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PUBLISHING ON CD-ROM AND INTERNET:
EXPERIENCES FROM TWO LIBRARY BASED ENTERPRISES

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Introduction

Within the past five years RMIT Libraries has engaged in two major publishing enterprises. They are INFORMIT Electronic Publishing - one of Australia’s largest CD-ROM publishing houses, and VICNET - a people’s network for the State of Victoria, and part of the Internet.

The parallel cases of INFORMIT and VICNET have provided much first-hand insight regarding CD-ROM versus Internet publishing. Contrary to much expert opinion, this writer predicts a strong future for CD-ROM as well as Internet publishing. It is perhaps appropriate to paraphrase what two famous people named Mark could have said on the subject of CD-ROMs and their survival. Mark Anthony might have declaimed, "I come to praise CD-ROM, not to bury it". Mark Twain might have quipped, "The report of the death of CD-ROM was an exaggeration".

This paper reports on the experiences gained so far by INFORMIT and VICNET. In the light of these experiences, it attempts to justify the assertion made above about the prospects for CD-ROM and Internet publishing, and to comment on the relationship between these options. It also seeks to draw implications for resource management in libraries of the future.
The RMIT context

The Royal Melbourne Institute of Technology is Australia’s largest multi-level university - spanning vocational education through to doctoral studies. It has more than 39,000 students (or 29,000 full-time equivalent) and just under 3,000 full-time equivalent staff. It operates on multiple sites in Victoria and in Asia, with a large flagship campus in central Melbourne. The central campus, with its newly extended and refurbished Library, is located across the street from the State Library of Victoria - an ideal situation for collaborative work.

RMIT has been characterised by an enterprise culture through successive phases of its development since 1887 - as a "working men’s college", a technical college, college of advanced education, and as a university of technology. The enterprise culture has partly been a necessity, arising from the need to supplement government funding. Partly, however, it has been a choice, since some of RMIT’s best academic and research achievements have flowed from its strong, practical interaction with industry and community.

RMIT Libraries has long been interested in technological innovation. In the 1970s RMIT Libraries helped pioneer automated library management systems and use of on-line database hosts in Australia. From the early 1980s it took a lead in microcomputer applications and training. In the late 1980s the focus turned to document imaging experiments and CD-ROM use and production - from which flowed INFORMIT Electronic Publishing. In the early 1990s RMIT Libraries began to explore the potentialities of the Internet - from which flowed RMIT’s role in VICNET.

INFORMIT Electronic Publishing

INFORMIT is the electronic university press of RMIT. It operates as a business activity whose objective is to help meet the broad educational and research goals of
RMIT for the local, national and international communities, on a financially self-sufficient basis. INFORMIT is an integral part of RMIT Libraries.

The Libraries registered the business name "INFORMIT" in 1983, in order to expand the services that the Libraries could offer to the community: an expansion that could only occur on a self-funding basis. Although electronic publishing is to-day by far the largest of INFORMIT's programs, INFORMIT has, since its inception, offered fee-for-service library access, online searching, and research consultancy services. Most recently a unit called INFORMIT Training has been established with the prime aim of providing Internet training to the public.

INFORMIT Electronic Publishing was started with risk capital of just A$30,000 (US$21,000) in 1989, and issued its first CD-ROM in 1990. To-day INFORMIT Electronic Publishing has annual sales in excess of A$2 million (US$1.4 million).

The following brief account of INFORMIT's activities and products is not intended as a "commercial", but is offered to illustrate the kinds of opportunities available for library-based electronic publishing.

INFORMIT's current CD-ROM publications:
- include bibliographic and full-text discs, in ASCII, image, and multi-media formats;
- feature material published in Australia, or written by Australians, or about Australia;
- cover subjects including business, applied science, engineering, environment, Australian literature, social sciences, education, law, film and video, and general education;
- serve the needs of librarians, students, researchers, genealogists, policy makers, engineers, architects, historians, lawyers, community workers etc., in providing increased access to Australian information; and
- cater to a growing number of overseas customers interested in information products with an Australian perspective.
A major category of INFORMIT publications is indexing and abstracting databases which are regularly cumulated.

The first database compendium, and INFORMIT's first published title, was "AUSTROM" (1990). Cumulating three times per year, the databases on "AUSTROM" cover social sciences, law and education. "AUSTROM" is a reliable source of information on the Australian economy, politics, legal studies, history, sport, tourism, criminology etc.

The next bibliographic title issued was "AUSTGUIDE" (1991), appearing semi-annually. "AUSTGUIDE" features the database 'GUIDELINES': a subject guide for Australian libraries. Since 1993 'Guidelines' has included abstracts. Periodicals indexed include 'Australian Geographic', 'The Bulletin', 'Business Review Weekly', 'Geo' and 'Scientific American'. Also first issued in 1991 was "AUSTLIT" - a major database for Australian literary studies. "AUSTLIT" cumulates three times per year. It covers creative literature, poems, plays, novels and short stories, reviews of Australian literature and of literary aspects of stage, film and sound productions, and literary awards.

In 1992, two further database compendiums commenced publication. The first was "Heritage & Environment" (cumulated annually), which covers a broad cross-section of topics in both social and natural history e.g. historic markers and monuments, endangered species, and literature on the Great Barrier Reef Marine Park. The other was "Engineering & Applied Science", covering engineering and transport - particularly roads - as well as building and construction, natural resource management and limnology.

In 1993 INFORMIT began publication of "Business Australia on Disc" (quarterly), "ABIX - Australian Business Index on CD-ROM" (6 cumulations per year), "Serials in Australian Libraries" -the national union catalogue of serials (three per year), and "Film & Video Finder - a Guide to Availability in Australia and New Zealand" (semi-annual).
Another important category of CD-ROM publications during the first five years of INFORMIT publishing is in the field of genealogy. The first of these was the "Victorian Pioneers Index", containing some 1.7 million records of births, marriages and deaths in the colony of Victoria, from its founding in 1837 until 1888. This was followed by the equivalent discs for Tasmania, New South Wales and Western Australia. Discs covering other Australian states are forthcoming, and new editions will be issued extending the time periods covered by the genealogical discs.

Since 1993 INFORMIT has focussed increasingly on full text and multimedia titles. These include:

- "Australia's Coastal Resources". Contains all documents relating to the Australian Coastal Zone Inquiry - a comprehensive Federal government investigation into the management of Australia's long coastline.

- "Exploring Chaos and Fractals". A multimedia electronic textbook on the subject of chaos theory, and its closely related field of fractal geometry.

- "Natural Resource Assessment". Contains documentation from national inquiries concerning the world-heritage listed Kakadu National Park, and Australia's forests.

- "International Trade & Environment Agreements on CD-ROM". Contains the full text of the major trade agreements (GATT, NAFTA) and environmental agreements affecting international trade, with commentary by the former Australian Ambassador to GATT.

- "Australian Family Resources on CD-ROM". Contains the full text publications of 11 organisations, on the topics of disadvantaged families, work and family issues, child abuse and domestic violence etc.

The most recently released INFORMIT multimedia, full text CD-ROM is "No Place that is Home: Major Australian Research into being Young and Homeless". A forthcoming multimedia disc is "Australian Feature Films".
"No Place that is Home" was published in conjunction with the Salvation Army. A key collaborator in INFORMIT’s publishing has been the National Library of Australia ("AUSTROM" and "Serials in Australian Libraries"). INFORMIT’s publishing has resulted from joint ventures with more than 30 organisations, including Federal and State government departments, statutory bodies, universities, public libraries, specialist research organisations, religious organisations, private firms, and individual authors.

The quality and consistency of INFORMIT’s work has been recognised by the world’s leading CD-ROM publisher, SilverPlatter Information Inc. An agreement has been reached under which INFORMIT will convert many of its products to SilverPlatter software, making them compatible with SilverPlatter’s ERL platform. The ERL (Electronic Reference Library) Technology is a client/server architecture for mounting databases on local and wide-area networks - including the Internet. This means that INFORMIT database products will operate using the internationally familiar SilverPlatter interface, and will appear and function the same whether used on DOS, Windows or Macintosh computers, or via the Internet. In addition, the more than 200 SilverPlatter dealers world-wide will market INFORMIT products (except in Australia and New Zealand).

Great credit goes to Jeff Leeuwenburg, who devised "AUSTROM" - INFORMIT’s first product - and who continues to work closely with INFORMIT. His company, Silverstream Ltd, announced in May 1995 that agreement, in principle, has been reached with the National Library of Australia and the Copyright Agency Ltd for the issue of full-text image counterpart discs to the 'APAIS' (Australian Public Affairs Information Service) database that is published on "AUSTROM". This product, called "The Definite Article" will allow "AUSTROM" users to call up image versions of articles they identify using 'APAIS'.

Tom Denison - the Manager of INFORMIT Electronic Publishing - has been crucial to INFORMIT’s success from the outset, both from the technical and business perspectives. Sandra Oxley and Jan Swinburne - Associate Heads of INFORMIT Electronic Publishing and also founder members - have contributed unstintingly of their
imagination, energy and dedication in the creation of INFORMIT's products, and the development of INFORMIT's relationships with both authors and customers. All of them are librarians. Backing up these key people has been another generation of technical, editorial and marketing staff - some 15 in all - who work with great expertise to support INFORMIT's products, and develop new products. Wes Brent, a talented software specialist and librarian, is a leading member of this group.

The outcome of INFORMIT's work is satisfying to those involved, in three main ways:

INFORMIT provides a vital royalty-revenue stream (currently exceeding A$1 million - US$0.7 million per year) to organisations and individuals who produce or "author" databases and other electronic publications of educational or research value to Australia. These funds are mostly used by the recipients to enrich and extend their databases - many of which are strongly oriented towards Australian coverage, and an Australian perspective. They generate new employment opportunities for information specialists throughout Australia.

INFORMIT products contribute a substantial part of the information used on CD-ROM networks in libraries throughout Australia. At Curtin University of Technology just one INFORMIT product - "AUSTROM" - accounted for 14% of uses in 1993 (Frylinck 1993). At the State Library of Tasmania INFORMIT products accounted for 32% of use (by number of clients) and 46% (by time).

At RMIT Libraries, INFORMIT products accounted for 36% of total use - by number of clients (both March 1994 figures).

Particularly with the introduction of full text and multimedia titles, and availability of information pages about INFORMIT products on the Internet, INFORMIT products are being accepted internationally, and especially in Asia. This recognition brings with it opportunities for international collaborative publishing.
In all these ways INFORMIT Electronic Publishing seeks to keep growing as a contributor to education and research, not only at RMIT, but for the wider community throughout Australia and internationally.

VICNET: Victoria’s network

VICNET was first proposed late in 1993, and was formally launched by the Premier of Victoria, the Hon. Jeff Kennett, on 23 May 1995.

VICNET is a joint project of the State Library of Victoria and RMIT Libraries. It was made possible by a grant of A$390,000 ($273,000) from the Community Support Fund, which is administered by the Victorian State Government’s Department of Arts, Sport and Tourism. It has also received sponsorship from Sun Microsystems and Dataplex.

The name "VICNET" was originally used for a pioneering computer network, based at RMIT, which connected all Victoria’s colleges of advanced education. The new VICNET is a greater vision. The purpose of VICNET is to provide all Victorians with access to the information resources of the Internet, and to build up Victorian content on the Internet.

The current mission and aims of VICNET are as follows:

Mission
Victoria’s Network: VICNET. Empowering all Victorians to create an electronic environment where they can find information, share information and communicate, locally and globally.
Aims

VICNET will:

1. Give all Victorians affordable access to networked electronic information and services as rapidly as possible.

2. Facilitate the provision of key points of access and support for networked services through public libraries.

3. Enable Victorian government and non-government agencies to deliver electronic information and services to the community and the world effectively and efficiently, using the most current methods.


5. Stimulate an electronic network publishing industry in Victoria.

As many people are aware, the Internet computer network now spans every continent of the globe, has over 40 million users worldwide, and, according to one estimate, gains a million new users every month. Something new appears on the Internet every hour. VICNET users have full Internet connectivity. This means that:

- they can view the information which is being published electronically across the network
- they can download software or they can log into remote databases and catalogues, and
- they can exchange email with the 40 million Internet users around the world.

VICNET has already worked with a number of Public Library services around Victoria to place terminals in publicly accessible areas. Strong involvement by public libraries will ensure that every citizen has the opportunity to "surf the Internet." From May 1995 VICNET is offering users who have a computer and a modem the capacity to dial in from home or office. The first of a number of nodes has been established in regional Victoria, to allow dial-in from country areas at the cost of a local call.

While connection to the Internet is important, perhaps even more important is that VICNET is making Victoria and its people highly visible on the Internet. VICNET has
created a World Wide Web server (URL address http://www.vicnet.net.au), which is a growing storehouse of local information about Victoria. It is also a structured gateway and guide to the huge and often bewildering array of information and resources on the Internet.

Local information which is being published on VICNET gives Victorians improved access to information about their state, their council or shire, and their community. The Internet is making possible a renaissance in publishing by all sectors of society. VICNET has made significant progress already in attracting worthwhile, local content on to the network.

Victorian State Government departments are publishing substantial documents and directories, local councils are beginning to publish community information, local bylaws, council minutes and other material. 'The Age' - one of Melbourne’s two daily newspapers - has established an experimental VICNET version. A host of other organisations, from learned societies like the Royal Society of Victoria, to community groups like the Nursing Mothers Association of Australia, have begun to establish their presence on VICNET.

Over the last few months, in the pilot phase before its launch, VICNET has become one of Australia’s most popular World Wide Web sites. More than 45,000 accesses are recorded weekly. About 15,000 of the accesses are from Internet users outside Australia.

VICNET is offering a window for the rest of the world to see in - as well as a window for Victorians to see out.

The Internet has enormous potential as a publishing medium. It has even more potential as a communications medium. It has already made an impact upon the way that academic institutions function, the way that academics publish and discuss ideas, the ways that students access knowledge. To-day links with industry and the professions are key success factors for universities. Life-long learning is now recognised as the norm. Pushing the network’s communication capacity out beyond the
walls of the universities can only strengthen their ability to serve the community. VICNET seeks to strengthen communication between Victorian universities and the communities that they serve.

Tribute should be paid to those who played a key role in the foundation of VICNET. Gary Hardy, now the Editorial Manager of VICNET, originally invented the idea of VICNET. Helen Tait, Director of the State Library, enthusiastically took up and developed the project. Derek Whitehead, also of the State Library, was nominated, together with the writer, as a Director of the VICNET project. Derek Whitehead's work on VICNET has been characterised by great intellectual capacity and tireless work. His high reputation in the library and government communities has helped gain quick acceptance of VICNET. Gary Hardy, Stuart Hall, Indra Kurzeme, and Adrian Bates - the foundation staff members of VICNET - have all worked with inspiration and dedication to turn the VICNET idea into a reality.

Key figures who have played a part at the political level are the Minister for the Arts, the Hon. Haddon Storey. The Minister's Office of Library Services (headed by Ross Gibbs), and his advisory committee, the Libraries Board of Victoria (chaired by Dr John Scott), have been consistently supportive of the project. Mr John Rimmer of the Department of Premier and Cabinet, and several other senior Victorian officials also deserve recognition for the development of VICNET.

VICNET represents a still modest but vigorous experiment in improving the communications capacity of the State of Victoria, with itself and with the rest of the world. The philosophy behind VICNET is that, from the family to the state, the better that people communicate with one another, the better society will function.
Interpretations and conclusions

Relationship between CD-ROM and Internet publishing

Referring back to the Introduction, in which a strong future was predicted for CD-ROM as well as Internet publishing, it is necessary to explain that by CD-ROM is meant the present CD-ROM (Compact Disc - Read Only Memory) format, plus any successor permanent portable electronic publishing media that follow it - including current variants such as CD-I. In this interpretation a medium such as Audio CD - for example - is seen as an evolutionary development of, rather than a replacement for, phonograph records. Similarly it is accepted that Internet is likely to evolve and transform, towards greater bandwidths and more advanced functionalities.

It is common at electronic publishing seminars to hear CD-ROM disparaged. CD-ROM has been referred to as "plastic publishing" (Kahle 1993), the "Beta of the 1990's" - a comparison to the now defunct videocassette standard (Negroponte 1995, p. 68) - and as "roadfill in the electronic superhighway". Perhaps the kindest thing that Internet fundamentalists have to say about CD-ROM is that it is "a short term alternative technology".

Were it not for the vast achievements of the Internet, CD-ROM would deservedly be hailed as a technological wonder of our age. CD-ROMs accommodate digitised text, data, images and sound. The little polycarbonate disc, first released by Philips and Sony in 1983, is internationally standardised under ISO 9660. It currently carries 660 megabytes of information - equivalent to 275,000 ordinary A4 pages. This is the equivalent of 100 classic books: one disc could provide five years' reading if you read two books per week. Newer CD-ROM technology promises a ten-fold increase in CD-ROM capacity, or fifty years' reading from one disc (Negroponte 1995, p. 68).

When people speak of the age of print, they often mean the period commencing with Gutenberg, about 1440. However there were arguably two ages of printing, one following Gutenberg, and the other following the Industrial Revolution. In the late 19th century powerful industrial presses, backed by cheaper, faster paper mills, allowed vastly increased output. Steamships, railways, telegraph, telephone and industrially
advanced printing technology were all part of the great communications revolution of the late 19th century. In thirty years from 1870, the number of telephones in the United States rose from 3,000 to 1.3 million. In twenty years the number of daily newspapers increased by a factor of seven. These changes had an immense impact on vitally all sectors of society. In the world of academia, 200 new learned societies were formed between 1870 and 1890, with a parallel increase in the number of scholarly journals and conferences (Kaufer & Carley 1993, p. 311-2).

The communications and information technology revolution of the late 20th century is similarly far-reaching. A key lesson to be learnt from the 19th century, and from previous history, is that new communication technologies tend to complement, rather than replace, their predecessors.

The functions of publishing remain the same through successive technological revolutions. Groups in society seek publication channels either in order to share specialist knowledge among themselves, increasing their exclusivity and power relative to society in general, and/or in order to sway other sections of society towards their interpretation of the world - whether in the political, artistic, or technical domains.

For both purposes diversity and choice among communication channels is keenly desired. To quote my INFORMIT colleague Tom Denison, "pluralism is healthy" (Denison 1994).

CD-ROM, paper and other permanent portable media publishing allow the user better ownership and control, while the Internet necessitates a higher degree of dependence. CD-ROMs guarantee fixity of the record at a risk to currency, while Internet’s strength lies in the potential for constant update of information, at a risk to fixity.

The great promise for the future appears in hybrid media, involving print, portable electronic media and networks - carefully combined to produce fitness for purpose, at an appropriate cost. INFORMIT is currently engaged in two major hybrid publishing proposals.
Implications for resource management in libraries

Both in terms of CD-ROM and Internet technology there is a strong convergence between the technical skills needed to operate libraries, and those required for electronic publishing. In the past the information resources of libraries have generally been managed as a one-way process - acquiring information from publishers or similar sources and helping library clients to use it. Electronic publishing technology allows the library of the future to operate as a two-way channel. At whatever level of formality is chosen, members of the library's community are invited to create information sources - whether in the form of electronic noticeboards and discussion groups, or informational documents. The art of managing resources in libraries then includes sifting fluid information for subsets that warrant fixing or other forms of value adding, and creating syndetic linkages among a widening range of information sources, both print and electronic. Such syndetic linkages include cross-referencing, indexing, and hypertext links.

To be effective in such tasks, libraries must be strengthened as welcoming, safe physical spaces where all can come to receive tuition and guidance, and where all may access and contribute to society's fund of knowledge. In addition to their physical presence libraries will need to operate as well-managed two-way channels in virtual space, on a 24-hour basis. The active role of libraries is essential to assure social justice in creating and using information. Without the democratising role of libraries, the communications revolution of the late 20th century could spawn widespread social conflict in the 21st. There have been too many examples in the present century of harmful, divisive uses of the technological breakthroughs of the 19th century. The INFORMIT and VICNET enterprises together are exploring the potentialities of libraries as two-way channels for information transfer - from the relatively fixed, formal CD-ROM publishing of INFORMIT, to the more fluid information ecology of VICNET. At the same time, demand for print library services, good library accommodation, information skills training, and long hours of opening continue to grow at RMIT - and also at the State Library. Tennyson's Ulysses might have been
surprised. The old order has not really changed and is not disappearing - it is merely being enlarged and strengthened by the new.

Acknowledgement

Within team efforts like VICNET and INFORMIT, everyone constantly produces written material. To the extent that this paper incorporates sections written by colleagues - particularly Gary Hardy and Sandra Oxley - for other purposes, thanks and acknowledgement are given.

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