Highwire Press* is an initiative of Stanford University Libraries/Academic Information Resources offering free online access to a large number of science journals. The project is currently commercially sustainable, in line with Stanford's policy of extensive charge-back for services. It is not, however, seen as a way for the University or its library to make a profit. It is viewed as a cost-recovery exercise with both tangible and intangible benefits for the University.[58]

Project EDUCATE (End-user Courses in Information Access through Communication Technology) is a joint initiative of universities in Ireland, France, Spain, Sweden, and the United Kingdom. The project publishes online teaching support materials (rather than journals) and the revenue stream for maintenance is derived from licence fees.[59]

The *On-Demand Publishing in the Humanities* project was an eLib-funded project whose principal aim of the project was to create a 'cheap and cheerful' model for networking copyright texts in a university. It was reported in the project evaluation that the "biggest cost is simply the staffing cost of the time spent negotiating with publishers to secure copyright permissions. At the moment, each university has to enter into negotiations with each separate publisher it approaches."[60]

The level of fee charged by most publishers for electronic licences is often reported as too high for libraries. The project used fixed fee licences with most of the publishers. "A sum is paid to the publishers based on the number of pages digitised, and the number of students who have access to them. The cost ranges from 2p per page per user to 10p per page per user. Though this sounds modest, we estimate that, even at 2p per page per user, if we were to support all the

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[58] Treloar, A. (1999) 'Rethinking the library's role in publishing'. Learned Publishing. 12 (1) p. 25-31
[59] ibid.
[60] Sykes, P. (1997) 'On-Demand Publishing in the humanities'. *Learned Publishing* 10, (4) p. 305 – 311.

modules at JMU (John Moores University, Liverpool) in this way we would need a book fund of approximately £5m. This compares rather unfavourably with our actual book fund of under £800k[61]

BUILDER is a hybrid library project in the eLib programme phase 3. Regarding pricing and costing of the project, it reported that; "…if a charging structure is necessary the Project would prefer a flat-rate fee per text, as opposed to a pay per use pricing model."[62] At the time of writing, this project had not been completed; the final report may well have further useful comments on pricing issues.

SCOPE was an On-Demand Publishing eLib project.[63] Each partner institution involved in SCOPE decided how costs were recovered. Results showed that while "staff are happy for students to pay the costs for packs, they are unwilling to pass copyright fees for material to students (although they are willing to pass on printing costs either by direct charging or by requiring students to supply their own paper). This reluctance has been expressed by both lecturers and librarians, and is particularly strong in the library where provision of information has historically been free".[64] One institution expressed willingness to pass both printing and copyright costs on to the students, while all the other universities subsidised the copyright fees, either through the department or through the library. This method is also affected by the institution's capability to process and recover small sums of money from students".[65] The final report stated that "The current 'pay per use' system for the online resource bank is not an economical method in the long term: it is administratively cumbersome and does not allow those paying the copyright fees to forecast spending. In the future an up-front fee system based on potential use is likely to be introduced - some rights holders already charge on this basis".[66]

Project *ACORN*, a similar project to SCOPE and also part of the eLib programme, explored the delivery of high-demand material electronically to students across a university campus, via networked computers. The Project Team developed and

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[61] Ibid.
[62] Hampson, A. (1999) 'BUILDER and electronic delivery of learning materials'. *Learned Publishing*. Vol. 12. No. 1. 47-49
[63] SCOPE Project: Scottish Collaborative On-demand Publishing Enterprise. (1998) See: http://www.stir.ac.uk/infoserv/scope
[64] **SCOPE Report. (1997) 'End-of-semester student questionnaire: Sociology 3'. Univer**sity of Abertay Dundee (1997), http://www.stir.ac.uk/infoserv/scope/docs/eval/abty97.htm
[65] SCOPE Project: Scottish Collaborative On-demand Publishing Enterprise. (1998) See: http://www.stir.ac.uk/infoserv/scope
[66] ibid.

implemented a model for managing the process, from requesting reading lists from academic staff to the consultation of the text by students.[67] The *ACORN* electronic 'short loan' service was launched to students in 1997. The full text of 237 high-demand journal articles, recommended as core reading by academic staff in three departments, was made accessible to those students registered on those modules. Access to the documents was available from all networked computers on the university's campus.[68]

In relation to the pricing strategy used in the project, it was reported that; "taking the average amount of pages as 16 per article, the average number of pages printed per publisher was 96 over the eight week period. This would generate an income of £2.40 per publisher at 2.5p per page, and £4.80 at 5p per page. Taking the publisher with the highest amount of article printing,[69] and using the average of 16 pages per article, this gives 864 pages printed over the eight-week period. This would generate an income to this publisher of £21.60 at 2.5p per page, or £43.20 at 5p per page."[70] Other results from a student questionnaire showed that the majority (66%) were not be prepared to pay for the service of digitisation. As one commented, "certainly not – the library is free".

As with other studies, payment was a concern. "The issue of payment for electronic articles is perhaps the most intractable problem. Payment is at odds with the current free access to high demand readings in the existing Short Loan collection (and indeed in the main collection) and student expectations of free-at-point-of-use electronic information currently available in the Library."[71]

HERON was established in August 1998 and is funded by JISC and (until recently) Blackwell Retail Ltd. Its funding is due to end in Summer 2002, and it is hoped that at that time it will become a sustainable service. HERON[72] is a service for the Higher Education community that pursues clearances working both with the CLA and with individual publishers and rightsholders. HERON provides copyright clearance, digitisation and delivery of book extracts and journal articles and is also building up a national database and resource bank of copyright-cleared electronic texts. HERON is currently used by many HEIs in the

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[67] ACORN: Access to Course Reading via Networks
http://www.ukoln.ac.uk/services/elib/projects/acorn/
[68] ACORN Final Report – July 96 to May 98
See: http://www.ukoln.ac.uk/services/elib/projects/acorn
[69] Kingston, P., Gadd, E. and Poulter, A. (1997) 'Project ACORN: user reactions'. Learned Publishing (1997) 10. 165-166
[70] ibid.
[71] ibid.
[72] HERON, http://www.heron.ac.uk

UK and acts as a CLA Trusted Repository for the digitised texts. Currently, the CLA clears about 38% of all HERON requests.

Once HERON has been given copyright clearance by the rightsholder or CLA, an estimate is made of the total costs to the requesting university. This figure will include the copyright fee, the digitisation costs and the HERON administrative charge. Users are informed of the estimated costs and given the opportunity at that stage to accept or reject the offer. If they accept, the material is digitised and the request is delivered to the user in its final format. HERON reports that the biggest factors which were slowing the adoption of the use of digitised texts were: the cost and complexity of gaining copyright clearance for digitisation of materials; the costs of digitisation; and the lack of lecturer endorsement of electronic resources.

HERON currently uses three pricing models: per-page, per-extract, and flat-fee. The library or the department typically absorbs the copyright fees for digital copies as part of its budget, while in a few cases, the money comes from ring-fenced project money. HERON report that paying the full copyright fees for every student, every year is not sustainable in the current environment. The average fee, which HERON is being charged overall, is 4.5p per page per student for clearances from publishers, and 5.5p per page per student for clearances through the CLA. Of the universities that have established pricing policies, one will not pay more than 8p per page, unless the material both cannot be substituted by anything else, and is essential to the course. Others have limits in terms of a maximum fixed total price. HERON is also aware of the fact that universities are becoming increasingly 'cost-aware'. Shrinking budgets inevitably lead to reluctance to accept more expensive materials where cheaper alternatives are available.

Few publishers have established library substitution charging models. Instead the 'bookshop material model' is being applied to almost all the material requested in the HERON system, irrespective of whether students might be expected to buy them. Students rarely read (let alone buy) everything on the reading lists. Therefore, paying for every student to use every item reflects an unrealistic idea of reading and purchasing patterns. Current practice is that HE libraries do not generally pass copyright fees onto students, and therefore have to bear these costs themselves.

TULIP,[73] one of the earliest US projects conducted research into the use of digitised materials in HEIs, examined a number of pricing models, including; internal charging at universities, consortia models, subscriptions to electronic-

[73]TULIP Project, :http://www.elsevier.nl/inca/homepage/about/resproj/tulip.shtml

only material, and pay per use article delivery. They concluded in 1996 that even though advances have been made with regard to hardware and software development, 'economic issues were least conclusive'.

PEAK (Pricing Electronic Access to Knowledge) was an important experiment to study the effectiveness of various pricing and product schemes for electronic access to scholarly literature published by Elsevier. It involved three working models:

- **Traditional subscription –** Similar to the print world, this provides prepaid access to all content from a traditional journal title.
- **Per-article purchases –** This system is similar to an interlibrary loan request where a single photocopy is delivered to a user who may keep the article in his or her files indefinitely.
- **Generalised subscriptions –** This is where the user has the choice of articles to make up a customised subscription.[74]

PEAK employed a non-linear pricing model for the distribution of electronically published materials in HEIs, and a distinction between an institutional and individual access model.[75] The findings suggested that Elsevier Science would work in the future with an electronic access pricing model that will be based on, the value of the functionalities for a specific customer group, the amount of users making use of the products and how often each user uses the product.[76] Unfortunately, the full results of the PEAK Project have not yet been published.

TECUP was a EU-funded project that analysed the development of business models for the licensing of a number of national and international projects. Project partners working with TECUP pointed out the difficulties in developing a suitable pricing mechanism for the distribution of electronic published materials for HEIs. Models used were wide-ranging from author financing of specific electronic journals to more complex pricing mechanisms, such as those implemented by HERON.[77]

Both the *NESLI* (UK)[78] and *Elektra* (Finland)[79] projects revealed that the biggest obstacles to implementing a simple pricing mechanism were the lengthy

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[74] PEAK project. 'Pricing in a Nutshell' See:
http://www.lib.umich.edu/libhome/peak/nutshell.html
[75] ibid.
[76] ibid.
[77] TECUP (1999) 'Providing and controlling access to digital documents'. Workshop, 29 October 1999, hosted by the Deutsche Bibliothek, Frankfurt am Main
[78] NESLI, http://www.nesli.ac.uk
[79] Elektra, Finland: http://www.kb.dk/elib/

negotiating processes with publishers through managing agents, and a lack of decision-making power on an individual project basis.

There have been many other electronic library projects that have touched upon economic issues. In the case of *LAURIN* (Norway),[80] the question of a business model was not even addressed because copyright issues could not be resolved. Other projects such as *Decomate II* had explicitly addressed the question of an appropriate business model, but problems emerged in negotiating with certain publishers. *EZUL* (Germany)[81] had the explicit aim of setting up an appropriate pricing model. It arranged for a pay per view model with the library fixing the end-use price after negotiating a standard charge with the publisher. As the standard charge exceeds the end-use price that could be charged to the individual, it is not yet clear who will finance the difference.

E-LIBRARY SERVICES

Several well-established firms, and new start-ups have established new operations which we have called e-library services. These include Bell & Howell's XanEdu,[82] Encyclopedia Britannica's Britannica.com, NetLibrary,[83] Questia,[84] and ebrary.[85] Many major publishers – including Pearson, McGraw Hill and Houghton Mifflin – have signed agreements to distribute their works through such e-libraries. These e-libraries have experimented with some interesting pricing options.

Ebrary is designed to allow maximum content exposure by allowing unrestricted viewing access while prohibiting unpaid reproduction (pasting, printing, and downloading). To use ebrary, users must pay to print a page or a range of pages, pay to copy and paste segments of pages with automatic citations, pay to securely download whole documents to disk or into e-book readers, and pay to have documents printed on-demand and delivered.

"There have been a number of attempts to solve the online copyright protection problem. These attempts are based on the lock-box and key model in which users pay before viewing or pay a subscription fee. The pay-to-view model limits the

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[80] LAURIN, Norway, http://laurin.uibk.ac.at/
[81] EZUL, Germany. http://www.tib.uni-hannover.de/allginfo/ezul_e.htm
[82] XanEdu, http://www.XanEdu.com
[83] Net Library, http://www.netlibrary.com/publisher_info.asp
[84] Questia, http://www.questia.com
[85] Ebrary, http://www.ebrary.com/about/index

market to those willing to make blind purchases."[86] The subscription-based model forces users to purchase pre-bundled amounts of unwanted content in order to obtain small amounts of wanted content. Both scenarios limit the market and therefore do not fully leverage the capabilities of the Internet.[87]

NetLibrary is targeted at HEI libraries and is based on monthly subscription charges. The pricing model adopted is the price for the printed book for each simultaneous user required, plus, either, 50% of this price for an indefinite licence or 9% for each year the book is required.[88] This is a pricing model that could also be applicable to the delivery of digitised texts. NetLibrary has recently been acquired by OCLC.

JISC ELECTRONIC INFORMATION CHARGING WORKING GROUP REPORT

A major JISC activity is the purchase of licences to various datasets and databases, and then the resale of sub-licences to these products to Higher Education Institutions (HEIs), and, more recently, to Further Education Institutions (FEIs)[89]. This report[90] summarised the conclusions of a study that identified different models and cultures of funding in HE to determine whether such differences have an impact on the uptake of electronic resources. Findings showed that few institutions have coherent policies or strategies on e-resources. The average level spent on e-resources is approximately 16% of book and serials fund and is increasing each year. Variations in the funding and control of materials exist though there is no evidence suggesting that take-up of e-resources is affected, and there exist weaknesses in print-based funding models in the face of changing e-resources.[91] The report stressed that "there is a need to adopt a sector wide approach to finding new ways of funding and structuring the purchase of e-resources. It was also found that print-based models did not have "the flexibility and responsiveness adequate to meet the challenges of the

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[86] Dixon, A. (1997) The Impact of Electronic Publishing on the Academic Community Session 1: The present situation and the likely future 'Electronic publishing and the academic community: a publisher's perspective' Institute of Physics Publishing, http://www.iop.org

[87] Davies, C. (1997) 'Organizational influences on the university electronic library'. Information Processing and Management. 33, (3), 377-392

[88] Net Library, http://www.netlibrary.com/publisher_info.asp

[89] For convenience, we have used the term FEI throughout this report. We are aware that they are also known as Further Education Colleges.

[90] Charging Working Group (2001) Final Report. JISC Committee for Electronic Information

[91] *ibid*

electronic environment".[92] At a conference in May 2001, two mechanisms for charging HEIs and FEIs for access to such databases and datasets were proposed. One was based on the staff and student full time equivalent (FTE) numbers, while the other was based on central funding from the Funding Councils. Whichever model was used, a given HEI or FEI would fall into a particular band. The resulting band would then be used to calculate the charge for the particular service. It is worth noting that the Working Group was not concerned with the pricing of electronic materials as such, but with how the costs should be shared once a price had been arrived at for the whole community.

The Project Team adopted these ideas in the models it developed (see below).

HOW ARE THE ISSUES ADDRESSED OUTSIDE THE UNITED KINGDOM?

HERON is not the only body that has struggled with the implementation of a workable pricing model for the distribution of digitised published materials in HEIs. Many of the problems in the UK are echoed world-wide. A viable economic model will ultimately depend not only on realistic pricing but also on its fit with established national cultures and national copyright management and clearance systems. However, at present, there is no uniform approach to deal with copyright issues around the world. Carmel and Collins[93] showed that the market is divided between collective management through mandatory clearinghouses (e.g., Norway, Finland and Japan) and individual management approaches that favour market solutions (e.g., US and the UK). A majority of countries have special arrangements that depend on the types of work that are being protected, using clearinghouses. Even though the collective management approach has, in principle, the advantage to reduce transaction costs, there is a danger that centralised pricing will cause pricing convergence, which leaves poor works over-priced and top works under-priced. In short, there is no agreed pricing mechanism for the distribution of digitised published materials in HEIs around the world.

A report by the Media Group for the European Commission[94] identified a number of opportunities for the academic periodicals market that could be utilised for the successful introduction of increasing numbers of digitised texts in HEIs. Because of the international nature of academic publishing, it is possible for firms to globalise their operations and market bases. This would allow the

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[92] *ibid.*

[93] Carmel, E. and Collins, E. (1997) 'The impact of international copyright management and clearance systems on multimedia markets', *Telematics and Informatics*, 14(1), 97-109

[94] Media Group (2000), Competitiveness of the European Union Publishing Industries, Final Report prepared for the European Commission, Office for Official Publications of the European Communities, Luxembourg

spread of costs for the development of digitised materials. Since academic institutions and readers have the information technology, infrastructures, and financial resources to access electronic publications, publishers have the security that their clientele will most certainly use the introduction of new titles in digitised forms. It must be realised, however, that the highly developed IT infrastructure of academic institutions might equally pose a threat to publishers since some organisations may decide to publish their own titles directly to save costs and lower the risk of operations. Consequently, there is an urgent need to develop a pricing mechanism that has the potential to develop into a strategic tool that can eventually operate globally for the benefit of all stakeholders. Even though national concerns must form the basis for such a model, it must integrate with systems developing internationally and the lessons that have been learnt.

THE STAKEHOLDER POSITIONS

As noted earlier, there are a number of key stakeholders in the UK pricing issues of the digitisation of texts for the HE sector. These are: the publishers; the CLA and other RROs; libraries in the Higher Education (HE) sector; students and other users; and academics (both as users and producers of content, and as editors) and other non-academic authors. HERON and other possible aggregators, booksellers and subscription agents are also potential stakeholders.

The role of the *publisher* is to "compile and package information and manage the process of distribution to customers. Publishers investigate the needs of the market and develop new products. They make the investment and bear the financial risk, based on their independent editorial evaluation. They also ensure that added value is given to published information through quality control processes and sophisticated digital editorial techniques."[95] Publishers are concerned that they get an adequate return on the risk capital they have invested in their publications.

The *CLA*, as a typical RRO, recognises that finding a fair and simple pricing model for its licences is one of the most difficult aspects of its tasks. Most of the CLA's photocopy licences are based on a price per copy; the number of photocopies is determined either transactionally, by estimates or by surveys. However, in the digital environment, the "number of copies" is meaningless, as copies easily proliferate amongst computer systems. Although they are still technically copies for the purposes of determining copyright infringement, many feel that it is not appropriate to count them to determine the licence fee. The recent Copyright Tribunal ruling on the UUK versus CLA case enforced a model

[95] Cox, J. (1999). 'Publisher-library relationships in the digital environment' *Learned Publishing* 12, 173 – 178

based purely on student numbers and rejected price per copy as the basis for copyright permission charges.

Librarians serve the widespread needs of teaching and research in universities and the highly focused information requirements of corporate research. "They manage the cost-effective use of published information to the benefit of their users, and provide the navigation necessary to identify and retrieve the information required by their users".[96]

Users require quality control as well as an increase in both the choice and convenience of goods and services. Users want access to materials with the minimum of fuss, and access should, ideally, be free at the point of use. Libraries need to be able to meet the requirements of their users and the teaching and research needs of their institutions at reasonable cost.

Authors and editors require protection to ensure that their work is properly attributed and that the integrity of original content is preserved. There is also the need to encourage the continuing creation of original quality content. "Rights holders need their effort and investment to be rewarded with continuing revenue streams".[97] Authors also require rapid dissemination of their material. In the case of those authors who are dependent upon sales of their books (this includes both academic authors and non-academic authors who write, for example, popular science books), there is also a need for rapid payment of acceptable royalties for copies made of their materials.

Certainly open discussion is needed between publishers and users to gain further mutual understanding of the contractual and pricing problems involved in distributing digitised versions of printed products. "[There] are difficult issues to resolve; an increase in open communication between the users and rights owners is essential to gain further mutual understanding of the complexities involved".[98] There is little doubt that in the UK, the JISC/PA work has helped in achieving this goal. However, mutual distrust still remains in some quarters.

Hewett[99] conducted interviews with academic staff, information professionals and publishers regarding their views about the impact of the electronic delivery

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[96] *ibid*.
[97] *ibid.*
[98] Bide, M., Oppenheim, C. and Ramsden, A. (October 1997) 'Charging Mechanisms for Digitised Texts: Second Supporting Study for the JISC/PA' Report. See: www.ukoln.ac.uk/services/elib/papers/pa/charging/
[99] Hewett, E. (1999) 'The Impact of the Electronic Delivery of Learning Materials in UK Higher Education'
See: http://builder.bham.ac.uk/reports/html/stakeholder.asp

of learning materials in UK higher education and how it would affect their professional environments. A number of key issues were raised in relation to digitisation, though pricing was of greatest concern. Hewett concluded: "the cost of electronic delivery of learning materials is currently difficult to quantify. Some costs, such as digitisation can be estimated, but the uncertainty of the copyright situation means that both charges for clearance and the time taken to obtain clearance are very difficult to cost. As one information professional pointed out, there may need to be new models for costing, which take into account the increased access provided by electronic material…The costs of funding a hybrid service are not yet clear and the situation is a complex one."

With regard to pricing, Hewett reported that some information professionals felt an electronic short loan or electronic reserve might become a possibly centrally funded separate service from the library. Information professionals considered that it would not be a question of finding the funds, but of restructuring. It was still difficult, however, to gauge the cost of gaining permissions both in terms of payments to publishers and in staff time. (In this regard, Gadd's recent research[100] and a recent LISU study[101] have shed considerable light on the real costs involved in copyright compliance in UK HEI.)

Publisher concerns included: investment costs, and the shift in selling textbooks towards publishing electronically. "We are still a scholarly publisher and we publish for that market…until it's clear then I don't think publishers are going to invest a lot of money in doing things differently, because you can't, in fact, because you've got to do what's working and what looks like working for the next three to five years rather than leap into repackaging."[102] These remarks reflect the cautious approach of many publishers.

For over ten years, the PLS has sought mandates from publisher rights owners to include their copyright works in the entire repertoire of photocopying licences offered by the CLA. Many only see the risks involved. "Rights owners are thus reluctant to mandate their works into a system where neither the end use nor the end user is readily identifiable. To some owners, substitution of sales of textbook material with the creation of electronic course packs could be life threatening."[103] Their role in document delivery may be sidestepped or even eliminated:

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[100] Gadd, E., ***to be filled in***

[101] LISU study, ***to be filled in***

[102] Kahin, B. and Varian, H. 'Internet Publishing and Beyond' 2000. MIT Press, Boston, Mass

[103] Balkwill, R. (1998). 'Digital Licensing – a role for the Publishers Licensing Society' *Learned Publishing* 11, 119 – 122

"We see our role in the months ahead as almost a selling one – promoting the value and effectiveness of digital licensing, reassuring (as far as possible) rights owners' legitimate and understandable reservations, and above all promulgating the idea that the process will be evolutionary, and that both sides will need to modify, re-shape, and change in the light of real experience. But we do need to move forward now."[104]

The PLS has recently launched a new scheme for mandating digitisation licences. This is discussed further elsewhere in this Report.

The many threats felt by established publishers include, falling sales, growing costs, increased competition, heightened expectations and new publishers.[105] However, Forrester commented that, "sales generated through the digital delivery of customer-printed books will in five years account for 17.5% or $7.8 billion of global publishing sales…publishers can't go back to business as usual, the web's distribution advantages demand that they shift to far more flexible digital production."[106]

Fishwick *et al*[107] addressed the problems which have beset the academic publishing industry for a number of years, namely, escalating output of journal titles and articles, together with spiralling prices with purchasers (mostly university libraries) attempting to keep pace within tightening financial constraints. The authors recommended a possible transaction model and concluded that the optimal method of delivering journal articles in electronic form is a combination of payment by usage and subscription, with the option available to all users. Such an arrangement may be expected to evolve spontaneously through market forces:

"Attempts to plan a changeover would be difficult to implement because of transitional problems, particularly lack of knowledge of customer priorities and of price-sensitivity of demand. Both of these result from an inherently inefficient system isolated from the normal interaction of supply and demand. The process

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[104] *ibid*.
[105] *CLArion Newsletter*. Winter 2000. 'Digitisation News' 5
[106] Forrester (2000) 'Digital books to account for 17.5% of publishing sales in 5 years' San Francisco (AFX)
See: http://www.3b2consortium.org/news/jan-forrester.htm
[107] Fishwick, F. et. al. (1998) 'Economic Implications of Different Models of Publishing Scholarly Electronic Journals for Professional Societies and Other Small or Specialist Publishers' London: South Bank University
http://www.ukoln.ac.uk/services/elib/papers/tavistock/scholarlyjournals/cranelib.html

of change will be gradual and this is good, because users, librarians, publishers, learned societies and writers can all learn and adapt."[108]

However, Halliday and Oppenheim[109] dismissed this model as not viable economically, and there is no evidence that publishers have attempted to adopt the Fishwick *et al* model.

King and Tenopir[110] confirmed that, "Once an electronic journal becomes established and accepted by readers, there are economic advantages to libraries to subscribe to them." The advantages include: cost savings to publishers, at least some of which may be passed on to libraries in the form of lower prices; the elimination of costs to maintain, store, and weed physical copies; and the elimination of re-shelving and photocopying costs for journal articles. The main disadvantage was higher costs to users, although with the saving on time spent visiting the library, some user costs will decline as well. The other additional cost to the library is the cost of equipment, software, communications, and staff with the appropriate expertise to provide access to electronic journals online. They concluded:

"While (digitisation) will not reduce prices significantly, the cost trade-offs associated with having alternative versions available should result in reduced costs to libraries and....to individuals as well…If our cost data are valid, we believe that lower access cost to electronic subscriptions and separate copies of articles will reduce the cost to users and provide them with a better service. This can generate additional revenue for publishers as well."[111]

CONCLUSIONS LEARNED FROM THE LITERATURE

In the design of pricing schemes, several considerations need to be taken into account. Firstly, prices must be set such that demand balanced supply. This may help to ensure that resources are not over-booked, and service quality is maintained. Secondly, prices should reflect user query-request behaviour. This is essentially to control congestion of requests to a single digital library system, though price may not be the right mechanism to control this congestion. In practice, prices should be stable for a reasonably long period of time. Prices need

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[108] ibid.
[109] Halliday, L. and Oppenheim, C. (2000) 'Comparison and Evaluation of some Economic Models of Digital Only Journals'. *Journal of Documentation*; 56 (6) 660 – 673
[110] King, D. and Tenopir, C (1999) 'Evolving journal costs: implications for publishers, libraries, and readers - Cost to libraries of using electronic scholarly journals'. *Learned Publishing*. Vol. 12. No.4, October 1999. 251-258
[111] *ibid.*

to be negotiated ahead of time. This means that users choose the services from agents based on the price information and the service levels offered to them.

There is no agreed pricing strategy for the digitisation of texts, or for the delivery of born-digital materials for the higher education sector. We are in a transition phase that requires considerable investments and experimentation, both by HEIs and by publishers:

"The current pricing models for electronic information, which are developing during a period of experimentation, may in some cases be desirable as a bridging strategy to the future, but they are not sustainable. Publishers should offer multiple and flexible pricing models to meet these differing needs. As more information becomes available about patterns of use within the electronic environment, a richer array of pricing options and solutions should be provided".[112]

Communication between publishers and librarians is essential to creating a sense of partnership and open-mindedness that is needed in meeting the future needs of scholarship and research. "Publishers and librarians have complementary roles and responsibilities, serving the same needs and facing similar challenges".[113] Progress is being made in this area of communication, as Cox[114] has reported.

It is clear that at the current price levels, the textbook substitution model is unsustainable in the long-term and new models need to be designed and implemented for digitised texts to be widely available to the higher education community. Although not ideal, usage of the digitised material may need to be taken into account when considering pricing of the digitised text. How should usage be measured? One of the commercial ventures, Ebrary, measures downloading. Is this the correct measure, or are others, such as pages viewed, pages printed, time spent viewing etc., more appropriate (assuming they can be reliably measured)? There is a need to consider both the technologies available and the legal environment when choosing pricing models.

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[112] *ibid.*

[113] Cox, J. (1999). 'Publisher-library relationships in the digital environment' *Learned Publishing* 12, 173 – 178

[114] *ibid.*

METHODOLOGY

INTRODUCTION

The PELICAN project team followed the methods outlined in the project proposal, subject to minor changes, which are discussed below. The overall approach was to collect views and needs, develop the models and test them out with the stakeholders. The following methods were employed:

- Desk based research of literature from 1995 to date. Searches were conducted in the areas of Higher Education libraries and resources, digitisation, electronic publishing, publishing economics, economics, copyright, licensing, pricing models and mechanisms, student reading behaviour, and stakeholder positions in both the national and the international arena. Ongoing literature searches were conducted throughout the project. This work was completed in the form of the literature review (see above) and formed the basis of an article.[115]

- Continuing contact and discussion with representative bodies. These included the CLA, ALPSP (Association of Learned and Professional Society Publishers), ALCS (Authors Licensing and Collecting Society), PLS, PA and the JISC.

- Interviews: Two stakeholder communities were considered to be especially important to the project findings, i.e., the Higher Education sector (those purchasing the text, more specifically the library) and the publishers (those providing the text). The respondents were self-selected. A number of requests were sent out on discussion lists to libraries and academics, The HERON project discussion list was also used to make a request to HERON users for participation, and two general bulletins were published in publishing newsletters requesting co-operation and interviewees. Individual publisher contact was also made through general emails and work by the project consultant Anthony Watkinson. Face to face interviews were carried out to allow for in-depth discussion and to obtain information regarding personal experience, providing a more personal approach than that of a questionnaire.

[115] Hardy, RL. Oppenheim, C and Rubbert, I (2002) 'Pricing Strategies and Models for the Provision of Digitised Texts in Higher Education', *Journal of Information Science*, **28**, in the press.

Higher Education sector: it was decided that the interviews would be held face-to face rather than using a general questionnaire as this would allow for further scope and insight depending on individual experience. 34 respondents at 13 Higher Education institutions throughout the UK were interviewed. These consisted of; 19 librarians, 2 copyright officers, and 13 academics (many who were also academic authors). The interviews took place in the early months of the project, January to April. For interview structure see Appendix D. Appendix E lists the people who were interviewed.

Publishers: 14 publishing houses throughout the UK agreed to be interviewed, and in total 20 respondents were interviewed. These interviews consisted of a brief presentation about the project with progress to date, followed by the interview. Publisher interviews were conducted between June and July 2001, when the project was well underway and had existing established patterns and progress to report on. For interview structure see Appendix D. See also Appendix E which lists who was interviewed.

- Focus group: one focus group was held with librarians at one Higher Education Institution. A focus group was adopted due to the number of respondents that were willing to be interviewed. This session consisted of a presentation about the PELICAN project followed by a group interview and a discussion of possible pricing models.

- The Project team also tried to work with authors and students, to receive feedback on their opinion and preferences. However both attempts proved unsuccessful. Students were difficult to get hold of in the summer months when interviewing was taking place; therefore a few informal discussions with students were carried out. Approaches to authors through the ALCS were unsuccessful as none replied to requests. However, we interviewed a number of academics who were also authors.

Once the interviews had been conducted and transcribed[116] the texts were analysed using the qualitative analysis software Atlas/ti. This software package allows the researcher to create codes or various component objects in the data. The codes that were created were:

1. Administration: administration structure needed behind a pricing model.
2. Academic context of electronic resources: for academics that use digitised resources within a particular educational context.
3. Availability of Information resources: What resources were/are available in HE.

[116] Transcriptions were carried out by a commercial firm.

4. Copyright: all issues surrounding copyright, either in the universities or the publishing industry as a whole.
5. Current practice: current perception on information handling in the publishing industry from the academic site, library.
6. Future: assessment of information handling in the future.
7. HERON: including feedback on the HERON service.
8. Important factors for academics: this code monitored what elements are important for academic staff working in a digital environment (and whether electronic resources are actually a part of it).
9. Library/information services/computing: current perception on information handling in the universities.
10. Licensing: assessment of current and future licence agreements.
11. Other bodies: feedback regarding all other bodies and projects active in the publishing industry including CLA, CLARCS[117], Ingenta[118], JISC, NESLI, ALPSP, ALCS, PA, PLS, etc.
12. Pricing: summary code for all pricing issues.
13. Publishing house: describes the characteristics, main markets and current practice of a specific publishing house or intermediary.
14. Quotations: this is a list of quotations of particular importance or interest that may be useful for the final report or conference.
15. Respondents: professional and demographic characteristics of respondents.
16. Scoring/usage model: response to the introduction of the scoring usage model.

Additional codes were added as necessary, and when certain codes needed further specification. Interviewees were divided into three distinct groups (library staff, publishers, and academics) and the interviews were coded appropriately and all comments and responses falling under each heading were collated. The individual codes were subsequently analysed to tease out both consensus and differences in responses and viewpoints. Summarised results and findings were presented at the PELICAN conference, and are also included here in the results.

- A press release about the PELICAN project was written and sent to sixteen journals/papers at the beginning of the project. To our knowledge, it was published in one.[119]

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[117] CLARCS is the CLA's Rapid Clearance Service. This is a special rights clearance service operated by CLA for copying over and above standard blanket licence arrangements. Its future following the December 2001 Copyright Tribunal decision in the UUK versus CLA reference is currently uncertain, although there can be little doubt a body such as CLARCS will continue to be needed.

[118] Ingenta is a well-known commercial aggregator of electronic scholarly materials.

[119] 'PELICAN to the Rescue' *Information World Review*. February 2001. News, p.3.

- A leaflet outlining the projects aims and objectives was written, designed and printed and widely disseminated among the higher education, further education and publishing communities. A copy can be seen at Appendix L.

- Six articles were written and published in relevant journals throughout the lifetime of the project. For a list of these publications, see Appendix I. One paper was submitted and accepted for a conference held in January 2001.[120] Two of the articles were published in publishing newsletters. In addition, a paper was sent to the PALS committee, following which Professor Oppenheim gave a presentation on PELICAN to the JISC Journals Committee in September 2001.

- The Project team gave a number of presentations at various times throughout the project and to various groups of people. Rachel Hardy presented many times to stakeholder groups about the project and to the advisory board. Two workshops were given at the NAG (National Acquisitions Group) conference held at Loughborough University in September 2001. All the project team presented at the PELICAN conference on 18th September 2001. (See Results - Conference chapter)

- The PELICAN Project was helped by an advisory board, which represented the stakeholders involved (for a list of its members, see Appendix C). The advisory board met three times over the life of the project, in January, June and October 2001, and received presentations and information about the Project and its progress. The board offered opinions and suggestions to help the work of the Project and some members helped as group leaders at the conference.

- The Project partners, Peter Kemp and Carolyn Rowlinson of Stirling University, met the Project team each month to receive updates of Project progress and to offer further ideas and contacts. The majority of these meetings were conducted via videoconference, but on two occasions the Project team travelled to Stirling.

- We employed a freelance consultant, Anthony Watkinson, to assist us. Anthony Watkinson informed the publishing industry about the Project when necessary. He also interviewed some publishers and representative bodies when appropriate, wrote bulletins for publisher newsletters and met

[120] 'PELICAN: Working towards the development of a suitable pricing mechanism for the electronic distribution of materials in the Higher Education community' Temple International Online conference 01/01.

with the Project team on a number of occasions to give advice regarding the publishing industry.

- A major one-day conference was held at The London Zoo on September 18th 2001. Around 100 delegates attended, including a selection of the stakeholders involved. The morning consisted of a general introduction to the project, a presentation of the general findings of the interviews, a presentation from the HERON project manager and a presentation of the three developed pricing models. The delegates were split into mixed stakeholder groups in the afternoon and assigned a model for detailed discussion, answering a number of provided questions. The final session saw the groups providing feedback and suggestions for amendments in order to ensure the models were appropriate for all stakeholders' needs. Feedback forms as part of the project evaluation were also provided and completed by the delegates. The pack of papers given to the delegates, including a delegate list, can be found in Appendix N.

- Project evaluation is further discussed in the discussion chapter. The full project evaluation, which was carried out by Anthony Watkinson, can be found in Appendix O.

A few changes were made to the methodology of the original project plan as the project progressed. Rather than use library school students to conduct research into reading patterns and bookshop sales, we commissioned a consultant, Anthony Watkinson, who works in the publishing industry. This was deemed appropriate, and was approved by JISC, as increased contact with publishers was important. The original project plan can be found in Appendix B.

The methodology was chosen to best reflect the nature of the project and the stakeholders involved. To fulfil the objective of improving communication between the stakeholder groups, we felt a personal approach was necessary and both the data gathering stage and the conference were geared around this approach.

LIMITATIONS

Because of the limited time and resources available to us, the interviews covered necessarily just a small proportion of the interested stakeholders. Furthermore, it is likely that we received the best comments from those who were the most articulate or had the strongest views. The results from our interviews should not therefore be interpreted in any way as giving a statistically reliable snapshot of views of the different stakeholder groups. They should, instead, be viewed as indicative of the views of those with strong opinions, and of leading opinion

formers. We did assure our respondents of anonymity, and are therefore unable to associate quotes with particular individuals.

RESULTS - INTERVIEWS

INTRODUCTION

The interviews that were conducted amongst the stakeholders provided the team with the information to develop appropriate pricing models. The interviews were analysed using Atlas/ti, and the key issues and ideas were drawn out for comparison and evaluation. The results are listed by stakeholder, under the headings of *academic*, *library* and *publisher*. The common themes that arose from the stakeholder interviews were judged to be key issues.

Some clear patterns of agreement within stakeholder groups and also patterns in the differences between the stakeholder groups were identified. The similarities between stakeholders made it possible to develop models according to specific needs. We were then able to develop three basic pricing models, and adapt these further once further discussions were held with stakeholders.

This chapter includes the key findings from each stakeholder group under the analysis codes used. The pricing models developed are presented with corresponding explanations in the next chapter. Information about the changes made to the models throughout the project can be found in Appendix G.

INTERVIEW FINDINGS

We identified the key points for each stakeholder group. The results are presented as a series of bullet points within the following broad headings: academic context of electronic resources; administration, availability of information resources; copyright; current practice; HERON; academics' needs; library, information services and computing feedback; licensing; CLA and other bodies; pricing issues; publishers; pricing models and the future.

We have not quoted extensively in order to keep the length of this part of the Report down. The full text of the interview transcripts, and the output for the Atlas/ti software analysis, can be obtained from the Project Director.

ACADEMIC CONTEXT OF ELECTRONIC RESOURCES

Academics

- Positive about using and referring students to electronic resources in additional to traditional resources.
- Belief that students enjoy working electronically as much as possible, but they wonder if electronic resources are not over-rated by students.
- See the need and importance for electronic resources for all courses, especially distance learning and research programmes
- Need resources specific to individual courses and students
- Would prefer to use the library less and e-resources more
- Students demand more electronically
- Difficult to provide information of texts so far in advance
- Information should be free at point of use.
- Fear of plagiarism

Libraries

- Need broad resources available to encourage background reading
- Academics very enthusiastic about electronic resources, though have limited knowledge of process, etc.
- Lecturers and library staff ideally should be working closely together, but often do not.
- Pilot projects aren't a true reflection of a working system, as only those directly interested get involved
- Some disciplines have more interest and higher usage of electronic resources
- Need to be organised and plan in advance - academic responsibility.
- Librarians noted the pressure of work is high on academics.
- Currently in a transition phase from print to electronic.

ADMINISTRATION

Publishers

- Centralised administration preferred, at least initially, but freedom of pricing must be maintained
- Centralised administration would allow for better communication among stakeholder groups
- Creation of standardised usage statistics for the industry
- Disagreement on whom should own the administrative platform
- Centralised administration must guarantee technological autonomy

Academics

- Centralised administration preferred but has to guarantee time effectiveness and reduction of workload for the individual
- Transparency of administrative system on operational and organisational level
- Fair integration of large and small publishing houses
- Evolution of equality in the interest of the whole HE (and FE) community

Libraries

- Centralised administration preferred but greater autonomy to library and information service within HEIs
- Centralised administration should encourage economies of scale
- Ultimate control function should remain within library and information services
- Centralised administration should provide guidance to library and information services for transition period

AVAILABILITY OF INFORMATION RESOURCES

Publishers

- Happy to provide resources required
- Main factor is good management of resources

Academics

- Books often go out of print
- Course readings vary greatly
- Difficult to assign books to previously prepared courses
- Whenever possible, academics would refer students to existing resources, but academics cannot sort the jungle of information available, so at the end of the day, use the same material over and over again.
- Preference for electronic resources to be made available to students
- Sometimes difficult for students to get access to books needed
- E-resource delivery needs to be improved.
- Postgraduate reading is very specific (particularly in the social sciences), and items can be difficult to find

Libraries

- Students are comfortable working in an electronic environment[121]

[121] It should be pointed out that this is the library perception, but research has shown that students like to work with a number of different materials, only one of which are

- Getting the required material is often a problem
- Electronic resources not always cleared, difficult to achieve, with no guarantee of success
- Demand has grown and is growing
- Authentication is an issue

COPYRIGHT

Publishers

- Copyright remains extremely important, and needs to be handled together with pricing issues.

Academics

- Some have had good experiences with publishers clearing copyright
- Many academics are unsure about copyright laws or don't understand them.
- One of the major issues is ease of copyright clearance; a simple system is needed that gets permission quickly
- Copyright clearance should be coupled with any pricing model – two go together
- The great variability in time taken to clear copyright is a problem.
- Copyright law discipline not needed with students; they are aware of restrictions and in general do not violate them.

Libraries

- Many academics are unsure about copyright laws , and some act the way they do because clearance processes take too long. Since library staff are not always able to help, there is a risk of conflict between them and academics.
- Library staff are some of the very few people in HEIs that understand and adhere to copyright
- Clearance has sometimes been impossible, time delays are often too large, and this is combined with lack of certainty of being granted permission
- Copyright clearance and pricing go hand in hand.

CURRENT PRACTICE

Publishers

- High variability of access clauses among publishers
- Priority set on technology and marketing

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electronic resources

- Free electronic version with existing subscription, otherwise bookshop substitution
- Increase in numbers of flexible licence agreements that are economically viable
- Copyright constraints are harder on an intermediary than direct library-publisher arrangements
- Copyright is a major issue for materials used in electronic publications

Academics
- Electronic full-text sources are seen as the library's responsibility
- Greater concern for technological issues than copyright and licence agreements
- Credibility attached to born digital materials
- Students' perception of digital resources varies largely by study mode and discipline
- More effective copyright clearance processes would encourage academics to greater awareness of licensing issues
- Principle of open access in libraries should be protected in the electronic domain

Libraries
- Digital information provision varies largely across the libraries studied
- Recognition of high interest among academics but major difficulties with implementation
- Recognition that the role of library has changed in the digital age
- Funding for digitisation rarely extends beyond project status
- Unacceptable delays and no 'common practice' in the copyright clearance process
- Library staff feel they are 'watchdogs' over academics
- Lack of library substitution models for licences
- Demand grown and growing

FEEDBACK ON THE HERON SERVICE

Publishers
- Good principle
- Remains an experiment yet to be proved
- Low risk

Academics

- Good as acting as a centralised body
- Conscious of cost
- HERON has worked very well, but the system is currently too slow.
- Excellent to have a body that deals with copyright
- Unhappy that requests for each separate text must be resubmitted each year

Libraries

- Too expensive (to look at seriously) in comparison to requests forwarded directly to publishers.
- Excellent service, does the work for you
- Speed and length of time taken are issues
- Copyright clearance being done, and the provision of electronic texts in adequate format are what count.

Three typical quotes:

We can leave it all to HERON, that's the whole point.
Can't do it on our own.
It's centralised – that's a benefit.

It is interesting to note that whilst publishers view HERON as low risk, librarians have concerns that it is too expensive. These two comments are probably related!

IMPORTANT FACTORS FOR ACADEMICS

Academics

- Make access easier and offer greater access to students
- Academics don't want major administrative tasks
- It needs to be a national, or international system.
- Electronic access to resources essential for students
- Ease for students, particularly for distance learning students
- Having required resources when needed for appropriate course
- Speed is crucial.
- Length of time for electronic resources to be available, e.g. for one semester or longer, is important.

Two typical quotes were:

'What I want is a sequence of articles on subjects and I don't care who publishes them, go get me the rights and tell me how much it will cost me'
If we can say, here is all this and it's just a click away!'

LIBRARY/INFORMATION SERVICES/COMPUTING

Publishers

- Understand budgeting problems of libraries – publishers do not understand the budgeting processes of HE libraries.
- Little understanding in libraries of copyright and licensing issues[122]

Academics

- Electronic resources will become more important, but will continue to co-exist with traditional resources.
- Responsibility should lie with the library for all resources
- The library is the expert in this field and should know what it is doing
- Understand that library budgets are under pressure
- Use library less, but it is still important
- Monitoring access should be dealt with by central services, not the library
- Open access culture should be maintained in the electronic environment.
- Make full use of the library and it's services
- Possibility for devolving costs to other sources, such as a University's central budget
- The role of the library needs reconsidering

Libraries

- Many budgetary constraints.
- Problems in handling the budgetary process.
- Good at controlling electronic resources and copyright
- There was considerable discussion, but no consensus, on the question of budgets being devolved to Departments.
- Allocations of resources vary from HEI to HEI.
- Budgets vary from HEI to HEI, some separate for e-resources, others not

LICENSING

[122] This is in contrast to librarians' views that they are amongst the few who understand copyright.

Publishers

- Licence will be different according to what use is required
- Don't have any standard licence terms; licences vary from one publishing house to another. Some publishers believe it is not possible to have standard licensing, as each situation is different; however….
- Much more in the way of broad standard licensing is required. Many have adopted the NESLI standard licence
- Some publishers are looking into more standard and wider licences for digital material

Libraries

- Many publishers license differently, particularly overseas
- Need standard licensing
- Library substitution model should be workable
- Need to be able to resubmit easily and quickly for permission for the same text the following year
- Need different licensing schemes for different users and situations

Academics had no significant comments.

CLA AND OTHER BODIES

Publishers

- British Library acts well
- Mixed responses regarding the CLA; some positive, others negative.[123]

Academics

- Timely and difficult when rights are reverted to authors
- Can't understand the CLA and the way it works

Libraries

- Responses from the CLA unhelpful and take too long to respond
- Some considering NetLibrary[124]
- CLA is unreliable, bureaucratic and obstructive[125]

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[123] It would be interesting to see if publishers' views of the CLA have changed since the conclusion of the UUK versus CLA Copyright Tribunal case.

[124] These comments were made before Netlibrary's financial difficulties became apparent.

[125] This criticism (especially of CLARCS, the CLA Rapid Clearance Service) was consistently heard in the UUK versus CLA Copyright Tribunal case; the Tribunal concurred with this criticism of CLARCS.

PRICING ISSUES

Publishers

- Production costs of producing digitised content not cheap as many believe
- Bookshop substitution set as norm
- Primary revenue must not be affected
- Higher costs while providing both electronic format and traditional print

Two typical quotes:

> '*There are obviously going to be winners and losers*'
> '*One of the good things about the advent of the online world has been that publishers and libraries are talking together far more than they ever were before*'

Academics

- Electronic full-text resources are recognised as the library's responsibility
- Economies of scale are more important than a universal pricing mechanism
- Fear that pay per view arrangements would increase workload.
- Student usage should be integrated in the pricing mechanism.

Libraries

- Economic model should allow for a direct integration into library/school budgets
- Recognition that existing economic models are likely to change once they outgrow their project status
- Variation of publishers' pricing policies among negotiating bodies
- Access policies tied to subscription packages
- Added value is unnecessary and unaffordable - meaning adding forum, discussion lists etc rather than added functionality

A typical quote:

> '*Publishers have got to find some way of making it more accessible to institutions from a pricing point of view, they have just got to get real*'

PUBLISHERS

Publishers

- Publishing houses vary in what they provide electronically
- Pricing mechanisms all vary, some have many rather than one

- Some publishing houses are very advanced in electronic publishing and digitising backlists while others are just beginning or being more selective
- All have different plans for the future
- More marketing orientated than in the past and very concerned with user/customer needs
- Positive about electronic goods and believe this was the way forward
- Electronic format and delivery is, at present, not cheaper than traditional methods
- Many publishing houses are experimenting with electronic books and book chapters
- Monitoring of usage is important for marketing purposes

Some further quotes:

> '*More investment, more experimentation…more of everything*'
> '*You shouldn't increase the demand unless the demand is seriously cost constrained at the moment*'

Academics

- Mixture of positive and negative experiences with publishers
- Publishers are too defensive and cautious and seem to be struggling in online world

Some further quotes:

> '*Although digitisation is fairly new, the concept of publishing isn't*'
> '*If they have had a bad experience…they are going to be less favourable…they are cutting off potential customers for the future*'

Libraries

- Variations in publisher charging is difficult to handle
- Publishers need to be more willing to compromise
- Library staff believe that inefficiencies of gaining copyright are due to publisher fears
- Many publishers are not realistic in their pricing

PRICING MODELS

Publishers

- Any model must be simple
- All publishers need to work together, at least at first, though this could be difficult

- Need to measure usage in some way – if just for marketing purposes
- Preferred a centralised system
- Subscription based or pay-per-view preferred
- Do not favour blanket licences
- Choice of economic model depends on the size of publishing house and proportion of corporate versus academic supply
- Pay-per-view preferred operational model for intermediaries
- Preference for subscription models with usage statistics primarily marketing-related

Academics
- The administration structure behind it must be be simple and transparent.
- Subscription preferred
- Need different packages/options for different users/situations
- Centralised body for administration preferred
- Flexibility and speed must be guaranteed
- Distinction between teaching and research activity

Libraries
- Subscription preferred, though don't like bundling texts together and charging for all or none
- Should only pay for what you want
- Centralised body to manage/main database of all available text
- Must be simple
- Material with student numbers usage should inform the choice of economic model

THE FUTURE

Key questions that were raised by all stakeholder groups were as follows:

- Should we move from holdings to access policies?
- Should the economic model include recommendations for the budgeting process?
- Should we encourage communication between and among stakeholder groups?
- Should the economic model define 'trading standards' including recommendations on usage statistics?
- Should we adopt a short and long-term strategic view?
- The market may take care of it!

DISCUSSION

The analysis of the interviews has drawn out key issues and common themes as well as differences. For library staff, the most important common themes have been the need for simplicity and transparency (pricing visible to all stakeholders) in any pricing model. Academics were less concerned about these issues, since they preferred little involvement in library operations. Publishers recognised the need for simplicity, but retaining control over pricing was their first priority. It was also recognised that all stakeholders must work together and that communication between the stakeholders has improved and must continue to improve. Subscription based models were preferred by a majority of respondents.

All stakeholders were positive about the use and provision of digitised text and see this as the way forward in Higher Education, particularly as the student population becomes more diverse. However, some academics felt that a better integration of traditional materials with digital resources should be achieved.

A key common theme was the initial need for a centralised agency to administer the provision of digitised text. This would make it simpler for all stakeholders and they believe it would mean initial savings on cost and administration work for publishing houses and libraries. The need for standardised usage statistics was also a common view amongst the stakeholders, even though publishers pointed out it would be difficult to find any agreement. However, each community stressed the need to remain autonomous in such a system.

Stakeholders agreed that HERON was a valuable service but was not operating to a satisfactory level. The main issues that needed addressing were the time for copyright clearance, and the cost. These results are similar to those obtained by HERON itself in its own surveys.

Academics and librarians felt strongly that in principle, students should not be asked to pay for materials. There was a consensus, however, that costs could in some circumstances be devolved to departments. All agreed that standard licences are required in the electronic domain, and that a wide variety of licences are needed for different situations and users. There was also agreement that any service should have the potential to become international.

Some major differences were also apparent from the interview analysis. Library culture is such that resources are normally seen as free at the point of use, and

that students will always expect this. Some publishers, but few librarians however, believe that students should pay[126].

Copyright is viewed in different ways and seen as more important to different individuals. Library staff believe that they deal with copyright issues well, without support from other parties, while publishers do not think libraries deal well with, and fully understand, copyright. Publishers see that libraries have a responsibility to provide texts for students and pay for them. This indicates that some publishers take the view that libraries are agents acting on their behalf. This is a view that librarians emphatically do not take. Publishers unsurprisingly do not have a preference as to who pays as long as the right revenue is received. Some publishers believe that there is a possibility for library substitution payment models, something that both library staff and academics would welcome.

We found some confusion in each stakeholder group regarding the perception of other stakeholders' roles.

Library staff did not see the need for "added value" in electronic resources. We found that the "added value" being referred to were functions such as discussion lists, annotation, etc., rather than searchability. Library staff believed "added value" would increase costs and was unnecessary. This may be related to concerns caused by the degree of hand-holding that librarians have traditionally provided for their users. Presumably their comments were motivated by a wish not to add to these activities. Publishers on the other hand viewed "added value" as very important and a way of differentiating between different texts and pricing.

While publishers preferred the pay per view system, HEIs preferred constant (i.e., subscription) pricing, but did not necessarily reject pay per view – as long as it was easy to administer.

Value based versus usage based was a topic of discussion. While publishers believed the value of a text should be related to its price, they did not agree that a standardised system for pricing according to value could be successful. Publishers consistently argued that they should always have the right to set the price. Pricing based on usage would be a fair measure for returns; however, library staff did not favour this method. Payment would be retrospective[127] and

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[126] It is worth stressing that we failed to obtain the student viewpoint in these interviews, and no doubt they would have argued strongly against this view. We record these views as a matter of record, but do not necessarily associate ourselves with them.

[127] By "retrospective", we mean that the mayment for future access would be based on statistics for the last year's usage.

therefore could not be budgeted in advance. There may also be the need to control usage and this may limit student searching and reading, which is unfavourable. However, librarians were prepared to compromise on this matter, as long as retrospective payment could be integrated into the budgeting process.

A key issue was that there is a need to encourage students to read round subjects, and models providing texts for only a certain number of students would mean that such general reading and searching may be limited. Academics raised a general concern that the provision of texts in electronic from does not encourage such practice. Another closely related issue is "core texts" versus "background texts". The former are strongly recommended by the academic, and in particular (s)he recommends the students to buy a copy. The latter are for more general background reading, and are more likely to be borrowed from the library (if they are used at all; there is a polite fiction that students do read everything recommended to them; in practice, however, relatively few do.) Nonetheless, pricing should not discourage those students who wish to make use of the maximum amount of reading materials). If digitised texts are separated into core and background reading they need to be priced accordingly and in a way that, whilst reflecting student reading and buying habits, will not limit student reading.

RESULTS - PRICING MODELS

INTRODUCTION

Using the key findings from the interviews conducted, three pricing models were developed. These models account for stakeholder needs as far as possible, and each one offers a slightly different approach.

Factors other than economics that play a part in any pricing model:

1. Technology
2. Licensing
3. Administration

We concentrated on developing the economic models, and while we have considered these other factors, we did not look at them in detail with each model. Whilst any of the models may be helped or hindered by these factors, the project aims and time constraints meant these factors could not be considered in detail.

Technology issues arose throughout the project. What does the existing technology offer to satisfy stakeholders' needs, e.g., for usage statistics, and how might that change in the future?

Licensing is a key issue when providing electronic text. Any pricing mechanism must be linked to the terms of the licence. The licence terms will impose the pricing on subscribers and may oblige the licensee to undertake certain duties, such as registering users, defining core texts, etc. We will not discuss licensing in detail in this report. This is because we would argue that the licence terms should follow the pricing model adopted, rather than have a licence terms dominate a pricing model. In other words, first the pricing model should be agreed, and then the licence terms should be built around it.

The *administration* of pricing models again must be considered. Should a centralised body run the system? Should the centralised body also distribute funds? We suggest that initially a centralised body would be necessary. It would build and maintain a database of texts available for licence, and distribute revenues to the rightsholders. The team felt that a variety of possible agencies could adopt the function of administrator. It could be a brand new body, or a pre-existing body. The latter include the British Library, CLA, ALCS, HERON, Copyright Clearance Center (the major RRO in the USA), Ingenta or EduServ. There was a strong perception amongst the library and academic staff we interviewed that Ingenta or EduServ were not appropriate bodies to represent HE interests, since they will be geared towards profit maximisation. This view is

inaccurate regarding EduServ, which is a not for profit organisation with HE interests controlling its Board of Trustees. It seems that EduServ needs to market more actively so that such misunderstandings do not occur in future.

The key issues are that the body should: (i) be trusted by all the key stakeholders; (ii) have appropriate systems already in place; (iii) have experience of distributing and licensing digitised material; and (iv) have the ability to grow, perhaps to an international service.

We also knew when developing the models that they needed to be:

1. Simple; this does not necessarily mean the pricing algorithm per se is simple, but rather that the administration should be simple. Simple predictable pricing remains an ideal, though.
2. Understandable
3. Transparent – meaning all stakeholders can see how the system works and the exact price being charged
4. Appropriate for current or anticipated technology

Because of the length of the project, issues were raised that we did not have time to consider in detail. These included:

- Who pays? Student, Department, library, central funding, a combination?
- Micropayment systems
- What is a unit of usage? – View? Download? Per page, character of chapter?
- Further Education – FE needs are very different to HE due to the differences in size, courses, material used, funding, etc. Soon after the PELICAN project started, JISC expanded its remit to encompass FE. We did attempt to expand our remit to include FE, but quickly found the differences between HE and FE were so great that our report would be of less use to those in FE., though of course much of the teaching delivered in FE is on behalf of HE.
- Monitoring usage
- Who sets the price? – For all three models discussed below, the publisher sets the price; we did not examine the alternatives. This was for two reasons. Firstly, we do not believe publishers will be willing to be party to any system where they do not have primary control over pricing. Secondly, any alternative system for assessing prices is likely to be complicated and confusing, and therefore would defeat the primary objectives of the models we wished to create.

On the issue of *who pays*, we suggest that initially the individual Higher Education Institutions should decide who pays.

As the provision of electronic resources in general increases, *micropayment systems* might be adopted where the student will pay for such access. The implementation of micropayments is possible by students purchasing, for example, a smart card, and topping this up if necessary. The card could be used for printing, photocopying and for access to electronic texts. The idea of a single student smart card has been promoted for many years, but none appears to have been successfully developed to date. Even though student payments appear to be a viable option for publishers, and are technically possible, it should again be pointed out that academics and librarians are in principle opposed to this idea.

What is a unit of usage is an unanswered question as yet. This would only need to be solved if cost was based on usage statistics. This is a question that has been addressed by the online information industry over many years[128]. Some of the major methods adopted are noted below:

Connect hour plus display is a generally accepted method of charging in the industry. It generates more from heavy users without discouraging occasional users. It is easy to understand and is unambiguous. It was the original method of online pricing, developed in 1970 when online information retrieval started with DIALOG and ORBIT. However, it penalises slow typists and those with slow telecomms equipment, and as the trend is towards higher speed links, it reduces the income of the host and the database producer over time. Increasingly, people develop their search strategies offline using their telecomms software, and simply log in and run the search rapidly. This reduces income. Pressure is further increased because of the meter ticking away, deterring exploratory or innovative searching and deterring end users from searching. Per search charge has been used by a small number of online hosts; for example, for $10, the user is allowed a search of any complexity, with up to 10 hits. If he or she wants more hits, he or she pays further lumps of $10. Charges are done through the client's credit card. This appeals to end users with little or no search experience, as it is simple, apparently inexpensive and free of time constraints. Complex charging algorithms including a lot of elements enjoyed a vogue for a while. The advantage is that it overcomes the problems of faster telecomms, as this becomes just a small component, but the complexity of the algorithms puts searchers off as they cannot predict the cost of searching nor can they easily or conveniently check their bills. Up front subscriptions with unlimited usage has simplicity, predictability and excellent cash flow for the information provider as advantages; the disadvantage (from the provider's point of view) is that really heavy users get a bargain. It is, of course, the model adopted by many HEIs for delivering

[128] S. Webber, Pricing and marketing of online information services, *Annual Review of Information Science and Technology*, 1998, **33**, 39-84.

information to staff and students free at the point of use. Charging just for the information retrieved is, on the face of it an ideal system as it encourages browsing and is intuitive that you pay for the information you get out. However, it does not address the searches where the client **hopes** there will be zero hits. Zero hits are then both good news AND cheap. Subscription pricing by number of users is becoming the preferred approach. The price is based on the maximum number of users that can simultaneously access the information at any one time. This is sometimes called "contended access". The figure is checked through software control and audit reports. It is simple, predictable and manageable. Revenue grows as the user base increases. It relies on the honesty of the client, as the client reports how many keystations have access to the data in question. The client controls the number of keystations, not the provider. Pricing by margin depends on identifying the costs of creating the data, and then putting a profit margin on. It is rarely used by the electronic information industry, despite its apparently obvious logic.

Most of our respondents felt that usage should be measured. Whether payment should be based on usage was not considered in detail, but for market research purposes and to ensure the HEI are providing the right texts, some monitoring of usage would be desirable. Such usage monitoring should be aggregated and should not (for data protection reasons) identify individual users.

The remit of the project did not include *Further Education*. JISC did ask us to consider expanding our research into this field. Two interviews were therefore held with FE representatives. It was decided on the basis of these that because of the large differences that exist between HE and FE, we could not fairly represent their needs in the time span, and further research in this area is recommended.

OUR MODELS

The models presented here have been developed in response to the stakeholder interviews. We attempted to address the principal requirements that stakeholders had identified, namely simplicity and predictability, ease of administration, perceived fairness, and familiarity (in that similar pricing models are already known and understood by the stakeholders). We were anxious not to get bogged down into details of what the actual level of charges would be. Our aim was to develop one or more charging algorithm(s). (By "alogorithm", we simply mean a model for calculating prices.) These algorithms would have to satisfy everyone. The proposed algorithms are for permission granted to the HEI to obtain, store and disseminate to its own registered bona fide staff and students digitised materials, and for the recipients to make a single print out of the materials. This is referred to below as "the minimum". Rightsholders may or may not choose to offer further permissions, e.g., permission for students to

amend the data, permission for the HEI to allow access to walk-in users, permission for students to download, to make multiple print-outs.

All the figures given in the models below are fictitious and inserted into the models to provide a basic understanding of how they would operate. We anticipate that for each model, there might be two different levels of charging, and have not specified these. The two levels are: the charge for permission to digitise (with the HEI then having to incur the expense of carrying out the digitisation); and/or a charge for permission to receive a digitised copy from the rightsholder or some organisation acting on its behalf (copyright fee). Many rightsholders are likely to be unhappy about an HEI carrying out its own digitisation, as errors may be introduced, and so may insist that the HEI accepts the digitised version from the rightsholder only.

The models are intended for use in the digitisation of chapters of textbooks, but could be extended, of course, to cover entire textbooks and/or journal articles if the publishers so desired. The models are further described in the Chapter on the PELICAN Conference, below.

Pricing model 1

Pricing model 1 involves a basic administrative system of purchasing units against a subscription fee. The HEI has full control over the subscription rate it chooses. The units would be for a year and could be 'topped up' if required. The units cannot be carried over to the next year because of practical problems: HEIs budgeting systems are not geared up to this type of carrying over from one year to the next. Thus, the HEI must be careful not to "over-spend" on units at the start of the year.

An advantage of this system is that costs could easily be devolved, e.g., each department could purchase a number of units to spend or the students could be charged individually.

Table One shows the basic model, with imaginary figures:

No. of units	**Fee per annum**
100	£50
500	£225
1000	£400
1500	£550

Table 1: Subscription for pricing model 1

The HEI would decide the number of units required and the fee to pay. The Table shows a discount offered for more units purchased, encouraging HEIs to purchase more. We commend this idea, but of course it is not an essential component of the model.

This model allows the publisher to retain complete control over pricing. We propose that each text available under the system would be assigned a number of units by the publisher, according to the revenue they felt was required. Each item available is then added to a catalogue or database (run by the administrative body), to which all HEIs subscribed would have access.

The HEI would search the catalogue and select the texts required based on the unit price quoted. We anticipate that the publisher will have to provide the number of units required under various scenarios. For example, imagine a publisher decides to add a chapter to the database of items for which it is giving HEIs "the minimum" permission. The text is submitted with corresponding units assigned by the publisher. The publisher might decide on three levels of pricing. The first is if the text is to be used only by a class of up to 50 students. Another if it is to be used only by a class of up to 100 students; whilst the third, 'Open Access', means that all students in the subscribing HEI can access the text. This would be appropriate for general texts likely to be of use to a wide range of students, or for texts used by very large classes. Table 2 shows a short extract showing how the database would look.

Item	Up to 50 students	Up to 100 students	Open Access
Research Methodology Chapter 5	5	10	20
Information and Publishing Chapter 3	8	12	30
Publishing Economics chapter 7	10	15	25

Table 2: Pricing of texts, pricing model 1

This model offers several advantages in addition to the obvious one of simplicity. The HEI has full control over how much it is spending on these electronic texts.

The units are purchased at the beginning of the year; the library can therefore budget for the resources. It makes the process simpler, rather than paying small amounts each time an individual text is required.

The model is much like the current HERON model, except that each publisher provides the text by choice and assigns the number of units before the HEI selects the text. Therefore the HEI has full control over which texts to choose based on the price being available. It also leaves control with the publisher whether or not the text is placed on the database and control with the HEI in that if a text is too expensive, it can search for an alternative. The publisher will also be able to monitor which texts are selected and which are not and alter its pricing accordingly. Publishers could also inspect the database to assess how their texts are priced compared to those of the competition.

The publisher retains control over pricing and which texts are available. Prices and texts available can be altered according to revenue gained, access made, etc. Each HEI pays one annual fee and can therefore budget appropriately. Each HEI can search the whole database, sees cost previous to purchase, and purchases accordingly.

PLS recently announced[129] a new pricing scheme for digitised texts. This provided for a choice of pricing options: either the "textbook model" at 5p per page per student; or a flat fee model at £5 per page irrespective of numbers of students accessing the material. The choice is left to the publisher. This PLS price of £5 per page gives a clue regarding how publishers are likely to set their unit prices should Model 1 be adopted.

It is also worth noting that Elsevier has introduced a "transactional allowance" charging model. In this model, the library pays in advance for a specified number of articles. Authorised users then have the facility to select articles from any of the titles available from ScienceDirect. Halliday and Oppenheim[130] found that librarians found it difficult to adopt this model because they cannot predict how many vouchers would suffice. Halliday quotes a librarian as saying "when the vouchers have been used, you either buy more allowances or you cease supplying the service to users – neither of which would be particularly attractive….we've rejected it." Another librarian quoted by Halliday stated "I don't think anyone in the country has gone for it, for practical reasons rather than any other…..because it was administratively cumbersome." Halliday also noted that such a model may be difficult to reconcile with devolved budgeting. She noted that if a number of transactional subscriptions were taken, departments

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129 Publishers Licensing Society Ltd., *PLS Mandate handbook* (June 2001), paragraph 11.
130 L. Halliday and C. Oppenheim, unpublished results.

may wish to have exclusive rights to use a certain number of articles for which they have paid. Departments are reluctant to share resources that have been purchased from a departmental budget. She noted that libraries might find themselves purchasing additional articles because some departments had run out of units before the total unit allocation had been used up.

These problems arose with a pricing strategy for research material appearing in journal articles, but could equally well apply to digitised texts for taught courses. These are, therefore, issues that would have to be addressed should model 1 (or model 2, which incorporates model 1 in part) be adopted.

Pricing model 2

Pricing model 2 is a mixed model. It takes account of the different ways texts are used. Texts are split into two broad categories: compulsory and supplementary. These correspond with two types of text on a student's reading list. Some readings are 'required' while others are 'background'. For the core or required texts, model 1 pricing is used.

The model for supplementary or background texts (Table 3) is based on the library substitution model and includes reference material, or material that would be, or might be, used by all students enrolled in the institution. Each HEI could be automatically assigned a rank based on, for example, its FTE count or central funding. This is the proposal for the JISC charging model[131]. The JISC charging model is a proposed charging mechanisms for datasets that is based upon an HEI's ability to pay. The HEI would then pay a set fee for each background text to be made available to its students. Because it is open access, i.e., all students have access, it would be relatively expensive. Thus, model 2 is based on model 1 charges for "core" texts, and supplementary model (Table 3) for background texts.

HEI rank (based on JISC charging model or similar)	Subscription charge per annum
1	£2000
2	£1500
3	£1000

Table 3: Charging for supplementary or background texts

[131] This can be found at: http://www.jisc.ac.uk/chargingmodel.

The charges for specific compulsory texts are for access to such texts for students on specific courses and modules. As in model 1, the HEI subscribes to a number of units to spend and pays the corresponding fee (see Tables 1 and 2 above).

The HEI selects the text required and the number of units is deducted from the initial subscription. In the example below (Table 4), the core text costs 5 units for a class of 25 students and 10 units for a class of 50 for whom the text would be accessible.

Student numbers (up to)	25	50	75	100
No. of units	5	10	15	20

Table 4: Core text pricing under model 2

The publisher would still retain control over pricing. The cost of each text (if a core text) is related to number of users, or to the ability of the HEI to pay (if a background text). The model retains all the ease of subscription associated with model 1. Costs could be devolved to departments (e.g., buy a number of units to spend, students might pay as in the purchase of course packs).

However, there are some difficulties with model 2. It may not encourage wide reading, especially if the HEI is in a high income band, and therefore has to pay a high price to acquire rights to background texts. Some HEIs may lose out under the ranking system, e.g., those with specialities in one topic, and a wish to have background texts in another topic.

A key question to answer is: who decides which texts would be supplementary and which texts are compulsory? The question can be extended further: who decides what is compulsory and what is supplementary in the case of an HEI where a particular text is core in one department and supplementary for another?

Another question to consider with this model is: does it encourage wide reading? An HEI's objective for students to have ample opportunity to read around their subject may be frustrated if the pricing model deters widespread access to such texts.

There is another potential problem with this model: there may be the temptation to report certain texts as "supplementary" or as "core" when they are in fact not,

to reduce the cost to the HEI in some circumstances. One way to address the problem of restricted reading for students is to offer "value added" features for the core texts only, e.g., offering downloading/printing as a (free) extra for core texts, but such facilities are not available for texts reported as background. The HEIs themselves would then come under pressure from students to change the status of background texts if the students found they were being unnecessarily restricted in what they could do with the digitised materials.

The idea of restricted simultaneous use (so-called "contended access") has been considered at various times. It is well-established in the real-time financial information sector. Although it can be found in some HEIs operating networked CD ROM services, it has not found wide acceptance in the HE sector. It could, however, be useful for providing reading lists of medium or lower importance, and could form part of Model 2.

A number of critics have suggested that Model 2 is the wrong way around, and that the pricing in Table 3 should for core, and Table 4 for supplementary texts. The topic was debated in detail at both the Advisory Board and in the Conference. We believe these two ways of approaching Model 2 have their pros and cons and recommend that both are evaluated in the future.

Pricing model 3

Pricing model 3 is value based. The same basic subscription system as model 1 is adopted. However, in this model, value factors are assigned to each text. For example, here we have used size of the text (e.g., number of pages), the subject of the text (medicine, law, etc.), and the age of the text (in years) as the value criteria. These values are chosen to measure the value of a text. However, other criteria may be used. Any criteria employed are likely to be controversial. Age does not always relate to book sales, and courses vary dramatically from institution to institution. Another measure could be the student FTE count, or central funding of an institution. Another measure could be the number of keystations that are permitted simultaneous access to the same text at any time (so-called contended access systems).

Table 5 shows that if the subject of a text was for example, medicine, it was one year old and was 20 printed pages long, then it would be placed in zone 1, which would cost 20 units.

Text - subject, age and size	**Zone**	**Units**

Medicine, 0-2 years old, 20+ pages	1	20
Law, 2-5 years old, 10+ pages	2	15
Law, 5-10 years old, 10+ pages	3	10

Table 5: Model 3

A crucial feature of this model is that the zone (and therefore cost in units) would no longer be in the control of the publishers as it would depend on criteria, such as subject area and age, which are outside its control. This would be a key disadvantage from the publishers' point of view, but would be appreciated by librarians and academic staff.

Table 6 below takes account of two other value-based factors, number of students wanting to access the text and size of an HEI. For instance if the FTE count of an institution is 20,000 and an individual text is used or requested by 45 students, the text would be placed in zone 2.

	Zone	Units
HEI up to 10,000 students, up to 50 students want text	1	20
HEI 10,000 – 20,000 students, up to 50 students want text	2	15
HEI over 50,000 students, up to 50 students want text	3	10

Payment could be "retrospective" (see above for our definition of this term) in this latter case. This would be achieved by carrying out an annual review of the number of requests that a text had been subjected to in the previous academic year, noting the number of fte students in the HEI, and then calculating the fee for the next academic year based on that past year's usage. Student numbers from one year would be used to determine payments for the next year. This is similar to a pricing algorithm adopted by FT Profile in the 1980s for access to its news databases by commercial subscribers. The annual subscription set was

calculated based upon the number of requests received in the previous year. A key feature of such an approach is that it places the librarian in an unusual position. Instead of, as is traditional, the librarian seeing him or herself as a provider of ready access to information, the librarian will be in the situation of metering access and discouraging over-use. This is so contrary to librarians' ethos[132] that some think it is unlikely such a retrospective charging approach could be successful. Other librarians have argued that if such a model is adopted, it should include incentives (e.g., discounts for high usage) to overcome such difficulties. Indeed, the online information industry has a long history of offering discounts for heavy usage, and no doubt publishers of texts could adopt a similar approach.

Other features of Model 3 are that again, costs could be devolved to the Department and payment is made easier through subscription. The model is based on the value of individual texts. The units assigned are specific to the text.

Model 3 poses a number of serious questions: who decides the value – e.g., which zone will cost what number of units, how should the two or three factors determine the units assigned? What are the most effective criteria for determining value?

FEEDBACK FROM CONFERENCE

The conference held on September 18th at The London Zoo is reported in the next chapter. One of the sessions consisted of mixed stakeholder groups each discussing one of the models. A delegate from each group then reported back on the key advantages and disadvantages of the model as perceived by that group.

Model 1

The advantages were: publisher controls price, relative simplicity, feedback mechanism, marketing advantage once text is on database, parts of books can be bought for VLEs (virtual learning environments), buying ahead suits HE budgets.

Discussion included technical implications. There would be a need for a massive central database and/or elaborate catalogue system. Pressure for something better than image scans. There would be a need for a cultural changes as academic departments would maybe choose to pay for 'cleared' texts instead of staffing.

[132] M.D. Morley, personal communication

Overall the model was very welcome.

Model 2

Disadvantages were: grading by HEI wealth, too complicated, additional administration cost, who decides which texts are compulsory and which are supplementary? The model may limit reading.

Other issues raised were; possibility to pay for printing or offer printing as an extra for "core" texts, concern about the ranking system, pricing should be based on demand, not size.

Discussion included the possibility of a library model for supplementary material, and the question of who pays: students versus HEIs. It was noted that cultural change needed was in the area of copyright compliance. A suggestion offered was rather than core/supplementary it would be better to have a 2- tier subscription with a) print facility and b) without print. Overall the model was welcome.

Model 3

This was seen as too complicated. A central agency is needed but must keep overheads low. Usage is an important element in pricing. There is concern about protecting access and a need to develop an effective usage monitoring system It was stressed that the market will decide what is appropriate, the rightsholder should set the price, monitoring usage will help to set the value of material and again, a central database is required.

There was concern over limiting student access to material and a reluctance to accept retrospective pricing adjustment. It was mentioned that British students are unlikely to accept the US culture of paying. Banding was viewed as inappropriate.

The benefits of model 3 were that the unit was a good measure and could include graphs/pages of a chapter. It was noted that the publisher doesn't care who pays, and having Departments pay is a good initiative. All need to develop faith in an emerging system. Overall, though, it was felt that the value-based approach was inappropriate and publishers need to be able to decide what to charge.

Future scenarios offered were that advertising could be used to support cheaper online production, and the possibility that authors may withdraw from writing whole books.

THE PELICAN CONFERENCE

MORNING SESSION

On September 18th, 2001, the Pelican Project hosted a conference held at the London Zoo. What follows is a summary report of the conference[133].

Delegates[134] attending the conference included a broad range of people interested in the pricing of electronic information products. They included representatives of many of the main players in the publishing industry, academics, representatives of academic libraries, students, authors, and representatives from bodies such as the CLA. The conference was chaired by Mark Bide of Rightscom Ltd.

Professor Charles Oppenheim, Director of Pelican

The conference started with a word of welcome from Professor Charles Oppenheim. He thanked delegates for attending and gave a brief background to the PELICAN project. He explained that the pricing of digitised text had long been a problem and that it was the aim of PELICAN to create a consensus view on this issue.

The project's approach to the task was to carry out key informant interviews and focus groups with interested parties and stakeholders. Out of this, three models were developed which would be presented to the delegates with the aim that after group discussion work the models could be altered according to consensus view and needs to arrive at a consensus model. Professor Oppenheim stressed that the outcome of the discussion at the conference would determine the final conclusion that would be presented to JISC. Only two conclusions could emerge. Either, that it is possible to develop a consensus model (or models), or that none of the models would attract any support. He concluded by introducing the two Research Associates on the PELICAN project; Rachel Hardy and Iris Rubbert.

Chair

Mark Bide introduced the next three speakers. Rachel Hardy was to present a brief overview of the project, Iris Rubbert to follow with the project findings and Sally Curry, HERON (Higher Education Resources ON-demand) project manager to present an overview of HERON to date.

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133 This report is based on one prepared by Francis Obhiando on behalf of the PELICAN Team.

134 A list of the delegates can be found as an Appendix to this Report.

Rachel Hardy

Rachel thanked delegates for attending the conference and thanked the project partners: Peter Kemp, Carolyn Rowlinson, and consultant, Anthony Watkinson, for their considerable help with the project.

The ultimate aim of the project is to develop a pricing mechanism for the delivery of digitised text that satisfies all stakeholders. Other aims included promoting a better understanding of the issues each community involved faces, to assist publishers to develop good charging models in Higher Education and to improve communication between the publishing and Higher Education communities.

The remit of the project extends to the pricing of electronic chapters of books, and not journal articles. However, it is hoped that the model adopted will eventually be robust enough to apply to all electronic resources including journal articles. The main concern of PELICAN therefore is with the delivery of chapters of books to students in Higher Education.

Iris Rubbert

Iris gave an overview of the project findings. Two research methods were used for the project. In-depth face-to-face interviews were conducted with 38 respondents including publishers, intermediaries, academics and library staff. In addition, two focus groups were conducted at those University libraries where a large number of staff showed an intense interest in the project. Most interviews were held face to face, though a few telephone interviews were conducted with respondents living further afield. Atlas.ti a software tool for qualitative data analysis, was used to analyse and evaluate the interviews. A semi-structured questionnaire was used. Issues that influence the pricing of digital information resources were the focus. Major interview themes were current practice, administration, pricing, the administrative structure to support an economic model, and future developments.

Key findings are as follows:

- There is variability in access clauses for the delivery of digitised materials among publishers. Common practice does not exist.

- Publishers prioritise the importance of technological innovations and the marketing of digital materials. Notwithstanding the importance of these

factors, there is little awareness on how pricing issues could be integrated in the debate.

- Publishers have quite different understandings of what bookshop and library substitution mean. Most are looking to increase flexible licence agreements that are economically viable. Library substitution is currently not the norm, but publishers indicate they would apply a model that works and is viable.

- Copyright is more of a constraint for the intermediary when compared to library-publisher arrangements. Many libraries still go directly to the publisher to access electronic texts rather than using an intermediary. There is a sense that publishers are more flexible with licence arrangements and the economics driving them than intermediaries are.

- Copyright is also a major issue for secondary material used in electronic publications such as graphs in textbooks taken from a book published years before.

- Academics regarded electronic full text sources as the libraries' responsibility. Further, there appears to be no real awareness among academics regarding the delivery of full text electronic resources.

- Academics have a greater concern for technological issues than copyright and licence agreements. This is not to say that academics are not aware of copyright issues. Many are all too well aware and in fact, are perhaps reluctant to provide electronic full text resources to their students in fear of copyright infringements.

- There is a clear distinction between the academic as researcher and academic as teacher. The academic as researcher focuses very much on the journal market with a need for specific information. The academic as teacher is looking to the provision of electronic material; this was the remit of the PELICAN project.

- Students' perception of digital resources varies largely by study mode and discipline. Traditionally, distance learning students work a lot more with electronic resources than students in full time undergraduate studies.

- Academics reported that the copyright clearance process is not effective and that if made more effective, they would perhaps work further with electronic full text resources.

- A major concern for academics is that the principle of open access to libraries should be protected in the electronic domain. In a traditional library environment, every student or citizen can walk into a library and search for information. It will be a critical quest for the future to determine how open access can be sustained in the electronic domain.

- There is variation in the provision of digitised information across the libraries studied. Some libraries are providing a large amount of resources that have been digitised, while others are still in project status and do not know where to look for information on digitisation, who to contact, or how to deal with the issue at all. Library staff pointed out that they are in search for general usage guidelines of electronic resources.

- Existing practice is that funding for digitisation rarely goes beyond projects. This is true for the majority of libraries studied. There is no common code of practice regarding how these materials should be delivered. There is a sense in which librarians find themselves caught in the role of 'copyright enforcers' without support from publishers.

- The question of a central administration to deliver the digitised material was raised. All stakeholders preferred the simplicity this would provide. Publishers do not object to the idea of a centralised administration, whatever form the body might take, providing they retain the freedom to set pricing. They believe a centralised system would allow for better communication among stakeholders and would help in the development of trading standards or at least, common practices.

- At present, every publisher knows their segment of the market in terms of usage statistics. However, there is little transparency between publishers. Consequently, it is difficult to know what kind of digital resources are being used. Usage statistics are preferred but primarily for the purpose of marketing. It will need to be determined whether and how usage statistics can inform economic practice.

- Stakeholders identified one possible role of a centralised administration as guaranteeing technological autonomy especially as publishers are very reluctant to take on this role.

- The biggest administrative concern for academics is constraints on time and individual workload. Academics already have enough to do and do not want additional work viz. the provision of digitised materials. Academics are enthusiastic to use digitised materials for the delivery of their modules, but

do not want to get operationally involved. Any proposed administrative structure should take this into account.

- On the whole, libraries are positive to the idea of a centralised administrative structure. However, library staff point out that there should be greater autonomy for information services within the Higher Education system. A centralised administrative system has the potential to encourage economies of scale both for libraries and publishers. However, librarians believe that ultimate control should rest within library and information services just as publishers are keen to retain control over the pricing mechanism. One key task of PELICAN is how to bring these two interests together.

PELICAN is concerned with defining a model for the delivery of digitised material in Higher Education. However, there is an argument that the model should extend to Further Education. This would mean developing an economic model that could work in both environments and similarly an administrative structure that would fit both Higher and Further Education.[135]

On pricing, a major concern for publishers is the production costs of digitisation.

- The choice of economic model favoured depends on the size of the publishing house and the proportion of corporate versus academic supply. The publishers with a significant corporate market are sometimes more flexible in adapting an economic model than those with a significant academic market.

- Currently, the pay per view model is the preferred operational model. However, this is not always favoured by academics, as it requires more operational involvement.

- Publishers have a preference for subscription models. However, they tend to work well for the journal market and do not fit in with the textbook market.

- Academics are not interested in the intricacies of the pricing of digitised materials. They would rather not get involved. However, many academics said that economies of scale are more important than universal pricing mechanisms. Flexibility and speed are more important for academics than pricing and must be guaranteed by any economic model.

- The concern for the libraries was that any pricing system should allow for direct integration into the library, or school budget. However, there is no

[135] In practice, due to time and resource constraints, the PELICAN Team were unable to address this issue.

common practice among libraries in the budgetary process. If an agreement can be reached regarding a centralised administrative system and a pricing mechanism, the potential is there to provide guidelines for university libraries for their budgeting process. This, ultimately, may help all involved in the publishing community.

- Libraries find that there is variation in publisher pricing policies. One publisher may charge a high amount for a chapter and another may allow use freely. This makes librarians work more difficult.

- Most librarians take the view that added value[136] is unnecessary and only serves to make material unaffordable. Publishers on the other hand are constantly talking added value.

- Charges for course pack material varies by student numbers. The challenge is to develop a viable model that reflects the true value of the number of students that used the materials.

The following questions were posed for discussion:

- Should we move from holdings to access policies?
- Should the economic model include recommendations for the budgeting process?
- Should communication between and among stakeholders be encouraged?
- Should pricing be left to the market? That is, supply and demand?
- Should the economic model define trading standards, including recommendations on usage statistics?
- Should we adopt a short and long-term strategic view?

Sally Curry, HERON Project Manager
HERON began in 1998 as an eLib-funded project, and is now closely linked to the Distributed National Electronic Resource (DNER). In its first three years HERON was funded jointly by JISC and Blackwells Retail Ltd. and was run by a consortium of three universities, Stirling, Napier and South Bank, plus Blackwells. HERON has now moved on into its fourth year with many developments and changes. Blackwell Retail was unable to continue beyond year

[136] There may have been some misunderstanding regarding what exactly is meant by "added value". Our perception was that librarians were referring here to added value of considerable sophistication, such as multimedia, rather than relatively simple things such as hyperlinking.

three and HERON has now formed itself into a legal partnership of the three universities who are now responsible for running the current service.

HERON is based on the experience of earlier JISC funded eLib projects that looked at the use of digitised texts in teaching and learning. They identified certain key areas that needed to be addressed if the move towards greater use of digitised text is going to be successful. These include streamlining the copyright clearance process, making digitisation cheaper, perhaps by sharing costs, and providing a core collection of digitised materials that can be accessed reasonably quickly.

HERON now does all these things, and uniquely has (in the UK), what is known as Trusted Repository status. This means that items that have been digitised by HERON with permission, can be stored and are therefore readily available for re-use, with clearance permission in each instance.

HERON has developed significantly since it was started, and particularly in the last 12 months. It is now a service rather than a project and concentrates on maintaining the service to its many users. It has[137] 43 subscribing members of the Higher Education community, which, as it represents a third of the sector, is significant number. The make-up of the grouping is widespread from the largest and oldest universities to some of the smallest and most recently created.

A key factor for HERON has been the development of a new request management system known as HERONweb. The availability of this system has streamlined the processes of sending requests to HERON, of copyright clearance and of digitisation.

One thing that is becoming visible to HERON is the issue of demand for this type of material. Until recently, and with a few notable exceptions, the majority of the requests sent to HERON were based on pilot project funding within the university membership. There is now however a gradual but perceptible change. Increasingly, Universities are thinking about scaling up these projects, moving towards mainstream acquisition for acquisition of digitised key texts or electronic short loan material. The introduction of VLE (Virtual Learning Environment) and MLEs (Managed Learning Environments) are already having an impact in this area and one which we are sure will grow.

HERON has worked with the two standard pricing models; Bookshop/Textbook Model and the Library Material/Flat fee model which were defined shortly before the Project began. HERON has put these models into practice probably on

[137] At the time of the conference; the number has since increased.

a larger scale than any other individual organisation and through this experience, both the value and the shortcomings of these models have been clearly demonstrated.

Problems users have faced have been wide ranging. HERON has done a great deal to support its users in dealing with these problems but, when asked what the key issues are, HERON's members always put the same two issues that come top of the list.

All the requests that come through to HERON are initially sent through to the CLA. On average the CLA clear about 50% of these requests. They usually provide a 48-hour turnaround, which is an excellent service and provides an excellent start to the work that HERON does for universities and colleges. These figures also mean that 50% of the clearances have to be sent to publishers or the rights holders, and this is where significant delays can begin. Some publishers and rightsholders also provide a rapid response to requests for copyright clearance for digitisation, but HERON's copyright staff has often to deal with:

- instances where procedures for clearances for digitisation are not in place
- a 4-6 week backlog
- Rightsholders who are hard to trace and repeated requests are needed
- instances where the rightsholder cannot be contacted – despite considerable detective work.
- illustrations embedded in a text where copyright does not belong to the extract author.

The illustrations issue is a real problem as it can slow down the request process considerably. It is also one that HERON members are particularly interested in and keen to have resolved..

Universities find the delays that can result from these issues quite unacceptable. Librarians who work with HERON do their very best to encourage their academics to get requests in early but are not always successful. This is not a new problem and related to book and journal purchase long before it had an impact on digital extract requests – but with requests for digitisation its even more critical due to the amount of time clearance can take.

As far as the pricing models are concerned, the current bookshop substitution model is inefficient. Once a book is purchased by a university library or by an academic it is there to be consulted year on year until it falls apart. Through the Bookshop Model, Universities acquire rights to use specific extracts, but that licence expires at the end of the year/course. If the material is required again, it has to be requested again. This is expensive, not only in money but also in staff time; staff time in the Universities and staff time for HERON.

There is also the issue of the mismatch between the licensed use and the actual use. Under the Bookshop Model, Universities have to pay for permission for every student on a particular course module to access this material. Most librarians and Universities would acknowledge that on average perhaps as few as 50% of the students access this material. On occasions, the figure could be as high 70%, but this would be the exception rather than the rule. It is not surprising then that this is seen as an unreasonable way of paying for access to the materials.

The other model is the Library Substitution or Flat Fee model. Many Universities consider this as the preferred model. However, publishers seem reluctant to responding to requests for clearances using this model. There is a lack of precedence for clearance under this model and publishers often unsure of how to charge for such usage. HERON has logged 750 refusals for requests for clearances through the Library Substitution model. This is all lost revenue to publishers.

The PLS have suggested that a £5 charge per page for a five year period should be a standard fee for library substitution[138]. This is such a new suggestion that HERON has not had time to measure responses from publishers or users.

The PLS recommendation for clearances under the Bookshop Model was for 5p per page, per student. In practice rightsholders ask for anything from zero to 20p per page. No HERON member has ever agreed to pay 20p per page. During their pilot projects, Universities have been more likely to accept higher prices because their primary objectives were to get some examples of digitised documents in house and to work on how these materials could be made easily but securely available to students. Once purchase of digitised materials is mainstreamed and their costs must come out of library or departmental budgets, a very different response is forthcoming. Some users have set a maximum fee per item (e.g., 7p per page), whilst others have set a maximum cost per items. Other users have scaled back their requests for digital material whilst staff who are convinced of the benefits of giving students online access to key readings try to persuade those who hold the purse strings.

The use of the HERON service has enabled us to identify the key problems. The essential feeling is that if learning and teaching is going to benefit from the technology that is now available, the issues of pricing models and of costs in particular require a strategic review, rather than a piecemeal approach. This is

[138] This is discussed elsewhere in this Report.

where PELICAN comes in and the project will hopefully produce some significant results for the community at large.

Rachel Hardy
Rachel informed the delegates that three pricing models have been developed in response to the feedback received from the interviews. The models provide the basic principles that would be necessary for any pricing mechanism to work. In the afternoon work-group sessions, each group will be assigned one model to discuss in detail. The discussion should centre on what the obstacles would be of the model was implemented, problems, issues and how the model could be improved.

Issues that affect any economic model emerged. Technology needs to be considered. For example, will usage be measured, and is the technology available to do that? What soft and hardware is required to run the system envisaged, and that will be needed for any model to be implemented? Licensing is a key issue when providing electronic text, and any pricing mechanism will need to be parallel to a license.

The administration of pricing models is also a key factor. Whether there is a centralised body running the system or whether it is decentralised to individual publishers dealing with Higher Education needs to be discussed.

Initially, a centralised system would be required to build up a catalogue or database of text and also to distribute the revenue to the rights holders. Certainly at an early stage this would be appropriate. The PELICAN Team recognised at the beginning of the project that there was a need to develop simple models, simple to administer, to understand, transparent and also technologically possible.

Because the project was only a year, issues have been raised that have not been considered in great detail. These are as follows:

The issue of who pays? PELICAN decided the decision should remain with the Higher Education institutions and can be looked into further at a later date and as work progresses. As the provision of electronic resources in general increases micropayment systems may be adopted where students will pay for such access. One possibility will be that the students purchase for example a smart card, and this could be used in the same way they are used at present for photocopying, and printing.

What is a use is another unanswered question that will need to be solved if payment is to be based on a usage statistic. The issue that usage should be

measured was raised favourably in the interviews conducted, mainly for the reasons of market research at present. A second reason is to ensure that the Higher Education institution is providing the right text for the students, and that texts that are being made available to the students are being accessed and are being used.

The remit of the project does not include Further Education; a few interviews with FE representatives were conducted but because of the large differences that exist between Higher and Further Education, further research is needed into what is appropriate for Further Education.

The first model involves a basic administration system of purchasing units or credits against a subscription. For instance if a University decided to purchase 1000 units or credits of digitised texts, it would pay an imaginary subscription fee of £500 at the beginning of the year. In this model, the institution has full control over the subscription rate as it chooses what to pay and receives a budget of units accordingly for a year. This can be topped up if required. The advantage of this system is that costs can be devolved to departments. So departments can purchase units for use by their students, or payment could eventually be devolved to the students themselves.

The institution decides the number of units required, leaving control over issues such as how much is in the budget and how much can be spent on electronic texts. The units are purchased at the beginning at the year which makes the process simpler, and rather than paying small amounts each time one text is required which is currently how HERON is working, a bulk is paid out and the units are deducted as each text is bought. There are also options to offer incentives, for instance three for the price of two, and obviously subsidies to help this system to get started. Another incentive could be that the more units the library subscribes to the more the price decreases. All are possibilities.

In this model the publisher retains control over pricing, a database is set up, and a catalogue of all available electronic texts is made available so that each institution that has subscribed to the system can search existing texts. It would be appropriate for the publishers to decide which text to make available as currently they do.

Each University can search the database and discover beforehand how much each article is going to cost them, and the number of units is automatically deducted from their annual subscription. The model is much like the current HERON model except that the publisher provides the text by choice and is not approached for it.

The institution has full control over which text to choose based on the price, control remains with the publisher whether or not the text is placed on the database. Control also remains with the Higher Education institution in that if the text is too expensive it can search for alternatives. The publisher will also be able to monitor which texts are selected and which are not, and therefore alter pricing accordingly and measure the revenue that it is receiving and add text accordingly. An unresolved factor is that currently publishers provide text in different formats and for a system such as this, all texts would need to be in the same format.

The first model was then opened up for discussion.

Question
The last statement regarding format, I would have thought everyone here would know that was the case.
Rachel
It was an issue a publisher raised at another conference last week, so we don't believe it is fully understood.
Question
Your first slide had four bands as far as I could see, these really distinguished the number of units you have chosen to purchase, and do the bands have any significance beyond that?
Rachel
It makes the process of subscribing simpler as each institution places itself in one of the bands and makes the payment accordingly.
Question
I just wanted to clarify something which has been worrying me about this, you seem to be getting terribly confused between digitisation and digital material supplied by the publisher, can we be clear about that?
Rachel
Initially the project was concerned with digitising the material, which is currently what HERON do, we have discovered throughout the length of the project that publishers are increasingly digitising back lists themselves and also providing text initially in electronic format. Therefore we hope to eventually move to a complete electronic world where the texts are already available and do not have to be digitised.
Question
I think you should know which you are talking about in this area, as you seem to do one or the other.
Charles
The point is significant because if you are talking about printed materials, it is simply pay some money for permission to digitise, we don't have a further cost to digitise. Whereas if the material is already digitised, the HEI has no further digitisation work to do. To confirm what Rachel said, the initial brief was that

we were considering print, it was going to be digitised but we have ended up with a model, which is more widely applicable.

Question

Can I go back to the issue of finance, and banding? I did say that there was no significance attached to the value but there must be something with the bands related to student numbers or institutions, how does one know what band they need?

Rachel

We inserted the band system just for simplicity. The University decides how many units it wants to purchase, that puts it in the band. For instance, if a University only has a certain budget, therefore it can only purchase a certain number of units, or it might decide that it requires 1000 units, and thinks that will be sufficient. So the University is placed in a band due to the number of units it decides on purchasing.

Question

Can I check that this is the context of a centralised administration, in other words there will be one payment, one subscription fee paid to a clearinghouse, not a fee structure?

Rachel

Yes that's correct. We believe that will be simpler, at least initially.

Question

I just have one thought that has been with me all morning and it's not specific here. I think any idea is about inputs into an HEI system of material that is copyright by the type of material, and its born analogue, or it's perhaps born digital, and it then becomes digital, and it's then delivered, but I personally I am not hearing anything about delivery. What's the outcome? What does it become?

Rachel

You are referring to the delivery of the text to the Higher Education Institution?

Question

Are we talking about digital course packs? Are we talking about, I don't know, Web-based virtual learning environments?

Rachel

All of those.

Charles

Any of those. Having got the permission or having paid the money, we decide how we are going to offer it to the students.

Question

When you are talking about the delivery of text, and the delivery of text varies from one publisher to another, are you essentially talking about students being able to download pages? We are not talking about the online search bases and research functionality that you might want to have to access material?

Rachel

It is about downloading it from a URL that is provided either through the course website, or the library website.

Question
Is it assumed that an academic or teacher can actually change content or add something in or use only part of this, because if so then can we manage without the originals?
Charles
All we are talking about here is the electronic equivalent of a photocopy. In other words the lecturer says to the student you are to read chapter 3 of Bloggs' textbook and they go and read chapter 3 of Bloggs' textbook. If we are talking about the lecturer amending the material, adding commentary, that's quite another thing we have not looked into, but we recognise it but it opens up another can of worms. We are trying to deal with one can of worms here!

Rachel
Pricing model two uses a mixed model in which all text is split in two broad categories. One category is for supplementary material and the second for compulsory material. For example, a lecturer provides students with a reading list at the beginning of a course. On the list there is usually two categories, usually one is under the heading required reading, and the other would be recommended or supplementary reading.

The supplementary material model is based on the library substitution model and it includes reference material or material that would be used by all students enrolled at the university, i.e., open access. Each HEI would be assigned a rank. This will be based for example on either the FTE count of the institution or the central funding that the university receives.

JISC developed a charging model earlier this year which automatically places every institution in the UK into a ranking system based on the central funding it receives. There is no reason why a rank cannot be developed for Further Education and other scenarios if these are brought into the model.

Each institution will then pay a set fee for each text to be made available to all of its students. Because it is open access it will be expensive initially. However, with the implementation of usage statistics, it may become possible to decrease costs and make library substitution a real option for the future.

The compulsory material model provides specific texts for specific courses, and modules. As in model one, the same administrative system where the Higher Education institution subscribes to a number of units to spend through the year applies. The simplicity of the model should make it appeal to HEIs.

As in model one the University subscribes to a number of units to spend throughout the year, and pays the corresponding fee. This is the Bookshop Model and is also currently the default model that HERON is working with.

The units are assigned either by the publisher, by student numbers on the course, or again by the ranking system, used by the JISC charging model. For example, regardless of the text, if up to 25 students are to use the text it would cost 5 units, if 50 students are to use a text it would cost 10 units, or according to the rank that it's placed in, based on either the FTE count of the university or central funding. There are options to work with there.

The benefits of this model are that the publishers can retain control over pricing, if that is deemed appropriate, the cost of the text is related to the number of users or the central funding that the university receives. There is a subscription for ease of payment, and again costs can be devolved to departments, and eventually to students.

A question that need answering is how and who decides which texts are placed as supplementary and compulsory? And also some HEIs feel that they will lose out under a ranking system of FTE count or central funding.

Question
In the supplementary model, how is what the HEIs pay being divvied up amongst the publishers. Are the publishers setting price or what?
Rachel
That's something we haven't considered, something that would need to be looked in more detail.
Question
But do the units, 5, 10, 15 go with compulsory or the supplementary?
Rachel
The compulsory model.
Question
Does that work in the first model as well?
Rachel
Yes.
Question
Because the compulsory bit is in the same boat isn't it…?
Rachel
Yes it could, all of these examples could be intertwined to create one model or a number of models.
Question
Can I just check that this is still a central administration and still a database supplied by the publishers, in terms of the content and also the digitised materials?

Rachel
Yes we propose that system for all models from the feedback that we received, we believe that at this stage of the process that would be favourable to all.
Question
In the supplementary level there is, I think potential for more than the JISC charging level.
Chair
Could we keep any criticisms of the detail of the model until the group sessions, because otherwise we will get into the discussion, which is more appropriate this afternoon?
Question
Sorry, so is there flexibility in that ranking which takes into consideration not just the size of the institution but the relevance of the material to it?
Rachel
Definitely. It's a good suggestion
Question
Is there any scope from joint provision of courses by different teaching?
Charles
I think this could be discussed in the JISC charging models meeting as well, the question of several institutions joining up their courses, what will the implications be for their model as a result. I am not sure that you will get an answer to the question quite honestly.
Question
I was just going to say, is the JISC charging model question which is obviously not so easy for publishers to solve, be handled by people in a different group because dividing ourselves into group who understands what that means. Is that correct?
Chair
I think the model says nothing about how HEI's are banded according to some criteria. One of the criteria that are proposed could be the JISC funding model, or it could equally be another factor. There are lots of different ways that an institution can be valued and I don't think we need to spend too much time worrying about that, simply because its doesn't actually get to the heart of the question we are trying to answer.

Rachel
Pricing model number three is value based. In the interviews, publishers raised an issue which was that at present, under the HERON system, all individual articles are assigned the same cost regardless of its content; that is length, size or subject for instance. Therefore this model tries to address value. It again includes the basic subscription of the previous models, a central body that can receive and distribute the revenue accordingly, again with the University purchasing a number of units to spend throughout the year.

In this model, three factors have been defined as examples of values that can be assigned to each individual text. These are the size of the text, for example the number of pages, the subject of the text, and the age of the text in years. However, other values may be required or may be more appropriate. For example age does not always relate to textbook sales, as it does to journal sales. Another measure could be the FTE count or the central funding the HEI receives.

Obviously for more values a more complicated matrix will be required. The benefits of this model are ease of subscription, and costs can be devolved to departments. Payment is made easier through subscriptions and the units assigned are more specific to individual texts, rather than general figures assigned across all texts.

Questions that need answering are; who decides the value? Which zone will cost what number of units? And how should the two or three factors determine the units assigned? A question that needs to be answered is, are there any better criteria than the ones suggested?

Another benefit as far as stakeholders are concerned is that the publisher creates the model and the higher education institution decides if it wishes to subscribe.

Question
When model one was being talked about, the price that was being charged was a fairly crude pricing, measured in units, so it wouldn't be pound, pence, but it would be a unit, set by the publisher and the copyright owner of the item. But when we come to model three, when you are talking about price varying according to age, subject matter, and other things, other criteria, would that be set centrally by the system and not by the publisher?
Rachel
That's correct, yes.
Question
Why do prices have to be transparent? Everything I have spent money on today has a price on it, and none of the pricing is transparent. Why does it have to be transparent, no other price, my tube fare, my breakfast, I have no idea how those prices were arrived at.
Charles
Maybe we are using the word transparent in different ways. To me, transparent means the user sees what the price is, and then shops around. It does not mean that an explanation is given as to how the pricing was arrived at.
Question

One of the versions of your model three where you are in a sense setting prices according to subject area. Has any thought been given to the fact that a large number of texts will stand in the subject area?
Rachel
It has and that was one of the problems of coming up with factors that would be agreeable with all stakeholders. Subject, age and length are all arguable and it is appropriate therefore to ask what other criteria would be appropriate? Subject is one of the worst. Different courses use different materials for different modules, and that's increasing.
Question
Am I right in thinking that all we are talking about here is a pricing mechanism rather than price?
Charles
Yes, absolutely.
Question
Different institutions might value text differently. How would you deal with that?
Chair
You are digging deep into the heart of the issue of the value of information, a subject I could happily talk to you for the next three days - but I don't think anyone would thank me!
Question
It seems to me that Iris and Rachel have addressed a key point that came out early, that a lot of these points relate to journals, not really digital, so they are not all, although they are important they are not necessarily important as models. I think they rightfully reflect what they got out of it for the benefit of the general community but they are not necessarily saying, meaning this is for the model, is that right?
Rachel
Yes. Thank you.
Question
I think something that I don't really understand relates to this band of units. Do publishers think they will price each unit uniquely? You know a particular book is popular they will charge … or do they think that it will be a flat rate, you know, 5p per unit or whatever. I think that is a very important point to understand.
Chair
Whilst I entirely agree it's a very important question, I think it may be better addressed in the course of the workshops this afternoon.
Question
It maybe helpful actually if I said, and I think I am putting this correctly on behalf of the publishers, you can talk of value added in two ways actually. One is how much better it is through the processes that it has gone through from the point of which it was born, whatever it might be. Editorial added value, design

added value, and quality of access services, are perhaps three examples where value added, where value is added to what the author taps out, which could be any of us, and what ends up being read by viewers. That's one kind of value added, which you might almost say is a qualitative actually. But there is quantitative value added as well, which is the structure of the business plan to business models, now here we are talking about something very complicated actually, which is value added copyright materials and so forth. But if I were to pull a chocolate bar out of my pocket and say I have bought it on the underground on the way here for 50p. I have paid 50p so that the value chain must be able to say who got the 50p. And that is where the business models get structured and that's a different kind of, if you like, value added. The two may equate, or they may not. Now you may say that actually most of the 50p should go to whoever brewed the cocoa beans, but it is chocolate from Tesco's, but whoever brewed the cocoa beans got a 1p you know, so there are two types of value added.

Question

The general point again, about two thirds of print books the rights have reverted to authors so that if you look at any form of analysis of usage a very high proportion of that what use you for material is out of print technically. The concept of all material being used as being up to date, no its not the case, and I think that like all models there is a tendency to try and make things more and more specific and variable and all the rest of it. Might I suggest that the only way in its original state that any system can work, that is if it is relatively simple and we should aim for simplicity, and I also think we should look at existing models which seem to be functioning pretty well. I have to be convinced that any of the systems being proposed at the moment are intrinsically better than the CLA general model of blanket, geared to student numbers on the one hand, plus an excess model for other usage's to be decided.

Charles

The reason why PELICAN came into being was a feeling of great dissatisfaction within Higher Education institutions with the current model. So you are perfectly right that the system is simple and it works, but it is not relevant for the sufficient numbers who try to gain access to it, and the frustrations in the industry.

Question

Can I come back on CLA's point that has not been recognised. If you buy the works to come from beyond these shores, or is the work more UK based?

Chair

There is no simple answer to that question. If its going to work for material that comes from outside the UK, it has to be convincing to rights holders outside the UK that it represents reasonable value to them. I don't think anyone can answer the question from the PELICAN team, so, if I can answer on their behalf, I believe they would like the models to apply to all content, but the question of what can

be achieved is a different one altogether.

AFTERNOON SESSION

Delegates were split into mixed stakeholder groups and assigned one model to discuss in further detail. Following the group work, the delegates reconvened in the theatre and a member of each group gave a five-minute report summarising the key issues and suggestions that were discussed.

The Chair and Professor Oppenheim took the stage to answer further questions and manage a group discussion based on the day's outcome[139].

Chair
One of the groups came up with the question of the maxim, "the market will decide". That is inevitably true. Markets require willing buyers and willing sellers, otherwise nothing changes hands. It does not matter what models are put forward if no one is willing to sell under that model or no one is willing to buy under it. It is important for intermediaries in the process between authors and readers, to remember that they are not the end users. Whether publishers or librarians, they are simply intermediaries in the process that takes a publication from the point where it is created to the point where it is used. The reason that this is important is that in the end it is the readers who will decide what is, and what is not, successful from their point of view. If provided with services that do not meet their requirements, no intermediary is going to be in a very happy position a few years down the line.

Another main question relates to transaction costs. The idea of central agencies is the reduction in the cost of doing business, the cost of transaction. As we look to reduce transaction costs to make them acceptable to both buyers and sellers in the market place, but see an added layer of complexity which increases the transaction costs to the buyer, not a great deal will have been gained in the process. There is a possibility that technology will enable a reduction in the cost of complex transactions, but at the moment it is not doing that.

Charles
The thing I want to stress is from the group I was in and from the feedback I have heard from the other groups and that is that something quite remarkable has happened. It is that this has been a consensus building exercise that has worked. And we have had some extremely useful initial feedback, I personally am absolutely delighted with what has happened and I think we might have the makings of something that we can go forward with here. It seems that people do

[139] The major conclusions are summarised in the previous Chapter of this Report

recognise that there is a common problem. It seems that the models that have been put forward, having looked like model three might be too complicated there might be a different model that we might want to look at in more detail with the PLS model that has just been introduced. Models one and two might need some tweaking but that we might have something here which offers a way forward and which serves the requirements of all the stakeholders.

I think there seems to be a consensus. We will look at models one and two.

Points Raised in open discussion

- Actual value to the students is something very difficult to measure.
- The benefits of the third model were that it helps to solve control of the libraries. They can dictate how much they spend in a much better way than a user-based model.
- This is a market of free buyers and free sellers; it's very hard to avoid the use of price as a mechanism.
- In effect the market decides. The lecturer might decide initially core and supplementary text, but it would be the student accessing the text. The student market will force the lecturers to make a decision as to whether it was core or supplementary, by their demand of whether they want to print or not.
- Is there any real way of measuring whether or not this activity is substituting for textbook purchase?
- A benefit would be to suggest actual publisher pricing levels for library substitution.
- The technology of returning the revenue to the rightsholders needs to be looked into.
- Ultimately the publisher must set the price; therefore the value-based approach was not favoured.
- A centralised agency was popular and considered necessary for the ease and simplicity in the delivery of digitised text.
- Having payment devolved to departments and maybe, eventually students was favoured.

- Definitions and standards of usage should be developed.

- A pilot study was viewed as beneficial for the implementation of a pricing model; this was seen as the only way for the successful delivery of digitised text long-term.

- Some delegates were keen that model 3 should not be ignored.

- One concern was the possibility of added cost for the administration of a centralised body.

Chair
Like Charles, from my standpoint today it has been very successful. I have been extremely interested by the debate and I certainly feel there has been a good deal of building of consensus on a number of issues. None of these questions are easy to solve, and I started this morning by saying I wasn't certain we were going to come to the end of the day with a packaged answer.

Looking at Rachel and Iris, I think they have got quite a lot of material to go away with, a lot of food for thought today and I am certainly very grateful to you all for your participation.

DISCUSSION

INTRODUCTION

The pricing of electronic texts is a complicated and difficult issue to solve. Nonetheless, we believe that PELICAN has resulted in steps forward, and the change in views and willingness to communicate with others has shifted quite dramatically in some cases.

When the project began in November 2000, there was concern that the publishing community would be unwilling to communicate and work with the Project Team. However, as the project progressed and the provision of electronic resources in general increased, publishers were more than happy to discuss the issues they faced and wanted to discover what was happening and what other stakeholders, including their own, were doing and saying.

There is a clear tendency among publishers to distinguish between those materials that are born digital and those that have been digitised from a paper-based version. Notwithstanding the HEI need for increased digital material, publishers were initially reluctant to offer texts in this format to the HE sector, since they may ultimately threaten traditional revenue streams. However, publishers are increasingly digitising backlists and providing content in electronic form. Therefore, the amount of born-digital resources is increasing. Despite this, a large amount of valuable resources remains in print form. Therefore, a model that takes account of both material needing to be digitised and previously digitised material is necessary. To accommodate this, any model could have two pricing tiers, one for existing digitised material, and the other for material requiring digitisation.

One of the great fears amongst publishers is that higher costs are currently being incurred. The HE sector seems to believe digitised print is automatically cheaper. There is no real evidence[140] to show this is the case, and while publishers are producing material in both digital and print form, without doubt they are incurring increased costs. It is true to say that costs could be reduced in a solely e-publishing environment. However, this at present is not the situation, and an all-electronic publishing environment is unlikely to come about for many years. Any economic model must address the question of how born digital materials, particularly for the textbook market, can be made more economically interesting for the publishing industry. A satisfactory answer to this question will doubtless persuade publishers to take a long-term strategic view, i.e., one that is based upon a born digital environment.

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[140] L. Halliday and C. Oppenheim, unpublished results.

The operation of any model for the distribution of digitised materials in the Higher Education community is determined by its corresponding licence agreements. Consequently, there must be a critical assessment of what existing licence agreements currently offer to publishers and libraries and how they can potentially be improved in the future. Publishers and representative bodies of the publishing industry adopt the textbook substitution model as the norm, since granting 'perpetual' licences in accordance with the library substitution model might threaten revenue streams long term. It is difficult for publishers to assess the value of materials perpetually. This leads them to 'overcharge' because revenue streams need to be guaranteed. We believe that licence agreements will need to become more flexible, allowing publishers to approach the library substitution model for some material, and the pricing mechanism must allow for a variety of licences to be adopted in a variety of settings for a variety of texts. A single model for licence terms will not come about however, because the market is so diverse and because each publisher wishes to retain its market niche.

The current default model uses the bookshop substitution model and further work must be done by PLS and other interested parties to recommend publisher pricing levels for library substitution. The PLS have discussed a possible model of £5 per page for 5 years' open access. This has the benefit of a lump sum of revenue up front rather than individual and small amounts of money at variable times. Library substitution is a real possibility for the future, but for such a model to be implemented rightsholders must gain confidence that primary revenue will not be affected.

Rather than using dual terminology that simply distinguishes between bookshop and library substitution, several agreements could be developed to suit stakeholders' differing needs. One step in such a development would be the re-definition of the term 'perpetual' to indicate a long-term agreement. This would leave room for further negotiation when the initial term expired. Licensing is an issue that will need further consideration once new models are implemented.

Pricing models for the delivery of digitised text need to adapt accordingly and move with the market and demand. The models also need to be adaptable to include all electronic resources and whatever may be appropriate in the future, making seamless access and pricing possible. The rate should reflect HEI costs; thus, the price for permission to digitise and then load should be lower than that when the publisher supplies the material already digitised, as the HEI incurs expense when it carries out its own digitisation. It is clear from the interviews conducted that the publishing and Higher Education communities would benefit from a distinction between short and long-term perspectives. This distinction would ensure problems that are a high priority at the present time are addressed

and solved, while allowing for transition into a long-term service. The other focus here is the need for a model to take account of short and long-term licences in the provision of these texts.

The perceptions of the interviewees are all varied due to individual experiences and knowledge in the field, and interpretation of the questions asked. Views have obviously shifted as work has progressed, as others have taken a lead, and as communication has increased. There may still, however, be misconceptions regarding certain terms and misunderstandings relating to other communities involved. There must be continued communication between stakeholders and a willingness to experiment, in order for the area of electronic resources to continue to move forward. Pricing models must be adopted, tested and adapted accordingly.

Currently, no stakeholders are satisfied in regards to the pricing of digitised text for the Higher Education community. The results of the PELICAN project are one step closer to addressing all stakeholders' concerns and to satisfying needs concerning pricing. Many stakeholders believe that the service providing the texts is more important than the goods delivered and because of this the team has focused on a centralised agency, which is discussed later. It has also become clear that pricing models will adapt according to the market and multiple models will emerge.

The shift in opinion and approach by all stakeholders has been significant since the beginning of the project. This can only continue as users become more demanding, electronic resources become more available and as a greater number of stakeholders' progress with experimentation in this field. It may also be true in such a new environment as electronic resources that there will be pain before gain for all stakeholders and in order to progress and improve services, all must be willing to experiment. If a service is accessible and affordable this will, it is hoped, create new users and increased revenue. There is also a clear need for constant and willing negotiation to take place between the stakeholders; this will be helped by the improvement in communication.

THE PRICING MODELS

A common factor in this market is the existence of both a willing seller and a willing buyer. The models should incorporate this mutual willingness.

Many pricing models were considered (see Appendices F and G). Pricing models for the digital domain have varied dramatically for different sectors, services and end-users. For instance, the telephone service works on the basis of micro payment systems from end users. When the World Wide Web was introduced,

new models were again required. The ethos of 'free' (at minimum at the point of use) information became the norm and is now expected by the end user. Broadcast television uses two models with open access: funding by licence fee and external funding through advertising. There are also two models with restricted access: subscription, and cable television, the latter being pay per view. These and many other models are examples of how goods can be priced in the digital domain. The delivery of electronic journals uses many different pricing strategies. These include: the subscription model, advertising model, transactional model and the bundled/aggregation model.

Each stakeholder group has differing needs when it comes to pricing, making a consensus difficult to achieve. Our new models were developed to satisfy the variety of needs as far as possible. It was clear that any model needs to be transparent and flexible due to the variety of needs of HEIs, the variety of material required, and the needs and business models of the rights holders.

The developed models could be tiered and combined in various formats, it was suggested that aspects of all three models presented earlier could be combined in one model. It was obvious that due to the variety of factors and influences that play a part in this field, it would be more beneficial to develop a number of flexible models that can be adapted according to the need and market.

The models presented to the conference delegates and individual stakeholders on different occasions have been outlined in the results' section of the report. Feedback received at, and following the conference gave the team many suggestions and comments. The key issues that were addressed in relation to the models were as follows:

- Remove ambiguous terms
- Give each model working examples
- Suggest real working levels for library substitution
- Remove HEI ranking in any form
- Be more specific regarding licensing

The conference delegates were split into five, mixed stakeholder groups, and each group was assigned one of the presented models for further discussion.

Model 1

The feedback for model 1 informed us that no changes were necessary, as the model is simple, transparent and would be successful for all stakeholders.

Model 2

Model 2 was generally welcome, with the one key concern that HEI ranking is inappropriate and should be removed. Many HEIs felt that some institutions would lose out under such a system and that a better measure would be demanded for the service. Another concern was the possible added cost that a centralised administrative structure would add and the possibility that separating use of text by cost may limit student access and reading. Two suggestions offered were; standardising with a set fee as in document delivery, and paying for printing (e.g., instead of core and supplementary, simply have a two tier subscription, one with printing and the other without printing). Further discussion related to this suggestion followed at the final Advisory Board meeting, at which the Board suggested that a printing tier might mean additional publishing costs for administering payments. It was recognised that "core" and "supplementary" are terms that were not satisfactory, and the option of having view only and print subscriptions, although a good suggestion, is limiting. The Board suggested instead that the two-tier subscription should be based on view, print and download, against a view and print only option.

The PLS model was discussed as a variant on model 2. At the time of the discussion, the idea of £5 per page for 5 years open access to certain specific categories of materials, e.g., journal articles and extracts from scholarly monographs, had been proposed but was not yet formal. Since then, it has been officially released, but it is unclear how many publishers have signed up to it. The benefit for publishers is that it provides a lump sum of revenue rather than individual small amounts of money.

Model 3

The majority of conference delegates did not favour model 3. It was agreed, once again that a central agency was needed and that the subscription of a number of units was a good initiative as payment could be devolved to departments and eventually, maybe students. The overall view was to remove the value-based approach in model 3, as the publisher must set the price. However, further feedback following the conference demonstrated that model 3 had good principles and should not be ignored. The Advisory Board noted that a theoretical advantage of having prices set is that work for the publisher is minimised. We also note again that academics and librarians both welcomed the idea that publishers should not necessarily set the price.

There is also the issue of setting the price when the rights have reverted to the author. A set of guidelines must be introduced for setting prices of individual digitised text for the HE sector.

A positive move forward is happening in that many publishers signing up with aggregators. They are willing to license their works to these aggregators (including e book aggregators) without controlling their returns. This pattern, well known to database producers in the online information industry for more than 30 years, is now becoming more popular with textbook and journal publishers. Some (but not all) are more willing to experiment, and they see digitisation as a source of additional revenues rather than as a risk to their traditional income stream. This positive experience is something database producers found for themselves when they took the risk of offering their data to hosts such as DIALOG from the 1970s onwards. It is, incidentally, worth noting that online hosts such as DIALOG almost never give the database producers the right to set prices.

A central agency is clearly attractive for all stakeholders involved. Some felt that a new body is not needed and available resources and bodies should be utilised. Others argued that a new body was needed to overcome anxieties associated with bodies such as the CLA or Ingenta.

Despite the negative comments received by Halliday and Oppenheim in their research, the idea of subscription for a number of units seemed to be welcomed by all stakeholders. Both consumers and suppliers liked this method because they know in advance what will be paid. The system should be cheap and easy to administer and enables access free at point of use. This method of subscription would, it was initially felt, be offered with the possibility of 'topping up' the units purchased at the beginning of the year and 'carrying over' unspent units at the end of the year. The possibility of carrying units over to the next year would, however, be administratively very difficult for many HEIs. Their computer and administrative systems are not flexible enough to cope with this, and in any case, regulations controlling their use of public money may not permit such carrying over. We have therefore decided to remove this idea. The option of 'topping up' units, however, remains.

It seems clear to us that there are two possible ways forward. In the first, the publishers decide the pricing strategies, including setting their own pricing, as in model 1 and part of model 2. In the second, prices are set as in Model 3, or by flat rate subscriptions for unlimited usage are agreed, by means of high-level negotiation between HEIs (using perhaps EduServ or NESLI to negotiate on its behalf) and a large group of major publishers.

The interview findings showed that librarians were not that keen on added value to content, due to the probable added cost. Here, the librarians refer to added value as added functionality e.g., annotation of text, dictionaries online,

discussion fora, etc. If all content for the same discipline is to be charged at the same level, it becomes impossible to charge more for better content.

Good pedagogic content demands large editorial investment, i.e., more time and money. It was raised that if rightsholders are unable to charge more for better content, they will be less inclined to make necessary initial investment and the result of similar prices will be not just similar content, but cheap content, with all that implies about quality. However, this may not be a bad thing, as those publishers wishing to remain in this market will continue to invest in high quality products, whilst those offering poor quality content will find there is no market for them.

Whilst models 1 and 2 were the favoured models, model 3 has not been dismissed and is presented in the Results chapter alongside models 1 and 2.

There are clear reasons why digital resources are important in the Higher Education sector. They are intrinsically more useful than print materials as electronic resources become more available and popular in general. The digital medium can overcome many of the availability and accessibility constraints of the physical copy.

A member of the Advisory Board, Ed Barrow suggested a different approach. His suggested model is interesting and novel, and remains a possibility for consideration. It is described further in the footnote.[141]

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[141] . In his model, teaching and learning resources are classified into three categories, according to the relevance of the course being taught and the texts' terms of availability:

Open Resources - sources of information which are freely, or near-freely, available to anyone, whether or not a member of any HEI. Such resources include the Internet, broadcasts and newspapers.

Background Resources - resources of general background interest, available to all members of an HEI, but not generally to members of the public. The research literature (whether serial or monograph) falls into this category

Core Resources - resources chosen specifically for a course or module, and contain the essential references that enable a student satisfactorily to complete the course. In the paper environment, the student in the form of a textbook conventionally purchased core resources, but nowadays they are frequently provided in the form of photocopies or as course-specific folders in short loan collections (which has the effect of passing on the photocopying cost to the student). In the digital environment, it is expected that all students would not only more heavily use core resources, but also subject to greater annotation and modification.

OTHER ISSUES WE CONSIDERED

The possibility of micropayment was discussed and is possible. It is an operating mechanism, or technical platform. If it can be implemented, then various pricing models that might be considered currently impossible to achieve can be introduced. One example is the implementation of smart cards for University students, an initiative that has hitherto not been successful in the UK to our knowledge. These cards could be purchased by individual students and would allow for numerous activities e.g., printing, photocopying and downloading digitised texts as well as other purposes such as car parking, entry into secure areas, payment of fees. There is a need for more research on the question of who pays. **The Project Team recommends that for the time being, any decision on who pays be left with the individual HEIs.**

Much valuable time can be spent assessing each individual text with regard to its value. Higher Education libraries spend a lot of time negotiating with publishers directly. Even HERON, a one-stop copyright clearance and digitisation service that acts as a facilitator between publishers and libraries, was often in the past unable to speed up the process. In recent months, though, the number of publishers granting HERON permissions has grown considerably, with resulting speeding up of clearance times. However, some HEIs insist on making requests only if they can cleared under the library substitution model, and these are relatively rarely granted by publishers. Overall, then, although things are improving somewhat, too often access to resources is delayed or prevented by slow or non-permission granting.

These classifications are based on the student reading list and are intended to apply primarily to online resources, although it may be useful to classify offline resources (such as books and broadcasts) in a similar way. Licence terms for background resources could be restricted and prohibit certain acts such as printing or local saving.

For the pricing of background resources, the rightsholder will choose one of three models:

The Departmental Model

The price is a multiple of the number of students enrolled in a department for use of a particular text. For example, if a text is priced at £3 per student and there are 250 students in the department the fee would be £750.

The University Model

The price is a multiple of the total number of ftes in the university. For example if a text were priced at 7.5p per student, in a university of 10,000 students the fee would be £750.

The Flat-Fee pricing Model

Here a single fee of £750 regardless of the size of the University or Department. This is simple, but perhaps favours large institutions unduly.

A central theme emerging from the project was the development of an administration structure that supports the economic model. All stakeholder groups mentioned the fragmentation of the market, which leads them to develop their own policies as to how the distribution of digitised materials should be handled. Libraries have difficulty accounting for the use of digitised materials in their budgets, partly because each publisher operates a different policy. Publishers face a range of enquiries that go beyond the scope of a traditional publishing house, and students and academics suffer because they cannot get the material they want in time. As a result, all stakeholder groups urged simplicity. This clearly needs to be reflected in the charging mechanism itself but also in the administration that surrounds it.

It was clear from the interviews that there was a need for a centralised administration system to simplify the process for all stakeholders. **The Project Team therefore recommends that alongside the models we have proposed, that a centralised system be set up.** The functions of the centralised body would be to:

- Manage a catalogue/database of the available digitised text from publishers
- Copyright clearance if necessary
- Manage the subscriptions of the HEIs, allocating the number of units etc
- Development of payment policies and terms of trade
- Collect and distribute the revenue
- Provision of a usage monitoring system
- Provision of usage statistics to libraries and publishers using the service
- Advertise additions to database to subscribing HEIs
- Manage the delivery of the texts to HEIs
- Archiving of digitised material

The working title we have given this body is CRAS (Central Rights Administration Service). Many existing bodies have experience of running this sort of system. Any of them could run this service and it is important that use is made of an existing service rather than creating a new body from scratch. Many possible existing bodies were recommended to the Project Team for filling this role. These were: HERON; ALCS; EduServ (the host of NISS, CHEST, ATHENS); Ingenta; Ebrary; British Library; CLA; and the Copyright Clearance Center (the CLA's American counterpart).

It was also brought to our attention that there is a possible role for ATHENS (an existing user authentication system in place in HE) in this service. ATHENS can operate down to very fine granularity e.g., page, chapter, and it is possible to add in an application to charge differentially for different material as well as for different units of granularity and for different recipient organisations. A new version of ATHENS (provisionally called SPARTA) is currently under active development by NISS; it will have even greater functionality than ATHENS. **We recommend that NISS be involved in discussions regarding the CRAS.**

The need for a usage-monitoring device is not only important for the implementation of a specific payment system but has also a considerable impact on the economic model as a whole. The monitoring of usage was a key issue that arose in the interviews. An initial feeling from all stakeholders was that a fair method of pricing was based on usage, but that the administration involved was impractical. This confirms the views identified by Bide *et al* in their research. We believe that research in needed in this area (see below).

It is important for the publishing industry to have reliable user statistics as this would not only ensure realistic pricing without jeopardising future revenues, but would also provide publishers with market research statistics to ensure the correct material is provided and revenue is being made where possible. This was particularly important at such an early stage of provision. Publishers may be willing to reduce prices on digitised materials if they have reliable data that the user volume will recover the incurring costs. It would be beneficial to the industry if such a usage tracking system was operated by CRAS since this will allow for a greater transparency of the market. Such a system would aid the libraries in providing the correct material for their users and would also aid in their budgeting process. Without taking freedom from the Universities to budget according to their specific needs, HEIs could monitor high and low use of certain materials and adjust their choices of text accordingly. There are numerous ways in which such technological innovations could be utilised for the benefit of all stakeholders groups.

The project team proposed that usage should be monitored for this purpose but found that when usage was discussed amongst stakeholders the question of 'what is a unit of usage?' was not an easy matter to answer. The Project Team has therefore decided this issue could not be addressed appropriately in the remit of the project and researched further into findings elsewhere. PALS recognised the urgent need for reliable, consistent and compatible online usage statistics for vendors, libraries and users and in therefore in September 2000 set up a Working Group to consider the topic.

This Group has stated the issues clearly and is researching best practice policies. The specific aim of the group is to develop a Code of Practice for vendor based e-journal and database usage statistics. Work will include guidance on many issues related to monitoring usage. In June 2001, an international forum was held, at which a set of draft proposals was discussed. The outcome was agreement on a substantial number of data elements and their definitions, as well as on matters of output and delivery. Outstanding issues were grouped into areas and six sub-groups have been created to undertake further work on understanding and resolving the issues concerned. The work of the sub-groups is now successfully feeding into the development of the Code, and it is hoped that a basic Code of Practice will be available by spring 2002[142]. The Project team believes that once this group has presented detailed findings a set of guidelines for this particular area can more easily be developed.

[142] For further information see: http://www.jisc.ac.uk/curriss/collab/c6_pub/

OUR CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The last five years has seen a significant increase in the provision and use of digitised and electronic material in the Higher Education sector throughout the UK. The demand for further electronic resources in Higher Education is clear. However current pricing mechanisms for the delivery of digitised text to students in the HE sector are unsatisfactory and often unaffordable.

While HE struggle with shrinking budgets, libraries face more demand for electronic resources from students with limited funds. HERON provided the HE sector with a service of, clearing copyright, digitising texts and making these available to HE, however, due to initial publisher fears of copyright compliance and loss of revenue, permission costs were high and often unaffordable for Higher Education.

The UK publishing community faces an increase in demand for electronic books and texts and while publishers produce both traditional print and digitised format, their production costs are increased. The pricing of electronic goods is new and fairly untested, and traditional print-based pricing models are inappropriate for electronic goods.

The results of the project have shown that pricing is the biggest issue in the provision of digitised text and that stakeholders are struggling to provide a service at what is deemed an appropriate cost.

Many key issues have been identified and discussed and findings have resulted in the development of three pricing models. The models were presented at a conference with all stakeholders present, and feedback was received regarding the models in individual contexts. Consensus was gained in that models one and two were the preferred models. Other findings also prompted ideas for further research and revealed needs in other areas, specifically, administration and technology.

There are certain factors that the team have not considered, and issues that need to be resolved. These include: Further Education; technology; micropayment systems; who pays; licence terms; and usage monitoring.

There are many potential ways forward from the project findings. We propose a centralised system be set up (which we call Central Rights Administration Service or CRAS) which handles a database of all available digitised/electronic

text. Models one and two should be adapted accordingly and used alongside this system. CRAS would also distribute the revenue to rightsholders.

The diagram below demonstrates the way in which CRAS would operate:

Possible organisations that could run such a system have been noted earlier. Any organisation fulfilling this role must be trusted by all stakeholders, must have a clear understanding of Digital Rights Management, have a good track record of running similar systems, and a clear understanding of the needs of Higher (and Further) Education, and of publishers. We believe that such a system, if it proves to be successful, could subsequently be extended to other market sectors, and abroad. Perhaps rather than setting up a completely new organisation with all the issues of ownership and management that this implies, the approach should be that an advisory/ginger group working for the community should be set up to persuade an existing body to adopt the CRAS approach.

We make no claims to have exhausted all the possible or appropriate models for the pricing of digitised texts. Although we asked all participants to forget previous practice and to explore wider possibilities, in practice, the answers we received were close to existing practice. The idea, for example, that an HEI should be charged a per capita fee based on student fte numbers to be given unlimited rights to employ digitised texts (in a style akin to the Microsoft licence for HEIs) never arose. It should be emphasised that the Copyright Tribunal outcome provides for precisely this model (per capita fee for unlimited rights) for paper copying, so all stakeholders will soon become familiar with such a model. It is a model that deserves further study.

The goodwill demonstrated by all parties in our discussions with them, and at our conference, **leads us to believe that the time is now ripe for a large-scale experiment with our models,** ideally under the aegis of JISC, PALS, ALPSP and other major stakeholders. We make specific recommendations below.

OUR RECOMMENDATIONS TO STAKEHOLDERS

Based on the work presented in this report, the PELICAN team believes that the key stakeholders should focus on certain topics. We make a series of recommendations below for three of the stakeholder communities, i.e., publishers, academics and academic librarians. We also make a series of recommendations for further research and development work.

Publishers

- Continue to experiment with offering texts in electronic form for HE, and expand the numbers of texts so offered.
- Be willing to participate in any test of the proposed models of pricing

- Evaluate new systems and ways of pricing and give libraries/Higher Education feedback on the results of those evaluations
- Experiment with different types of usage statistics, since these could inform the CRAS model.
- Continue to build positive relationships with library staff in the HE community

Academics

- Work more co-operatively with library staff in the provision of electronic resources, especially in regard to budgets for libraries to acquire and support such resources
- Define and articulate your own needs and expectations clearly.
- Get student feedback on the success of electronic texts and future needs

Librarians in Higher Education

- Ensure budgets are available; specifically, ensure that budget lines for electronic texts are clearly designated as such and that issues of "who owns" particular portions of the library budget do not prevent pricing experiments.
- SCONUL should undertake a survey of the ways that HE libraries manage their budgeting process and make recommendations for best practice. We are aware of the JISC-funded PURCEL Project that studied the purchase of electronic resources in UK Higher Education, but our proposed study would take a broader view.
- Monitor student activity with electronic texts
- Treat pilot studies as a real working examples to ensure continuity
- Continue communication with publishers to further build relationships and understand the issues they face
- Consideration of "who pays" for access to digitised texts needs to be raised as a strategic level within HEIs.
- Consider more fully what its policies are regarding who pays for access to materials

CLA

- Investigate a similar course to that of its American counterpart, the Copyright Clearance Center, who promises to try to clear all digital rights where it does not have pre-authorisation upon request in a very short space of time.

- The impact of the Copyright Tribunal outcome on publishers' willingness to participate in CLA, and the use made of materials, needs to be studied carefully, as lessons can then be drawn regarding the possible implications of such a business model in digitised materials.

OUR RECOMMENDATIONS FOR FURTHER RESEARCH AND DEVELOPMENT

The key recommendation the Project Team proposes is that **an experiment be conducted on models 1 and 2. We suggest both approaches to Model 2 as outlined in this Report earlier should be tried.** The ideas in Model 3, and a model based upon per capita rate for unlimited copying, are also commended for consideration for the future.

Such an experiment requires a number of organisations to be involved. A sufficient number of publishers and of HEIs would have to be involved to provide a critical mass of materials and users. The experiment would have to be run in conjunction with a CRAS, set up by one of the bodies previously discussed. One particular area that would have to be studied is how non-UK published materials were handled by the CRAS.

The experiment would not have to be constrained, and would try out options based on Models 1 and 2. Aspects of all three models (as well as Ed Barrow's Model) could be incorporated in various ways to test acceptability to all parties. Models 1 and 2, and Ed Barrow's Model, could be implemented parallel to each other, offering the publishers and HEIs a choice of model for their texts, and the HEIs a choice of model for purchasing. The experiment would be comparative, using methodology based on the PEAK and EASY projects. The experiment would have to run for at least one year to produce realistic results, and in view of the inevitable delays in setting up such an experiment, we would not anticipate such an experiment starting until 2003.

Such an experiment could only succeed with necessary funding and commitment from interested parties. We would therefore recommend that the following bodies consider this recommendation: CAPP (that part of the PA representing scholarly publishers); CLA; JISC; PALS; SCONUL; ALPSP; NISS (in terms of its SPARTA developments); and those bodies identified as possible hosts for the CRAS.

Other recommendations for further research and development work include:

- Further study of the technologies available and being developed for the delivery of electronic resources and micropayment systems, including Digital Rights Management systems. Linked to this, stakeholder reactions to possible who pays scenarios need to be explored.

- The PALS usage statistics group should look into developing standards for the usage of electronic text in the HE sector.

- Further research into what pricing levels would be acceptable for the wider adoption of the library substitution model.

- Research the needs of Further Education in relation to electronic resources.
- Further research appears to be needed on the needs of users in terms of "value-added" functionality in electronic texts.
- The question of archiving electronic materials is already exercising many minds. We simply note that this is an issue that must be successfully addressed if librarians' concerns are to be allayed.
- Research is needed regarding the willingness of libraries to purchase electronic only versions of text without any print copy being obtained.
- Much of the electronic information industry already collects detailed usage statistics; in some cases, such statistics form the basis of calculating charges. These statistics are primarily associated with sci/tech, business, news and financial information sold to the private sector. A survey should be carried out of current practice and future plans in the electronic information industry in regard to pricing strategies and usage statistics, with in depth studies of the problems encountered and how they were resolved. The results of such research should be used to feed into the models and into planning for the CRAS.
- A study on whether there are different factors to take into account when pricing full text as opposed to extracts
- A similar study on whether there are different factors to take into account when pricing journal articles
- There is a need to assess user views of any restrictions to their ability to print or download; how much of a problem would this be for them?
- The idea of restricted simultaneous use (so-called "contended access") has been considered at various times. It is well-established in the real-time financial information sector. Although it can be found in some HEIs operating networked CD ROM services, it has not found wide acceptance in the HE sector. It could, however, be useful for providing

reading lists of medium or lower importance. Research is needed into the acceptability of this idea.