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1.0 Introduction

Project ACORN was funded by the Joint Information Systems Committee for eighteen months under the "Electronic Short Loan Collection" strand of the eLib (Electronic Libraries) programme. During the course of the project period it met all of its initial aims and objectives, listed below, as well as setting for itself, and meeting, many more. The Project has taken dissemination very seriously and has published over 35 reports and documents on its web site, in addition to writing a large number of journal articles and giving many papers and presentations. As the written report output of the Project has been so full, this Final Report can only serve to summarise the key findings of those reports, and direct the reader to the full reports for more detailed information.

1.1 Project Aims

The overall aim of Project ACORN was to develop a transferable model for the process of establishing and managing an electronic "short loan" or reserve collection. A unique feature of Project ACORN was the inclusion of Swets & Zeitlinger B.V. as a project partner, enabling the project to explore the role of a third party agent in gaining copyright clearance, providing digital copies of articles, and handling royalty payments to publishers.

1.2 Project Objectives

The key project objectives were to:-

- Develop and demonstrate a model for effective and cost efficient working relationships between university libraries and third party agents for copyright clearance and digitisation of texts
- Establish procedures for gaining copyright permissions and making royalty payments for periodical articles on course reading lists
- Establish procedures for making periodical articles in reserve collections available electronically
- Link these articles to the reading list module of the TALIS Web OPAC
- Develop and assess an appropriate generic model for the electronic delivery and management of course high demand journal articles using widely available and proven software tools
- Monitor user reactions to the delivery of the electronic texts
- Assess the use and usability of the electronic texts
- Assess library procedures for managing the electronic delivery of high demand journal articles.

1.3 Project Deliverables

The main Project Deliverable was a model which demonstrated:-

- The ability of intermediaries such as subscription agencies to conduct copyright negotiations with publishers on behalf of libraries
- The value to libraries of using an intermediary to handle the administration and payments associated with copyright clearance
- A new basis for the internal library management of an electronic reserve collection
- An evaluation of the logistics of the use of an external agency to digitise hard-copy material and returning it speedily to a library, together with an assessment of the quality and price issues
- A demonstrator system of online links between an online catalogue, online reading lists and course texts
- A report on student and staff requirements for delivery of documents from an electronic reserve collection, including an evaluation of the model's ability to meet those needs
- Dissemination of the results of the project by seminars and publications both to the HE library community and to the community of publishers and subscription agents

1.4 Project Administration and Staffing

Project ACORN formally commenced on 22nd July 1996 with the appointment of a Project Manager. The project consortium consisted of five partners :-

Pilkington Library (lead partner)	)	Loughborough University
Computing Services	)	
Department of Information and Library Studies	)	
Swets & Zeitlinger B. V.		
Leicester University Library		

The project was managed through two committees - a Steering Group and a Management Group.
The project partners were represented on each group, by different representatives. The Steering Group was chaired by the Project Director, initially John Arfield and subsequently Hazel Woodward, and met at approximately three monthly intervals to offer overall advice and guidance to the project. The Management Group was chaired by the Project Manager, initially Paula Kingston and subsequently Elizabeth Gadd, and met approximately monthly to progress the work of the partners and provide for the exchange of information on issues affecting the partners. The project's Technical Officer was Richard Goodman, and the Copyright & Liaison Officer was initially Elizabeth Gadd and subsequently Adrienne Muir.

2.0 Major activities

2.1 Academic liaison

A heavy emphasis was placed on developing good relationships with academics in the three departments with which the Project was working: Geography, Human Sciences, and Information and Library Studies. Having given initial presentations at departmental staff meetings, the team performed a survey of academic staff (appendix 6). This was to ascertain their views on current Short Loan Collection (SLC) arrangements, their use of reading lists and their assessment of their students' IT skills levels. A further survey of academic staff who participated with ACORN was performed in December 1997 to ascertain how they used the electronic short-loan collection in comparison to use of the SLC (appendix 7).

2.2 Short Loan Collection Analysis

To provide baseline information against which to assess the ACORN service, a survey of users and non-users of the SLC at Loughborough were performed and analysed (appendix 5). These asked questions about the types of use made of SLC items, difficulties faced by students, opinions on loan periods, fines, return times and so on. In addition to the surveys of student opinion, detailed statistical surveys were undertaken regarding both Loughborough's and Leicester's Short Loan Collections (appendix 4). These examined the contents, policy and use of each collection.

2.3 Technical development

One of the initial activities of the project was to evaluate technical approaches and to perform the development work. It was decided to store the articles in a Sybase database on a Sun server and to make them accessible via both the TalisWeb OPAC and via web pages. Various document formats were evaluated, but PDF files were chosen for security reasons and the availability of the free Acrobat Reader software. Initially it was hoped to have all text files, but time constraints and the large number of articles for which we got permission meant that half had to be image files. The documents were to be kept secure by IP address and username and password authentication mechanisms; disabling the cut/copy/paste functions of the document; copyright scripts on each page on-screen and printed out; watermarks of username, date and time printed on each print-out; and comprehensive usage logging. The system was designed to be as portable as possible, using only freely available software tools (a version of the system was designed using the free Postgres database). The design was fully documented (appendices 1-3).

2.4 Publisher liaison

Swets & Zeitlinger were able to provide the project with publisher contact details from their in-house database. The project decided that a permissions tracking database would be required to handle what promised to be complex negotiations with publishers. As there was no low-cost option available, it was decided to design our

own based on Microsoft Access. The database was entitled CLEAR (Copyright Licensed Electronic Access to Readings) and it has proved to be the only freely available, low-cost option of its kind in the UK (see appendix 12 for user manual). The initial approach to publishers was made by letter, combining the ACORN and Swets logos, with a Heads of Agreement document. The negotiation process was carefully timed, monitored and costed using CLEAR, and two comprehensive permissions reports documented our findings. A manual of procedures for gaining copyright permission was also written and made available via the ACORN web site (appendix 8). As the project was asking for permission for no charge, it was decided to hold a Publishers Seminar to gather opinion on this and other issues. The four areas covered were: charging, document security issues, copyright and the role of an intermediary, and digitisation. A report summarised the findings of the day (appendix 10).

2.5 Feedback to publishers and academics

Instead of offering payment to publishers the project offered "payment-in-kind" in the form of usage and management information. Participating publishers were therefore sent information on: overall usage of the ACORN service; specific information on the usage of their individual articles; and a full permissions-seeking report, at the end of each of the two ACORN semesters. All participating publishers are also to receive a copy of the project's final report. Information was also fed back to academic staff in this way. They were sent information on the usage of the articles on their modules. As the project had access to potentially sensitive information, it was decided to design an Information Policy document, stating what information would, and would not, be supplied to whom, and when (appendix 27).

2.6 Training and promotional activities

To promote the ACORN service a user guide and flyer were designed (appendix 26). The guide was tested on Shelving staff who had had no previous experience of the ACORN service and amended in the light of their comments. The guide was made available as a bookmark-shaped card, and online via the ACORN service itself. In order to ensure students received training, academics were approached with a view to holding ACORN training sessions in lecture periods. Most academics were happy to agree to this. Eighteen such sessions were held over the two semesters. Four other general training sessions were held as part of the Library's "Lunchtime in the Library" training series. The session showed what was available, how, where and when, with step-by-step demonstrations of the two routes to the articles. Every training session was evaluated, and two reports were written on the two semesters' training activities (appendices 13-14).

2.7 Service launch

The ACORN service was officially launched on 21 April 1997. A small launching ceremony was held with the Vice Chancellor of Loughborough University, Professor David Wallace, "pressing the button". All project partners were represented at the ceremony as were publishers, participating departments, eLib, and the Students Union.

2.8 Portability Study

In order to ensure the easy portability of the ACORN model, a study was undertaken at Leicester University. The study was divided into two areas: the portability of the internal library procedures, and the portability of the technical procedures and system design. Structured interviews and a CLEAR demonstration were held with Leicester library staff for assessing the portability of the internal procedures. Meetings and systems development work formed the basis of the technical portability. The findings were written up into two reports and presented to Leicester staff (appendices 22-23).

2.9 Evaluation activities

Evaluation formed a major part of the project's activities. All evaluation reports can be found in the appendices, see 5.1 for more details). The first activities, as mentioned above were:

- Short Loan Collection Survey
- Short Loan Statistics Gathering
- Survey of Academic staff

These were performed to gather baseline data regarding the SLC for comparison with ACORN later on. The rights holder liaison process was carefully monitored as mentioned above. Further publishers views were gathered during the seminar, however, in order that all of the rights-holders' views were represented a subsequent Publishers Questionnaire was designed and distributed to all rights holders approached by the project. The results were analysed and followed up by four focused interviews with publishers from the main publishing sectors (commercial, learned society, and University Press). These activities were written up into the following four reports:

- Permissions Report 1997
- Permissions Report 1998
- Publishers Questionnaire Reports
- Publisher Visit Reports

In order to ensure the ACORN service could be easily integrated into the library a report was written assessing the Pilkington Library's Internal Procedures for managing an ACORN-type collection. An assessment of the technical model was also performed to ensure that it met criteria from the Project Proposal and an ACORN service criteria document written at the outset of the technical development work. Two documents resulted from these activities:

- Technical assessment of ACORN model
- Assessment of Pilkington Library internal procedures for managing an Electronic Short Loan Collection

As stated above, the two series of training sessions were evaluated and written up into two reports:

- Training Report 1996/7
- Training Report 1997/8

Service evaluation was perhaps ACORN's most important evaluation activities. It was evaluated by comprehensive usage statistic logging (details below). User feedback forms were distributed to all target students via their lecturers at the end of the module. The form was also available in electronic form on the system itself. These addressed issues such as reasons for use (or non-use) of the service, ease of navigation through the articles, whether the materials were the high-demand ones for their modules, and payment. Five focus groups were held over the two semesters with different stakeholder group representation in each. These covered such issues in more detail. A lecturer in the DILS was asked whether she would be willing to set her Human Factors students a piece of coursework analysing the ACORN service for its use and usability. She agreed, and the reports collectively provided valuable feedback to the project. Finally a survey was made of all participating staff to ascertain why and how they were using the ACORN service in teaching. The service evaluation activities can be summarised as follows:

- Usage Statistics Report 1996/7
- Usage Statistics Report 1997/8
- User Feedback Report 1996/7
- User Feedback Report 1997/8
- Focus Group Report 1996/7
- Focus Group Report 1997/8
- Survey of Participating Academic Staff
- Human Factors Report

The final evaluation activity was a cost-benefit comparison of the paper and electronic Short Loan Collections at Loughborough University. This was written up into a

- Cost-benefit Comparison Report

2.10 Dissemination

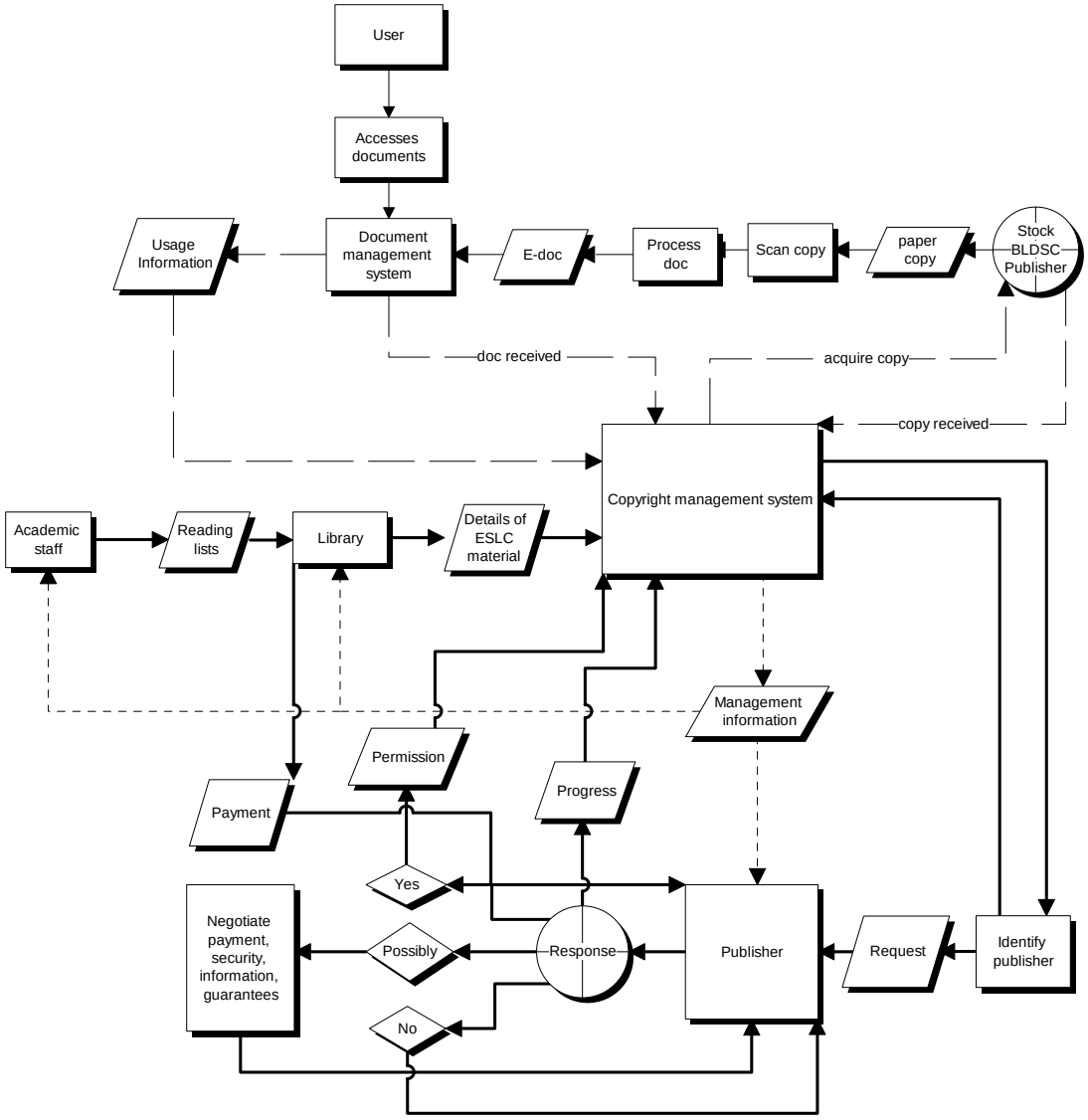
With such a thorough evaluation plan, there were no shortage of findings to report via written articles and conference / seminar papers. A list of these is given below under "Project Outcomes". All the reports apart from the Publisher Visit reports, and the full permissions reports which were promised as "payment-in-kind"

marketing information for participating publishers, were made available on the ACORN Web Site. Regular general progress reports, and permissions progress reports, were also added to the web site, and relevant mailing-lists were informed when this occurred. The ACORN service itself was accessible to internal users via our web site, and because we had so many remote users trying to access the service that way, a dummy demonstration was designed and made available on the site for interested external visitors. The demonstration contained no copyrighted materials or publisher information. As a final dissemination activity the project held a series of regional seminars across the country entitled "How to establish an Electronic Short Loan Collection: the costs, the benefits, the issues". There was great interest in the seminars with approximately 130 delegates representing about 60 Higher Education Institutions in England Scotland, and Northern Ireland. Evaluation forms showed that the seminars had been extremely well received (appendix 25).

3.0 Outcomes: the ACORN Model

The main project deliverable was the ACORN model for managing an electronic Short Loan Collection illustrated in the diagram below.

Overview of a model Electronic Short Loan Collection



Project findings affecting the model

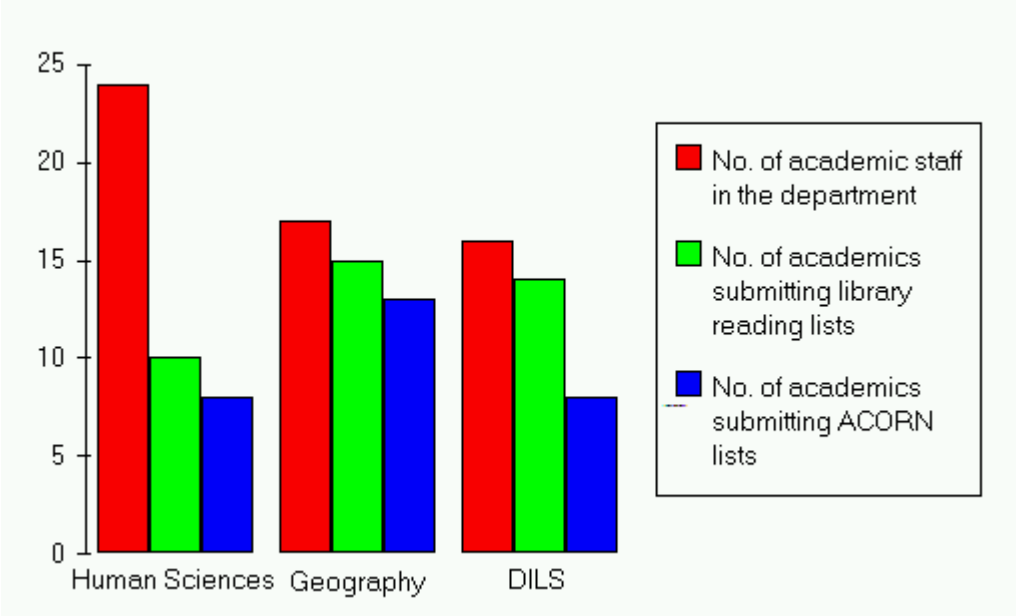
3.1 The need for an Electronic Short Loan Collection

Initial market research work in the form of the SLC surveys, the SLC statistics-gathering exercise, and the academic staff survey highlighted the problems that SLCs face in attempting to provide additional access to high-demand materials. Statistics showed that student numbers are increasing, placing increased pressures on library resources. Modularisation and semesterisation are compounding demand at certain parts of the semester. Loughborough's SLC has over 5,000 photocopied articles and Leicester's has over 8,000, in order to try to meet demand. Such large collections can become very unwieldy. As a consequence items are frequently misfiled, lost, damaged, or vandalised, and approximately 4,000 staff hours per annum are required to manage the collection. Students are put off from using the collections because of what they see to be inconvenient return times and loan periods, items frequently being already out on loan or reserved by another user, not being allowed enough items at one time, fines and queues.

3.2 Academics and their reading lists

There were 60 academic staff in total in the three departments with which ACORN was working. Forty of these usually submitted reading lists to the library, and thirty submitted reading lists for the ACORN service.

Seventy-five per cent of academics that usually submit lists to the library actually submitted them to ACORN therefore. This was a very pleasing participation rate.



Ratio of academics submitting lists to the library and to the ACORN service by department.

The first survey of academic staff revealed that 54% of respondents updated their reading list one week before the beginning of the semester. This conflicted with the three month lead-in time ACORN estimated was required in order to receive copyright permission and digitise the materials, and may explain some academics' decision not to use ACORN. Some respondents also indicated that because of modularisation they were creating and distributing weekly reading lists instead of submitting one list in advance. Non-use of ACORN may also have been influenced by the fact that only 16% of respondents indicated which items on their reading lists were in high-demand. Some may therefore not have seen the need for a high-demand electronic reading service such as ACORN. Of those academic that chose to make materials available via ACORN, it transpired that 35% did not usually submit articles to the traditional SLC because it didn't entirely meet their needs. Indeed many participating academics praised ACORN for the increased access, dispersed access and guaranteed access it provided to their high-demand materials. For example, some academics based criticism or review exercises around the articles because all students could have guaranteed access to them in a one week period; other academics created links to ACORN from their own module web pages. Neither of these activities could be performed with the SLC. Some participating academics highlighted disadvantages of ACORN too - the main disadvantage being the 20% permission failure rate. Academics were clearly concerned that if certain key articles were not available with the other high-demand readings via ACORN, then students would miss out on essential elements of their education. This is a valid point, and one that could be used in negotiation with Rights Holders.

3.3 Copyright Permissions Seeking

The absence of suitable UK copyright law dictated that the project team had to approach 147 publishers individually to request permission to digitise articles. ACORN found that not all publishers have rights and permissions departments and a large proportion of publishers do not have policies and procedures in place for granting electronic copyright clearance. In some cases, the publisher was not the copyright holder. ACORN found that it is essential to obtain a named contact within publishers before sending out requests. Without a contact name, requests can get lost within organisations. The average time taken to obtained written permission from publishers was two and a half months. Seventy-seven per cent of participating publishers required chasing before giving permission for material requested. The average number of times a publisher was contacted before giving permission was almost six times per article.

Learned societies and university presses were proportionally more willing to participate in the project. Over three-quarters of these types of publishers approached agreed to take part in the project. Commercial publishers were proportionally less willing to participate (62 per cent).

As the project was requesting permission for no charge, only a small number of participating publishers charged for the use of their material. Nine publishers made charges, either on an up-front or per-use basis. One publisher used a more complicated algorithm including an up-front digitisation fee accompanied by usage fees. Up-front fees were made on a per-article or per-page digitised basis. Usage-based fees were for printing on a per-article or per-page basis.

ACORN received permission from 70 per cent of publishers (102) approached to digitise eighty per cent of the 622 articles requested (504). This was a good result given the concerns of publishers which will be discussed later. Probably the main reason for the success of the permissions seeking process was the fact the ACORN was a project. Publishers were only asked to license material for the duration of the project. The fact that the ACORN service was confined to journal articles also probably influenced the decisions of publishers. Short loan collections are aimed at undergraduates. Research carried out by ACORN showed that journal publishers do not consider undergraduate students to be their main target market, therefore publishers did not feel threatened by ACORN's activities. The ethos of the ACORN project was to work in partnership with publishers. The provision of information back to publishers was promoted as a sort of payment in kind for participating in the project. Finally, the participation of Swets & Zeitlinger in the project contributed to the success in permissions seeking. The Swets logo was used on request letters and Swets staff directly facilitated some permissions.

Approximately 300 hours was spent seeking copyright permission for the 622 articles for 50 modules from 3 departments for ACORN. At the moment, permissions seeking is complex and time consuming process. Libraries wishing to set up ESLC services are unlikely to have the resources to have dedicated staff to carry out this work, therefore it would make sense for some sort of intermediary service to take on this work on behalf of libraries. The interest shown in the project and the ACORN regional seminars by other HEI libraries shows that there is a potential demand for such a service.

3.4 Publishers views

There was a general wariness amongst publishers about electronic use of copyright material. This wariness was not shared by authors. With one exception, all authors approached for copyright permission were happy to grant it. Publishers were concerned about losing control of their material, mainly through excessive copying and unlimited access to material across networks. They were also concerned about the potential ease of manipulation of material in electronic form and abuses that could result from this. For these reasons, ACORN staff reassured publishers about the access and security mechanisms in place for the project. Other publisher concerns included the potential loss of sales and revenue resulting from increasing numbers of libraries setting up systems similar to ACORN. Publishers were concerned that libraries might start to digitise individual articles, make them widely available in electronic form, and cancel subscriptions. This concern would be compounded in the case of text books, because of the potential loss of sales to individual students.

Many publishers had their own plans for the exploitation of their material in electronic form and felt that initiatives such as ACORN could jeopardise their own electronic products. In the course of negotiations with publishers, ACORN staff found that just under ten per cent had a blanket 'no electronic copying' policy, and many more had no policy at all for electronic copying. The latter was reflected in the lack of consensus between publishers on charging methods and levels. Some publishers freely admitted that they did not know how to charge for electronic use of their material. The ACORN staff were able to negotiate charges with some publishers. Other publishers who initially wanted to charge, waived their charges altogether after negotiation.

3.5 Clean copies for scanning

Having received permission to make the articles available electronically, the next step was to obtain a clean copy for scanning purposes. In the initial stages of the project it was thought that electronic copies of the articles may be obtained from the publishers themselves. However, in practice only 1% of the 504 articles for which we obtained permission were provided in electronic form by the publisher. This was not because publishers refused to provide electronic copies, but because they were unable. As ACORN held 96% of the articles that were requested by academics by virtue of a subscription to the journal concerned, it was decided to take photocopies of the in-house journals for scanning purposes in Phase One. However, because the articles requested were in high-demand by students, many of them were badly worn and torn, vandalised or missing completely. This made it difficult to make a clean copy suitable for scanning and producing an accurate OCRed text file. In the second Phase of the project, therefore, the British Library was approached for clean photocopies for scanning. These proved to be perfectly suitable. In Phase Two we also asked the publisher for a clean paper

copy of the articles and had some success in this. The academics themselves were also able to provide one or two more obscure items where necessary.

3.6 Scanning

ACORN's scanning and OCRing was performed by Swets Microstore based at their Headquarters in Holland. By their calculations, one page of OCRed text took 30 minutes to create, the largest portion of this time being taken up with proof-reading. Based on their ACORN experience they assessed that an average PDF text file would cost between £3.75 and £5.00 per page, and a PDF image file £1.00 per page. These estimates were created in July 1997. The time-consuming processes involved in generating OCRed text files, and the late receipt of many permissions, meant that approximately half the 500 ACORN articles were image files. However, this did provide the project with valuable comparison data between the two file types.

3.7 Security mechanisms

Concerns for the protection of rights holder's intellectual property demanded a comprehensive set of security features to protect the electronic articles. Access was limited by Internet Protocol (IP) address to users on the Loughborough University campus, and by Username and Password authentication. This was a central services username and password that every student has for accessing email, CD-ROMs, etc. Once accessed, the cut, copy and paste facility of each file was disabled, as was printing from the Acrobat Reader. Users could print, but only by exiting the article and returning to the ACORN system whereby we could log every printing activity. A copyright script was embedded into each page of the PDF file which appeared both on-screen, and on every page printed. Print-outs also displayed a watermark consisting of the username, date and time printed. If subsequent illegal copies were then made of the print-out, they could theoretically be traced back to the infringer. Finally comprehensive usage logging took place of every use of the articles. These are described in section 3.8.

3.8 Usage logging

There were a number of reasons why a detailed usage logging mechanism was essential. Firstly, some publishers charged usage-based royalties. Secondly, we had offered usage information as payment-in-kind to publishers, it therefore needed to be accurate and comprehensive. Thirdly, detailed usage statistics were also valuable for the Project itself in assessing demand and use of the service. For these purposes the system was able to log the year and department of the accessing student; the materials they had accessed; the location of their PC on campus; the route by which they entered the system (Web or OPAC); the functions they had performed (view, view and print, or print-only); and the duration of their access. A summary of the usage statistics is given in section 4.2.1.

3.9 Costs of model

Detailed costings were performed of both the ACORN collection and the SLC at Loughborough University in order to draw up a cost-comparison document. Obviously estimates had to be made as to how ACORN would scale up, and what "real-world" permission charges might be. The comparison was based on a University of 25 departments with each department ordering 170 repeat items, and 30 new items each year for the collections. A comparison of the capital (hardware and software) costs, direct (ILL, photocopying, fax, postage, permission fees) costs, and staff costs are illustrated in the table below. It can be seen that staffing is the major cost area for the SLC at 70% of the total. Direct costs form the largest portion of the ACORN costs, with digitisation costs proving to be the largest element of these. For the purposes of analysis, digitisation costs were calculated at £1 per page for image files, and a recently received quote of £3 per page for text files. This shows the impact that file-type can have on costs. The largest portion of ACORN staff time was spent liaising with publishers for permissions rather than managing the collection for which little staff time was required at all.

	SLC	Percentage of total cost	"ACORN"	Percentage of total cost
Capital Costs	£5,395	16%	£2,500	3-5%
Direct Costs	£4,250	13%	£29,700(Image) £58,200 (text)	61-75%
Staff Costs	£24,345	70%	£16,230	21-33%
TOTAL	£33,990		£48,430 (image) £76,930 (text)	

ACORN and Loughborough's SLC cost summary

4.0 Outcomes - The ACORN Systems

4.1 Online demonstrator system

Over 500 articles were made available as a result of agreements with 102 publishers to registered members of Loughborough University via the ACORN Service. These were high-demand articles on 50 modules for which approximately 1300 students were registered. The system was launched on April 21st 1997, mid way through Semester Two of that year, and was available until the end of the Project period, the end of Semester One, 1998. Users could access the system via the TalisWeb OPAC, and via web pages, from the Library; any Central Services computing lab across campus; the three relevant departmental computing labs (Geography, Human Sciences and DILS); and also any networked study bedroom (of which there are currently 800 at Loughborough). Students could print to any printers at these venues, except to personal printers within study bedrooms. This was because the project needed to log all printing, and couldn't log printing sent to personal printers. ACORN wrote a performance criteria document against which to measure the performance of the service. Pleasingly it met all of our criteria, and has to date had no down-time at all.

4.2 Service Evaluation

4.2.1 Usage statistics

In total, 1051 view-only activities, 431 view-and-print activities, and 227 print-only activities were performed by users of the ACORN system. The preference for viewing could be explained by users simply becoming more comfortable with viewing from screen, or by the heavy usage from Halls of Residence where printing to personal printers had to be disallowed. Overall just under one-third of the 1300 users registered on modules for which the readings were high-demand actually used the service. This was a very pleasing result considering the service was brand new, and only targeted at three departments. Interestingly, the "out of hours" demand for ACORN, plus the concurrent user demand was frequently at a level that the SLC could not meet. The Library was the most popular access point for the service - even though there were only four Library PCs from which the service could be accessed - followed by DILS, Halls, and Central Services. A large proportion of the articles for which ACORN received permission remained unused (28%). Just over one-third (35%) of the unused articles were those we had received late permission for and were therefore late in appearing on the service. This indicates that where permission is received late, usage is unlikely to justify the cost of the permission and digitisation.

Two of the findings were of particular interest to Rights Holders. The first was that where access was opened up to all members of the University rather than just students on target modules, usage *decreased* rather than increased. Promotion and training for the service remained the same between the two semesters. It appears that Rights Holders need not fear that increased institutional access to their materials will cause an influx of use of the electronic materials that have an impact on alternative sources of secondary publishing income (such as photocopying or coursepacks). In reality there is very little overlap of high-demand materials from one course to another, let alone one department to another. The second interesting result for Rights Holders is the relatively small income they would receive by charging a print-based royalty. As has been demonstrated, viewing activity was far greater than printing activity, and print-based royalties inhibit printing to local printers which greatly inconveniences students. If publishers would charge a reasonable up-front fee, both parties would appear to benefit.

4.2.2 User feedback

Fifty per cent of the user feedback forms returned were from students who said they had not used ACORN. The remaining fifty per cent had used it. This was pleasing in itself. Reasons for non-use included lack of awareness, time and need. Access difficulties had also discouraged some users, as had a few cases of self-confessed technophobia. The Phase Two survey seemed to indicate that IT skills had impacted on the take-up of the service with non-users having less "good" or "very good" IT skills and proportionately more "poor" and "very poor" ratings. However, training and training materials seemed again to have little significant effect on the take-up of the service. Of course, had students not been trained or received documentation, the take-up of the service would undoubtedly have been a lot lower. An unusual result of the User Feedback was that one of the key uses of ACORN in both semesters was for wider reading. The survey of usage of the SLC showed that less than 1% of respondents were using SLC materials for wider reading. This may indicate that ACORN encourages rather than discourages browsing as some academics had feared.

The analysis provided some positive feedback on the functions of the ACORN service. Legibility and navigation were both given a generally positive assessment, although navigation to specific sections of the articles and text legibility were given more low ratings in Phase Two than one would like. Users tended to print whole articles but the page selection feature was used and again proved valuable. The major printing complaint was the inability to print to personal printers in Halls of Residence. This could only be overcome if Rights Holders did not demand usage-based fees. This would mean the usage tracking module could be disabled which in turn would mean that users could print to any printer. It was recommended that this is raised with publishers in future negotiations.

Only one respondent over the two semesters felt that none of their high-demand materials were available. By far the highest proportion felt that only "some" of the articles were the high-demand readings they needed. The most obvious reason for this was that copyright permission refusals affected the percentage of high-demand materials we could make available via ACORN. In addition, it may have been that academics did not fully recognise the "high-demand" nature of ACORN and instead recommended wider readings. Alternatively it may have been that their key readings were from text books, and ACORN did not offer the facility to digitise book chapters.

It was interesting to collate the responses to the re-worded question of payment in the second semester. It was not surprising that 75% of respondents would not be prepared to pay an additional fee for the service. However, 25% still said that they would pay (compared to one-third last semester). They even nominated costs of about 5p per page, or 20p per article printed, which would correspond with what some publishers are currently charging. However, it was recommended that these results were viewed with caution as the situation may change as students are forced to contribute towards their tuition fees. Ninety-five per cent of students' overall wished to see the service developed further which was a very encouraging figure. It was clear that students want to see more of their modules' high-demand articles accessible via the ACORN service.

4.3 A portable model

4.3.1 Internal library procedures

The portability study (appendix 22) proved that the internal procedures were easily transferable to another institution as anticipated. The main areas of change for Leicester would be: the encouragement of academics to submit reading lists up to three months in advance of the semester; to prioritise the processing of the Electronic Short Loan Collection (ESLC) references, perhaps using the CLEAR database; and to negotiate electronic copyright license terms. A recent study has been performed by ACORN on the use of the Talis Library Management System for the ordering of ESLC materials, as many of the processes are quite similar. The use of Talis seems to be viable with a small number of manageable alterations. This would make the ACORN internal library procedures even more portable to other University Libraries.

4.3.2 Technical model

The ACORN technical model also proved to be portable to Leicester University. User authentication and printing were the main challenges, as Leicester did not have a central list of usernames and passwords as did Loughborough, and they were moving to a new print system entitled UNIPRINT. UNIPRINT had a function whereby users could issue a print command and subsequently cancel it. In a real world service, this could have meant that the Library were paying usage fees for material that wasn't actually used. These challenges were solved firstly by the use of Library Borrower ID's and PIN numbers for authentication purposes, and by exploring the use of debiting the users' Library fine accounts when print commands were issued as a deterrent to cancelling print jobs. More detailed information on the portability findings can be found in the portability report (Appendix 23).

4.4 CLEAR database

The CLEAR database was an additional ACORN deliverable, and not one demanded by the original project proposal. It is a comprehensive copyright permissions tracking database. the functions of which are listed below:

- logs module, tutor and reading list information
- logs publisher contact details
- logs permission progress, chases and refusals
- logs charges (license or royalty)
- orders ILLs
- receipts electronic copies
- stores usage statistics
- calculates payments
- generates management reports

An operators manual has been written and can be found in appendix 12.

5.0 Outcomes - Documentation and dissemination

5.1 Documentation

Listed below is the documentation produced by the ACORN project. Where the item is available on the ACORN Web Site, the direct link URL is given.

Technical Documentation

- ACORN System Design Document (Appendix 1)
(Overview at http://acorn.lboro.ac.uk/acorn/tech.htm)

- ACORN System Documentation (Appendix 2)
(http://acorn.lboro.ac.uk/acorn/acsysw.htm)

- Technical Assessment of the ACORN Model (Appendix 3)
(http://acorn.lboro.ac.uk/reports/assess.htm)

Short Loan Collection Documentation

- Short Loan Collection Statistics : Loughborough University's Pilkington Library and Leicester University's Main Library (Appendix 4)
(http://acorn.lboro.ac.uk/reports/statis.htm)

- Short Loan Survey Report (Appendix 5)
(http://acorn.lboro.ac.uk/reports/analys.htm)

Academic Staff Survey Reports

- Academic Staff Survey Report, 1996 (Appendix 6)
(http://acorn.lboro.ac.uk/reports/acadfi.htm)

- Participating Academic Staff Survey Report, 1997 (Appendix 7)
(http://acorn.lboro.ac.uk/reports/acad2.htm)

Publisher Liaison and Copyright Clearance

- Manual of procedures on gaining electronic copyright clearance for journal articles (Appendix 8)
(http://acorn.lboro.ac.uk/acorn/access.htm)

- Final Copyright Permissions Report (Appendix 9)

- Seminar for Publishers participating in Project ACORN: Electronic 'short loan' collections: issues for publishers (Appendix 10)
(http://acorn.lboro.ac.uk/reports/semina.htm)

- Publishers Questionnaire Report (Appendix 11)
(http://acorn.lboro.ac.uk/reports/pubq.htm)

- CLEAR User Manual (Appendix 12)

Training Reports

- Student Training Report - Semester 2 1996/7 (Appendix 13)
(http://acorn.lboro.ac.uk/reports/training.htm)

- Student Training Report - Semester 1 1997/8 (Appendix 14)
(http://acorn.lboro.ac.uk/reports/stutra.htm)

Service Evaluation

- Phase One Usage Report - Semester 2 1996/7 (Appendix 15)

(http://acorn.lboro.ac.uk/reports/usage.htm)

• Phase Two Usage Report - Semester 1 1997/8 (Appendix 16)
(http://acorn.lboro.ac.uk/reports/usage2.htm)

• Phase One User Feedback Form Analysis (Appendix 17)
(http://acorn.lboro.ac.uk/reports/feedba.htm)

• Phase Two User Feedback Form Analysis (Appendix 18)
(http://acorn.lboro.ac.uk/reports/feedb2.htm)

• Phase One Focus Group Report (Appendix 19)
(http://acorn.lboro.ac.uk/reports/focus.htm)

• Phase Two Focus Group Report (Appendix 20)
(http://acorn.lboro.ac.uk/reports/focus2.htm)

• Human Factors Report (by Steve Burgess under the supervision of Anne Morris) (Appendix 21)
(http://acorn.lboro.ac.uk/reports/hueval.htm)

Portability Study Reports

• Assessment of the portability of the ACORN Library Procedures (Appendix 22)
(http://acorn.lboro.ac.uk/reports/leics.htm)

• Assessment of the portability of the ACORN Technical Procedures (Appendix 23)
(http://acorn.lboro.ac.uk/reports/port.htm)

• Assessment of Pilkington Library Procedures for Managing an ESLC (Appendix 24)

Other

ACORN Seminar Series Report (Appendix 25)
(http://acorn.lboro.ac.uk/reports/workeval.htm)

• ACORN User Guide and Flier (Appendix 26)
(http://acorn.lboro.ac.uk/reports/guide.htm)

• ACORN Information Policy Document (Appendix 27)
(http://acorn.lboro.ac.uk/reports/infopo.htm)

• Cost-benefit comparison of paper and electronic Short Loan Collections (Appendix 28)
(http://acorn.lboro.ac.uk/reports/compar.htm)

5.2 Journal articles to date

GADD, Elizabeth. ‘Comparing paper and electronic Short Loan Collections’, Library Management, 1988, [in press]

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GADD, Elizabeth. 'Preparing students for a new electronic service', Ariadne, 1997, (9) online edition only - http://www.ariadne.ac.uk/issue9/acorn-training/

GADD, Elizabeth. 'Then and now : the changing process of copyright clearance with the advent of the electronic era', Copyright and New Media Law newsletter, 1997, 1 (1) p. 6-9

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KINGSTON, Paula and GADD, Elizabeth, 'Short Loan Collections'. In: Spiller, David, ed. Academic library surveys and statistics in practice : proceedings of a seminar held at Loughborough University, 2-3 June 1997. LISU Occasional Paper no. 16. Loughborough : LISU, 1998.

KINGSTON, Paula. 'Project Acorn: using Internet tools to provide local solutions'. Managing Information, 1996, 3 (10), p. 42-44

KINGSTON, Paula. 'Acorn'. Ariadne, 1996, (6), p. 9 and http://www.ariadne.ac.uk/issue6/acorn/

KINGSTON, Paula. 'The electronic library: a step in the right direction?' Infocus, 1997, 1 (3), p. 8-13

KINGSTON, Paula. 'Managing the transition from paper to electronic text : implications for libraries and publishers.' Serials, 1997, 10 (2) p.216-223

KINGSTON, Paula. 'Electronic access to geography course readings : Project ACORN.' Geocal, 1997, 16 (June), p.21-23.

KINGSTON, Paula. 'Electronic access to high-demand journal articles : Project ACORN' Cambridge University Libraries Information Bulletin, 1997, 41, p. 10-14

KINGSTON, Paula, GADD, Elizabeth and POULTER, Alan. 'Project ACORN : user reactions', Learned Publishing, 1997, 10 (4) p.323-330

KINGSTON, Paula, GADD, Elizabeth and GOODMAN, Richard. 'Developing and evaluating an electronic 'short loan' collection in a university library', International Journal of Electronic Library Research, 1997, 1 (2), p.95-118

KNIGHT, Jon and GOODMAN, Richard. 'The Technical Implementation of Project ACORN', Ariadne, 1997, (10) online edition only - http://www.ariadne.ac.uk/issue10/acorn/

5.3 Major presentations

GADD, Elizabeth. ‘Project ACORN: Access to Course Readings via Networks’. East Midlands UC&R Seminar, ‘Towards the Digital Library’: Loughborough University, 18 March, 1998.

GADD, Elizabeth. 'Copyright in the Digital Library'. Anglo-German Conference, Worcester College, Oxford, January 9-11, 1998.

GADD, Elizabeth. 'Negotiating electronic copyright permissions.' Copying for education, NEYAL Seminar, Leeds Metropolitan University, December 5th, 1997.

KINGSTON, Paula. 'Electronic access to course readings: the librarian's vision and the publisher's response'. EUSIDIC Spring Meeting, Lille, France, March 6th-7th, 1997

KINGSTON, Paula. 'Electronic short loan collections : issues for libraries, publishers and subscription agents'. Electronic Publishing 97 - New Models and Opportunities, ICCC/IFIP, University of Kent at Canterbury, April 14th -16th, 1997.

KINGSTON, Paula. 'Project ACORN: the potential impact of electronic access to high demand journal articles on teaching and learning ergonomics at undergraduate level.' Ergonomics Society Annual Conference, Stoke Rochford Hall, Lincolnshire, 17th April, 1997.

KINGSTON, Paula. 'Managing the transition from paper to electronic text : implications for libraries and publishers'. Spiders or Flies : UKSG/NAG Joint Seminar, Eynsham Hall, Oxfordshire, 7th-8th May 1997

KINGSTON, Paula. 'Issues in developing an electronic short loan collection: Project ACORN's experience.' Welsh UC&R Seminar: 'Ready to Order', University of Swansea, 12 June 1997.

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WOODWARD, Hazel, and GADD, Elizabeth. ‘Why do we need all these licences?’ Copyright and licensing in the Electronic Age, London International Book Fair, Olympia, 23 March 1998.

WOODWARD, H. 'The site licence approach' ECUP Copyright Awareness Day, Library Association, 28th February 1997.

WOODWARD, H. 'At what cost ? Access to digitised journal articles.'. IFLA Serials Section Workshop - "The New Economics of Publishing", 4th September 1997.

5.4 News Items

'Electronic short loan' Bookseller, 1996, 29th November, p.10

'Project ACORN : Electronic Libraries Initiative' Library Systems Today, 14 (2), p. 29

'OLS News Interview with Paula Kingston.' OLS News. No. 59, March 97, p. 4-5

'Project ACORN'. Electronic Library, 15 (1), p. 5

'Project ACORN'. Serials, 1997, 10 (1), p. 7

'Project ACORN : watching those oaks grow' Ariadne, 1997, (9) online edition only - http://www.ariadne.ac.uk/issue9/acorn/

'Electronic 'short loan' - ACORN update'. Scholarly Communications Report, 1997 (6), p.2

'Journal wait over for students' Information World Review, June 1997 - Online edition - http://magnet.vnu.co.uk:81/ip_user/owa/story.item?c_mag_id=73&c_story_id=29732&c_ilse_cat_id=157

'ACORN enables access to over 200 articles'. Computers in Libraries, June 1997, 17 (6), p. 14

5.5 Interviews

Paula Kingston was interviewed about the ACORN Project by Radio Leicester on their morning news and current affairs programme on Friday April 11th 1997.

5.6 ACORN Web Site

ACORN has prided itself on keeping its web site up to date with every non-commercially sensitive document and report produced by the project. More information on the contents of the site can be found under "dissemination" in the Major Activities section of this report. This is clearly a beneficial outcome of the project in the provision of information to the HE community.

5.7 Project ACORN Seminar Series, 16-27 February 1998

ACORN held five Seminars in regional locations (Loughborough, London, Bristol, Glasgow and Newcastle) as mentioned above. They were intended to provide a comprehensive "How-to" guide to the establishment of an ESLC. Workbooks were provided giving overhead slides and additional information such as useful URLs and hints and tips. Five topics were covered: Costs and benefits of ESLCs; Importance of stakeholders and their views; Technical procedures: Electronic copyright clearance; and Usage and Users. The seminars were well-received by delegates. Delegates were asked to complete evaluation forms where they were asked to rate various aspects of the day. When asked to give an overall rating, 98 per cent of delegates said the seminar had been good or very good. Delegates were particularly impressed by the quality of presentations and by the written documentation they were given to take away. Delegates commented that they liked the practical approach of the seminars and being told about both the advantages and problems of setting up such collections.

6.0 Exit strategy

6.1 ACORN integration into the Pilkington Library

The Pilkington Library is investigating means of integrating the ACORN service into its main stream library services. A small post-ACORN pilot project with the Physical Education and Sport Science department is in progress where digitisation will be undertaken in-house. Once in-house digitisation costs, and 'real-world' permission fees have been assessed, it is the intention of the library to perform a market survey of all academic staff to inform the integration strategy. The library is also pursuing the utlisiation of the ACORN technology for exam papers and book chapters. During the course of the project a report had been written assessing the internal Pilkington Library procedures for managing an ESLC. This will assist the integration process.

6.2 The DiReCt Proposal

As ACORN had built up good relationships with over 100 publishers and rights holders, had designed a proven Electronic Copyright Management System, and had created a portable local solution for the electronic delivery and tracking of copyrighted materials, we felt we were in a very strong position to provide a National Service to the Higher Education community in the area of centralised electronic copyright clearance, digitisation and storage. The ACORN team therefore put a great deal of time and effort into discussions with potential consortium partners and potential users of the new service and submitted a bid under the eLib Phase 3B Circular to provide a National Resource Bank service entitled DiReCt (Digital Resource Centre). Despite being one of only two bids for this project we were, unfortunately, unsuccessful.

6.3 ACORN Advisory Service

Having learned that DiReCt would not be funded, ACORN approached the JISC for two months funding to provide an Advisory Service in the area of Electronic Short Loan for the UK Higher Education community. During the course of the project we had hosted multitudinous visitors both from the UK and as far afield as Australia, South Africa, Brazil and Sweden. There were also many requests for information, and Web Site statistics revealed consistently high external usage. This, coupled with the obvious interest in the ACORN

Seminars, proved that there was a still a great demand from the HE community for assistance, advice and information about Electronic Short Loan - needs that ACORN was in an excellent position to meet. To this end it established ACORN Advisory Service offering email and telephone helplines, "How-To" leaflets, visits to ACORN at Loughborough as well as on-site visits, presentations and feasibility studies. ACORN liaised with just under thirty different HEIs during the Advisory Service. Six on-site visits were made in order to give presentations and help institutions develop strategies for the electronic delivery of high-demand course materials. In addition seven such visits were hosted by Loughborough University. Fifteen other institutions received the Advisory Leaflet series and other advice via phone, email and post. The CLEAR software and ACORN CGI scripts were given away to seven institutions during the Advisory Service period. ACORN received much positive feedback from Advisory Service clients.

7.0 Financial Report

The final financial report as projected at 11 May 1998 is given below:

Budget Head	**Total Project Budget (Including interim and Advisory payments)**	**Actual cost**	**Funds remaining**
Staff	118,996	105,364	13,632
Clerical	7,000	10,650	-3,650
Consumables	1,500	1,325	175
Travel & Subsistence	3,000	1,800	1,200
Inter-Library Loans	1,920	1,905	15
Hardware	19,000	19,000	0
Publishers Seminar	1,500	1,500	0
Digitisation	13,500	13,500	0
TOTAL	**166,416**	**155,044**	**11,372**