ICSTI General Assembly

Loch Lomond, Scotland, 21–25 May 1998

Attendees

Present were 43 people from 38 ICSTI member organizations, 3 observers, 5 speakers and 3 people from the Secretariat. There were representatives of various international organizations and attendees from UK, USA, Netherlands, Canada, South Africa, Japan, France, Russia, Taiwan, and Sweden.

Electronic libraries—relationships between suppliers and customers

The primary publishers' viewpoint

Ian Bannerman, Blackwell Science

Blackwell Science are unusual in that often they are publishing under license for learned societies, so they

Free access

Pros	Cons
Can provide critical mass of users	Can swamp the service
No administration of payments or security problems	Stores up problems
Promotes titles/organization	Tests the technologies not the product
Users should be tolerant of problems	Undermines the value of copyright
	Does not encourage internal discipline
	No money!

So, you need to be clear why you are giving it away free.

Online linked to print (i.e. online is bundled with print).

Pros	Cons
Preserves revenue in short-term	Not necessarily what customer wants
Print as back-up and archive for all customers	Does not resolve format question
Offers added value	Does not allow savings
	Acts as a straight jacket

do not hold the copyright. The creation of digital content should be integral with print systems. They use PDF full text, and HTML for headers. They chose not to have an Elsevier Science Direct or Springer LINK type of service, instead they use intermediaries such as BIDS to deliver the content.

Blackwell Science studied pricing policy. The market expected electronic journals to be cheaper than print but online publishing creates additional costs. At first the pricing policy was online price 90%, print 100%, online plus print, 130%. We are all caught in an inflation-

Online only

Pros	Cons
Provides customer choice	Archival problem needs to be addressed
Potential for cost savings	Requires faith in the quality of the service

Product bundles ('For 10% more you get access to all our materials')

Pros	Cons
Easy to sell to accountants	Undermines collection development role
Increases penetration of all titles	Short-term insulation from market forces
Mops up finite funds in the short term	May not be scaleable or sustainable
Once negotiated, easy to administer	Assumes all titles are valuable
	Difficult to negotiate

Consortia (Libraries club together.)

Pros	Cons
Avoids duplicated negotiation	Consortia differ in size, infrastructure, budget and cohesion
Good PR (public relations)	May be no sense of local ownership
Provides critical mass of users	Can be high risk—all your eggs are in one basket

Transactional pricing

Pros	Cons
Already part of the economy but currently yields little revenue Statistical data Provides a richer product mix	May be difficult to budget May undermine subscription revenue (especially to high price titles) May undermine nonsubscription revenue from industry, e.g. offprints to pharmaceutical industry

ary spiral (journal subscription cancellations lead to reduced profitability lead to publisher price increases lead to reduced spend on journals) but the tendency is for publishers to increase prices, since cancellations do not cause as much loss as price increases cause profit. Electronic publishing may break us out of the spiral.

'*There are no stable or half-way solutions for launching the learned periodical literature onto the post-Gutenberg galaxy*' (Steven Harnard). Pricing options include 'free' access, online linked to print, online only, product bundles, consortia and transactional pricing (document delivery). Bannerman considered the advantages and disadvantages of the various options in the Tables below.

When Blackwell Science chose to charge 130% of the print price for print plus online, customers focused on the 30% surcharge, not on the actual price. The focus is on the add-on, not on the real problem or benefits. The real problem was how much the *print* costs in the first place. Bannerman cited some figures from the University of Georgia figures, comparing various publishers. There is a big difference between Publisher A adding 10% to its average journal price of $1400, and Blackwell Science adding 30% to its average of $473.

Blackwell Science was involved in the UK National Pilot Site License. The old model was that Higher Education Funding Councils (HEFCs) paid HE institutions who used subscription agents, while the publishers supplied the journals to the HE institutions. The new model links HEFCs directly with publishers who supply journals (with a site license) to the institutions, although institutions still use agents to order from the publishers.

The experiment is coming to the end. One problem for Blackwell Science is that universities might use the cost savings not to cancel subscriptions to Blackwell Science's competitors. A new project is NESLI, the National Electronic Site License Initiative. In this model, HEFCs will pay a managing agent (Swets and the University of Manchester) and electronic delivery is separated from print delivery. This new model is not yet commercially acceptable to Blackwell Science.

He concluded that we are faced with instability for the foreseeable future. There are *no* stable pricing and licensing models for online journals. There are no 'sacred cows': universities cannot always have interlibrary loan (ILL), free archival access and annual subscriptions. A single solution is not universally applicable.

There was some discussion about the delivery of single articles instead of full journals. Bundling is not done by subject area but this could make sense in the future. Herman Spruijt of Elsevier said that we must accept that the next generation may want the 'article' rather than the journal. We have to look at the 'container'.

Finally, Bannerman produced the following table:

	Examples	Payment	Usage Data	Price Control
Publisher run	Journals online	Full, intermediate	Full; article and customer	Complete
Commercial docdel	Uncover; ISI	Full, frequent	Partial	Control of copyright component
RROs	CCC, CLA	Unpredictable	Inadequate	Disconnected
Other	Fair (or unfair) use; ILL; BLDSC; library privilege	None	None	None

The primary publishers' viewpoint

Brian Thackray, Aslib

Aslib has only 10 journals, but some are of high impact in information science. Five of them are online in some form. It is *making money* that is the Holy Grail: the content is already on the Web. We are about to see the 'reinvention' of the journal. Publishers tend to be traditional; the academic community also tends to the conservative. So, reinventing the journal is tricky. Aslib is involved in BOPCAS, the catalogue for British Official Publications Current Awareness Service, at the University of Southampton. This is a free online bibliographic database of British publications, funded by the Joint Information Systems Committee (JISC) in the UK. Aslib have an award from the Department of Trade and Industry to continue this work.

Aslib has looked at the concept of advertising revenue. Advertising usually costs GBP 0.02–0.08 per page view, but this is dependent on the specific nature of the online content, and on the advertisement. Thackray reckons that users will pay to keep advertising off the site because they do not want access slowed by graphics, but how much are they willing to pay? Aslib still wants to offer a 'free' service, so it is looking into different pricing bands for the added value services.

Aslib, with money from the EC, have been working on a new model. The 'container' will change by means of refined electronic feeds with value-added to the articles in the journals. The 'information refinery' approach will involve discussion group formats. The focus groups are willing to pay (in pricing bands) for various added value services: content-based bundles of information, delivery for use on customers' intranets, etc. The transition to electronic publishing will not be easy.

The secondary publishers' viewpoint

Jim Lohr, CAS

Jim began by giving statistics for the huge amount of information available, and the size of CAS databases. Life was simpler when a library was a library. The digital electronic age enables the formation of a nontraditional library, which we may call an 'aggregation'. All the traditional suppliers in the old information supply chain want to evolve and survive in the digital age. All are trying to fill the library function with some sort of aggregation or access scheme.

The CAS perspective on chemical information libraries focuses on a broad set of end-users. It aims to simplify access, provide effective searching, be as comprehensive as possible and offer multiple delivery options. The linking model uses the Internet to provide a broad economic access to a broad user base. The model responds to current business practice realities: many publishers are not willing to load their materials on others' sites; many publishers are establishing their own sites and want to do things their own way. The CAS model unites search and access capabilities.

The service is called ChemPort (http://www.chemport.org). It uses Internet access. Searching is via CAS databases. There are direct links to publishers for retrievals. Subscription services are available via the publishers. Document delivery is available offered from the publisher and/or CAS. There is reference linking. As of last December, eight publishers were involved. This is just one idea for the electronic library. It will evolve with time. It is not the only answer.

After the talk, someone asked whether there will be no need for secondary publishers in future. Jim said that a search engine may be OK for the *New York Times* but chemical information is different because of the nature of chemical structures and the bizarre terminology of chemistry. Thackray suggested that secondary publishers should do subject area 'Yahoos'. Kurt Mulholm says that *all* languages are arcane and full text search engines will never cope with them all.

Dick Kaser, National Federation of Abstracting and Information Services (NFAIS)

Kaser reported on a session entitled 'The economics of scholarly publishing: primary publishing models and user response' held at the 1998 NFAIS Annual Conference. There are four options: the publisher licenses the entire journal collection in electronic form to library consortia, the user buys the journal and gets the electronic text, the user buys by subscription or one article at a time, and to print or not to print at all.

He went on to summarize his conclusions from three NFAIS conferences. Publishers and users seem to be speaking different languages. Today's customers may well be the library consortium and the corporate intranet but the end-user is driving the process. A new model seems to be emerging but it is actually an old one.

The linear distribution model (author to primary publisher to secondary publisher to subscription agent to online vendor to library to user) is dead. The old model had collections of journals, buyer collectives, collection pricing and unlimited access; the emerging model also has collections of journals, buyer collectives, collection pricing and unlimited access.

It is the publishers' and distributors' perception of reality that is dying. The users' perception of reality is enduring and is driving the rest of us to change. Our top-down model is being pressured from the bottom up. The 'new' paradigm is actually an old one: the subscription model with end-users the beneficiaries. The envelope is bigger and so are the buyers. The users remain the same but we are getting closer to them than we have

been in a long time.

The user perceives that information is a public good, is above ownership, is beyond government control and is of great value but little cost. It is there when you need it, accessible, findable, copyable, cut and pasteable, transferable and not restricted. The user believes that information itself has no monetary value (the corollary is that the bulk of information is worthless). Once a gem is found a copy should be kept (the corollary being that users will take what they can get free but they will pay for items they want to possess).

In the new paradigm, lots of users use lots of networks and access indexes, catalogues and search engines. Today's questions are as follows. How big should we let groups be? How should print and electronic prices interrelate? Can pay-per-use coexist with subscriptions? Should rights to current content extend forever? How might copyright law override licenses? What do purchasers want?

Kaser drew attention again to Fisher's statement 'Our focus is now on learning how end-users use the journal and use our content with other content'. Axioms that arose from the NFAIS meeting are as follows. Pricing should not inhibit usage. Keep the end-user in mind. User-friendly systems can dramatically increase the use of materials. 'A lot of researchers are happy with inferior aggregations' or 'What I really want is access to quality'.

Kaser had these words of advice. Become a user of electronic information. Distinguish between customers and users. Negotiate with customers but think like a user. Know that each barrier you erect has a price (to you). Don't dwell on the past. Think of the potential. In e-Utopia, full text will be set loose, links and citations encouraged, browsing permitted, spontaneous purchases supported and re-use endorsed. The challenge is to maintain the revenue stream so that we can continue 'publishing', to manage in an orderly fashion the movement from print to electronic and to expand readership of the journal. We are in the habit of thinking that scholarly publishing is propped up and therefore we must erect barriers to protect ourselves. Scholarly publishing may no longer need to be an artificial economy, if we can just restore the relationship we once had with our real users.

The intermediaries' viewpoint

S. Wilson-Higgins, Blackwell's Information Services

Blackwell's Information Services products are the online bookshop, Electronic Journal Navigator, which concentrates on delivery of journal articles, ESP which is a CD-ROM database in a Web environment, and Collection Manager focused on book materials. Blackwell Science is carrying out the Higher Education Resources Online project which is studying on-demand printing.

Libraries need training and support to use electronic journals. There is a multiplicity of requirements and libraries continue to seek value for money. They will buy collectively to increase access and cap price increases. Their customer service requirements are greater and they do not want primary-publisher-centric access.

Primary publishers' launches are late and diversity is the rule. Primary publishers want contact with the users of their e-journals, and they want to defend their revenue streams. Licensing to consortia is increasing, license management is an issue and prices and packages vary.

For secondary publishers, database aggregators and document delivery services, license driven models prevail. There are more links to primary publishers and agents. Migrating to the Web can slow down access. Pay-per-view is increasingly available.

Blackwell Science believes that listening to customers and suppliers pays off. Monitoring usage across 'many to many' is a valid proposition. Customers need Blackwell Science's assistance to access and try new information services from publishers. Archiving and refreshing data is vital for the future. Good and consistent service remains a competitive differentiator. All new electronic services are 'works in progress'. New competitors will continue to emerge and challenge traditional competitors (Northern Lights, Profound, etc.)

Wilson-Higgins then presented a view of 're-intermediated agent services'. In this model, agents supply an electronic service, electronic budgetary control, advice and support for electronic publications, assistance with electronic access, electronic marketing and usage information and arbitration and documenting of agreed terms. (Administration of electronic acquisitions is a nightmare at the moment.) The agent in this new role will validate multipublisher electronic access, handle high volume transactions, handle electronic billing, facilitate multiple format access, handle electronic license administration, and monitor electronic usage statistics.

The right grouping to handle licensing might be a virtual community organizer such as OhioLink, GlaxoWellcome or the Royal Society. It makes it easier if the community has a common or single source of funding, a common interest and a common legal jurisdiction. Archiving electronic publications is very important. Current technology for electronic fair use and loans is not adequate: in future a trusted system is possible.

Purchasers want more certainty in the purchasing framework, to reduce the 'cost of purchase' (e.g. password administration), and, ideally, more for less (a good deal with tangible benefits and value for money).

The first topic in the discussion session was archiving. The British Library has no funding to do this but it is

reporting to the UK government on deposit of electronic documents. Since last year, the American Institute of Physics (AIP) seems to have diluted its promise of access in perpetuity. Terry Scott (now retired from AIP) also reported that there are significant data protection issues in monitoring usage. AIP destroys its records once they have been processed.

Ian Best, Faxon (part of Dawsons)
The library marketplace is moving to consortia for buying electronic products. End-users want desktop delivery for selected disciplines and they want linkage to the primary information. Usage is shifting to the end-user. End-users demand more features and the product must be Web-enabled. Access must be independent of geography. Clients still want an agent to process their orders. Best was astonished by the primary publishers' comments about getting closer to the client.

Post-Web re-intermediation brings new rules and roles for all parties. Value-added services will be created to cut through information overload. The information's usefulness will be increased. Information will be integrated into internal processes and will facilitate strategic decision making. Publishers are struggling with the evolving business model, maintaining brand identity, technical challenges, and resource allocation and restructuring. Few publish enough titles to make the right bundles. Librarians worry about archiving, budgets, technical challenges and resource allocation and restructuring. Users care about peer review, the tenure system and the imperative to publish, and finding information quickly and integrating it into their own work. Aggregators have to define the product and the market and remain flexible about business models and file formats. There is a lack of standards and infrastructure. Content providers are conservative and each publisher is different. Integrating all the information into the same chain is a problem.

The purchasers' viewpoint

Michael Breaks, Heriot-Watt University, Edinburgh
Heriot-Watt spends 10% of its budget on electronic items but 90% of staff time is spent on managing electronic resources. Library budgets are stable but clients have increasing expectations. There are more students and mature students are less familiar with libraries. Budgeting is decentralized in some universities, i.e. faculties may be making library decisions. Libraries are going through a transition phase and are agents of change on campus. Distance learning and off-campus access are also issues.

Students think of the Internet as a virtual library. Elaborate log-on procedures (authentication and authorization) are a problem, although JISC is nearly at the point of standardizing this. Some universities are merging their library and IT services. The IT infrastructure (desktop/campus/national/international) has to be considered: JANET has been 'free' (actually paid for by 'top-slicing' from grants) in the past but now some network access may be charged.

Teaching, learning and research make conflicting demands. The library users are students but most of the library budget goes on journals for researchers. The Research Assessment Exercise (RAE) rankings are used for funding while TQA assesses the quality of teaching and of the library. There are tensions between RAE and TQA. As regards collection development, every institution has a different mission.

Breaks listed the following obstacles to the use of electronic information services: skills training and awareness, lack of exemplars, lack of national and local vision, lack in key areas, pricing and licensing, too much variety in access methods, and IT infrastructure.

What do libraries and users want? They want to go from a reference to an article. Access and holdings are not two different things: preservation of electronic materials is essential if access is to be guaranteed and the user is to accept loss of the print holding. They want sustainable price models: they cannot afford 'print plus'. They are used to a 'free at point of use' model: transaction pricing gives them no control. The publisher/subject/aggregation question is like comparing a supermarket with a boutique: you actually need both of them.

Libraries need a standard interface for access. They need measures of effectiveness to determine if they are getting value for money. They want to get figures for usage from publishers. They want consortia purchasing. 'Fair use' ('fair dealing') is well established in the print environment: it is wanted in the electronic environment too. There must be electronic-only options. Standard license terms are needed: negotiating with individual vendors is a problem. Libraries do not like noncancellation clauses. Integrated access (compare channel hopping in a TV environment), 'walk-in' access (for people outside the university) and institution-wide access are needed. Libraries want a critical mass (in breadth and depth) and value-added features such as rotating chemical structures within a journal.

Finally, Breaks mentioned the Distributed National Electronic Resources. There is a JISC group working on content and a collections policy is being formulated. National Data Centers (e.g. BIDS and MIDAS) have been established. Charging models may differ between small and large institutions. The 'hybrid library' programme is carrying forward lessons from the electronic library programme. There is a also a 'New Library' concept of bringing in the public libraries as well.

In the discussion session, Eamon Fennessy, the

Copyright Group, USA, asked what constitutes fair use in an electronic environment. The answer seems to be that libraries do not want to make multiple copies. Copying is not displacing a sale because they would not buy the material. Herman Spruijt asked whether there was still a place for print. Apparently there is, but the house of cards built on print may collapse as the Internet, etc. takes over.

Tom Graham, University of Newcastle

The stakeholders in hybrid libraries are customers, publishers *and* authors. In an electronic environment there are different relationships, different production models, different cost models and different price models. Cost and pricing are *separate* issues. There is a variety of journals, and parallel publishing has increased the awareness and use of electronic journals. Can electronic production be cheaper? The jury is out on this. The 'first copy' argument is less than convincing. The publishing industry has not had to learn about efficiency.

Why is there a 'licensing' pricing mechanism? There has been a shift from ownership to providing access. Electronic publishing is governed by contract law: you do not 'own' something as you do with a print copy. Site license pricing has the advantage that the price is predictable and 'free at point of use' but you end up paying for material you do not want. With transaction pricing you pay per use of material from a publisher or aggregator and you only pay for what you want. It is easy to establish usage figures, but the cost is not predictable.

A problem with national licensing is the variety of terms: the administrative cost of doing it is high for all parties. The Pilot Site License Initiative (PSLI), the objectives of which were to test and evaluate several models, ends at the end of 1998. The National Electronic Site License Initiative (NESLI) is now starting. JISC will run it and Swets/MIDAS will manage it. The benefits will be a single interface to a single access point of journals, access by subject, search mechanisms, usage statistics, and a single deal with lots of publishers. Publishers will be able to negotiate with a single HE source and they will see a reduction in marketing costs. There will be a single point for ordering and billing, and pay-per-use revenues.

It is not yet known how print and electronic products will be unbundled. The cultural aspects of the project are very important. The devil is in the detail: not all the details have been thought out yet. Aspects of use to be considered are fair use (or fair dealing), dial-up use (e.g. from home), the definition of users (including perhaps the National Health Service), document delivery, walk-in use, course packs and the library's responsibilities. Access cannot be restricted to 'this library' or 'this site': it is the user who matters and the user requires continued access over a number of years. Authentication and archiving are also issues.

New pricing models are needed, with different levels as well as different mechanisms. The funding reality is that library budgets will *not* increase. Bundling and 'online plus print' may not be the best options. Development costs must to be shared among more players. Differential pricing options are also needed.

In the discussion session, Dan Wilde, NERAC Inc., USA, could not see why libraries think it is cheaper to produce electronic journals in terms of the totality of a system. A librarian agreed that librarians do not necessarily believe it is cheaper but some users certainly do. Ian Best said that some people think that the paper product is a by-product of the electronic one because they see the electronic version 6–8 weeks earlier.

Restructuring and rationalization in the information industry

Koji Tamura of Japan Science and Technology Corporation (JST) outlined how JST was tackling the problems of reduced usage of information services since 1992. The stagnation appears to have arisen from saturation in the use of information services that happened during the economic boom, collapse of the bubble economy, and a rise in the number information services competing with each other.

Ruggero Giliarevsky of VINITI told us how VINITI is still producing 1 million abstracts in Russian a year, with its staff cut from 2500 to 1040 people and with a budget of just $160 000 per month. Quality is inevitably a problem. Only 40% of VINITI's money comes from the government. The rest comes from sales of journals and databases. Unfortunately Russian scientists cannot afford to buy: export needs to be stimulated. There is no document delivery service although the St. Petersburg library can distribute hard copies.

Carel Jonckheere of EPO talked about the Distributed Internet Patent Service which is not aimed at patent information professionals but at end-users. In the first phase, the most recent 24 months of information from 19 European patent offices, and from WO patents is being made available with limited text searching. In Phase 2, online delivery of full facsimile documents is planned. There will be 29 million patents available.

Kurt Mulhulm of the Defense Technical Information Center talked about CENDI: a name derived from government departments of Commerce, Education/Energy, NASA/NLM, Defense (DTIC and NAIC) and Interior (USGS BRD). CENDI is a group of information managers who share knowledge resources. Mulhulm gave examples of the great variety of information these departments have on their Web sites. Free MEDLINE

usage has increased tenfold since the introduction of PubMed and 30% of the usage is by the general public. Critical success factors were acquiring world-wide information of interest to the customers, developing highly automated processes, assuring customers of information integrity, offering a single look and feel, providing analysis tools and establishing a world-wide infrastructure.

The Digital Object Identifier System

Norman Paskin, Director of the International DOI Foundation, gave an update about DOI. It is a unique identifier of a piece of digital content and it is a system to get to that content. It has been called 'the ISBN for the 21st century'. It was launched in October 1997. DOIs are an application of the Handle System of the Corporation for National Research Initiatives. The Handle System is a distributed computer system for naming digital objects and storing the names and information that is needed to locate and access these items via the Internet. The DOI system is in use now but it is not yet fully scaled up to a commercial system. It has international support.

The DOI System guarantees persistence and prevents the '404 not found' problem. It is being made available as an open standard and is not a proprietary company effort. It supports browsers. Handles resolve to data types and offer potential for resolving URNs and multiple URLs. New data type definitions will also be supported. From the users' point of view a Handle will link a name to a location, i.e. an Internet address. At the location there could be an object (such as a document, an image or an order form) or there could be an entry point such as an option list (a catalogue or a rights list).

The DOI system has three components: the Identifier, or DOI, which is the name for a piece of content, the Resolver, which takes the name and finds a location, and a Database which takes the name and gives information about the content. The DOI (e.g. 10.1016/(PII)S1384107697000225) can use any existing name or identifier (e.g. 10.1016/SICI00062510(19950506)107:18<94:BIMAJF>2.0.TX;2F) and the existing names do not have to be standard.

The DOI System is the mechanism, and the DOI Foundation is the governing body which sets the rules of the System and carries out further development. It is not necessary to join the Foundation in order to use the System. The International DOI Foundation is a nonprofit foundation run by a Board elected by and from its members. Membership income ($10 000 or $30 000 per member, depending on the type of company) funds development. STM, AAP and IPA are Charter members. Paskin, appointed in March, is the first full time staff member. DOI does not provide a standard numbering system where none exists, or provide copyright protection, but it does provide the basis to build these. DOI is not fully developed. It is intended to be useful in the protection of intellectual property but DOI assignment does not imply rights other than assignment. The Foundation is now recruiting members. About 20 organizations have committed already (including Blackwell Science). For further information, see <http://www.doi.org>.

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Subcommittee on transport properties of commission I.2: Thermodynamics summary minutes of the June 1998, Amsterdam meeting

Nine scientific presentations were made on specific topics related to the ongoing projects of the Subcommittee.

Standard reference data for the transport properties of fluids

New recommendations for the:
(a) viscosity of toluene at atmospheric pressure,
(b) viscosity of propane,
(c) viscosity of *n*-butane, and
(d) thermal conductivity of propane

were concluded. The resulting papers, reviewed by two members of the Subcommittee, will be published under the auspices of the Subcommittee.

Work that will continue refers to propositions for recommendations for the: (a) viscosity of toluene under pressure, (b) viscosity and thermal conductivity of methane + ethane, (c) thermal conductivity of *n*-butane, (d) viscosity of iso-butane, (e) viscosity of liquid water, (f) viscosity of *n*-pentane, (g) viscosity of alkali chlorides.

Standard reference value for the viscosity of water
The new proposition from ISO for a new value for the viscosity of water that incorporated the previous comments of the Subcommittee was considered and agreed.

Midas databank of transport property data
It is hoped that the work carried out by Prof K. Stephan and Mr R. Krauss in compiling all recent and unpublished results on transport property measurements will be continued normally.