

# Multimedia

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CD-Rom

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**VICTORIA IN THE INFORMATION AGE**

This article has been supplied by Multimedia Victoria, Department of State Development.

**Introduction**

The information age is emerging from and being hastened by a number of simultaneous, world-wide developments which impact to improve and diversify communications and create new ways of doing business, along with new ways of being entertained and educated.

The convergence of telecommunications, computing and content activities is giving rise to new media forms for the delivery of information/entertainment products. Advances in digital technology are making possible the transmission of multiple media types (*all forms of information* described as *content*)—on common infrastructure—be it voice, vision, audio or print—and potentially through a variety of platforms—whether it be via telephone, cable, the Internet or wireless.

Rapid advances in both computing speed and memory, and transmission capacities, coupled with simultaneously falling prices for computing power, have widened the impact of information and communication technologies (ICTs). It is becoming increasingly more affordable and feasible for business as well as private citizens to use computers and to link into the World Wide Web. The phenomenal growth in the size of the on-line community demonstrates the potential for social and commercial interaction made possible by the advances in ICTs for business, government and personal use.

These global trends are creating a highly complex and dynamic set of circumstances. The economic, social and political impacts are likely to be significant if not revolutionary.

**The information industries**

The information industries—comprising information technology (IT) hardware and software; telecommunications, telecommunications and IT services and content industries—are amongst the fastest growing and significant of all global industries. In the past decade parts of these industries have grown at rates twice that of most industries—for example global IT markets (measured by revenues of primary vendors) grew at average rates nearly twice that of gross domestic product worldwide. (1)

**What are the information industries?**

There is no universally accepted definition of the composition of the converging industries of telecommunications, computing and broadcasting—the “new information industries”. Indeed, there is a plethora of differing terminologies describing its activities. Generally the information industries are taken to include(2):

**Information and Communications Equipment:**

- line, transmission and broadcasting equipment;
- switch, LAN/WAN and data equipment;
- terminal and peripheral equipment;
- computer equipment.

**Communications Services:**

- basic telephony services;
  - advanced telephony services (e.g.. resale, callback);
  - connection services and transmission;
  - leased line and packet switched data network services.
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## Information Services:

- higher level and network services (e.g.. electronic data interchange, electronic funds transfer, video conference);
- professional services (e.g.. consulting, systems integration, education and training);
- networks and services (e.g.. internet service provision, pay-TV networks);
- computer, communications and software services (e.g.. data processing, outsourcing).

## Information Products:

- network software;
- packaged software;
- systems software;
- networked content (e.g.. on-line publications, database content, multimedia).

Some descriptions of the information industries have a broader focus but the main issue is a recognition that a number of disparate activities are becoming linked in a value-adding process.

It is understood that ABS in cooperation with agencies from a number of countries are participating with the OECD to develop a standard description of the sector.

### Estimates of the size of the global information industries

The following estimates may be taken as indicative:

- In 1995, the International Telecommunications Union (ITU) estimated that the global *info-communications* market was worth US\$1,370 billion.

The ITU defined the composition and estimated the shares of the total Info-communications markets as follows:

- Telecommunication services 44%
- Telecommunications equipment 14%
- Computer hardware 17%
- Computer software 8%
- Computer services 18%

On the conservative estimate that the info-communications market grew at 5% per annum for the five years after 1995, by 1999 the market would have been valued at greater than US\$1,600 billion. (3)

- As at 1993, if elements of the *content* industries were included, such as broadcasting and audio-visual entertainment, then the global *info-communication sector* would have been valued at US\$1,352 billion in 1993. (4)

### The impact of the information industries

Estimates of the size of the information industries underestimates their true significance. The outputs of these industries are both transformative and enabling as they are creating significant productivity enhancing inputs into activities across the economy.

Australia's  
information  
industries

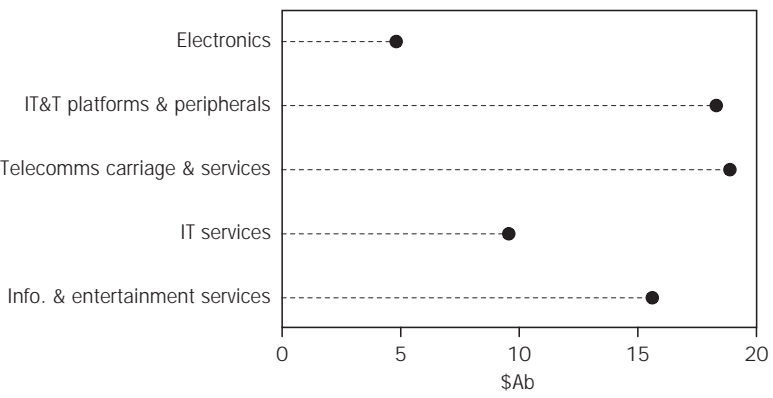
A study of the competitiveness of the Australian information industries conducted by Charles, Allen and Buckeridge (5) notes that there are four main areas where information technology, electronics and communications (ITECs) will be significant inputs:

- as *embedded* ITECs—industrial and consumer products with electronic and information systems embedded within them (e.g.. cars and household appliances);
- ITEC into *everything*—systems (such as multimedia systems) that will become pervasive;
- *Information Businesses*—new kinds of businesses based on providing new kinds of electronic information products and services delivered over communications (e.g.. home shopping, tele-healthcare, etc.);
- *Infrastructure Systems and Services*—enabling the development and operation of the other three areas.

Australia's information industries have followed the dynamic pattern of international markets. A study conducted in 1996 into the Australian information industries estimated that their market (market being defined as "those that are now exposed to the digital convergence phenomenon") revenues were worth over \$65 billion in 1995, or approximately 7.5% of economy-wide revenues. This study also found that the industries grew at an average of 13% in the preceding year. (6)

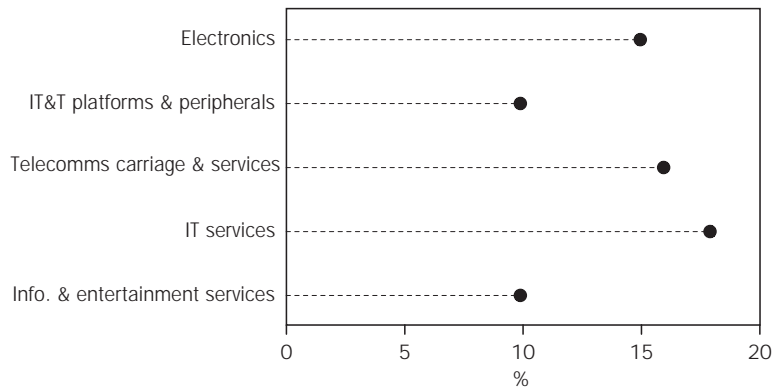
In terms of employment and export performance the industries are equally significant to the Australian economy as they employed 500,000 workers and had exports valued in excess of \$4 billion. (7)

AUSTRALIA'S INFORMATION INDUSTRIES—MARKET REVENUE, 1995-96



Source: Charles, Allen & Buckeridge (1997), *Spectator or Serious Player—Competitiveness of Australia's Information Industries*, p. 9.

AUSTRALIA'S INFORMATION INDUSTRIES—RATE OF REVENUE GROWTH, 1995–96



Source: Charles, Allen & Buckeridge (1997), *op. cit.* p.9.

Photo:

Woman at Information  
Machine

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### Australia in the information age

Australia is well placed to participate in and take advantage of the opportunities offered by the development of the global information industries due to its relative strengths, both global and regional, which were identified below by the Information Policy Advisory Council (who provides advice to the Commonwealth Government's National Office of the Information Economy): (8)

- secure legal and institutional structures, and relatively low levels of intellectual property piracy;
- cable roll out and advanced networks;

- rapid technology uptake and a sophisticated consumer market;
- proximity to Asia;
- time zone positioning (for East:West services and activity handovers);
- sophisticated communications;
- english language, augmented by multilingual diversity;
- educated workforce;
- attractive lifestyle and environment;
- culture of creativity.

A number of these factors will be critically important for the development of the information society:

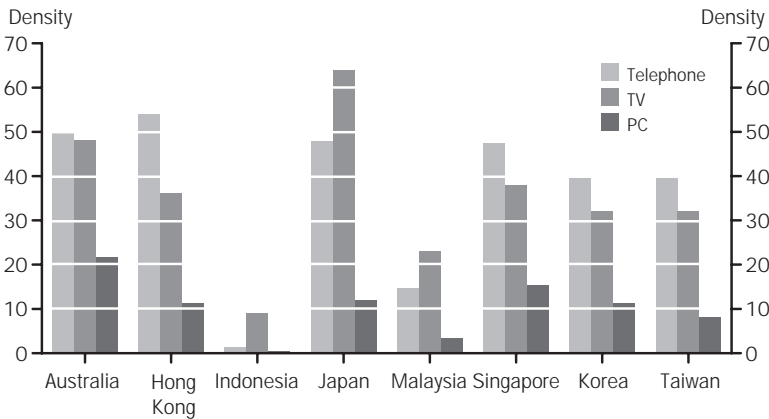
Sophisticated and competitive telecommunications:

- near ubiquitous telephone penetration and high digitisation of main telephone lines that is comparable with the world's major economies (9);
- a telecommunications industry that has no barriers to market entry;
- Australian telecommunications costs—particularly international and domestic calls—are internationally competitive (10);
- a broadband network passing nearly 2.5 million Australian homes that will be capable of delivering advanced interactive multimedia services. (11)

**Australia's  
developments in the  
information age**

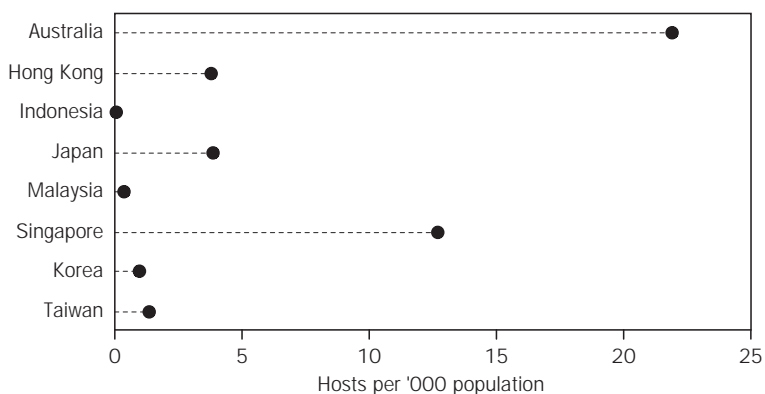
Australia ranks 10th highest in the world with regard to Telephone, PC and TV density and is well in advance of it's regional competitors.

HOUSEHOLD DENSITY OF MULTIMEDIA ACCESS FACILITIES, 1994



Source: Charles, Allen & Buckeridge, *op.cit.*, p.19.

HOUSEHOLD INTERNET ACCESS, JULY 1996

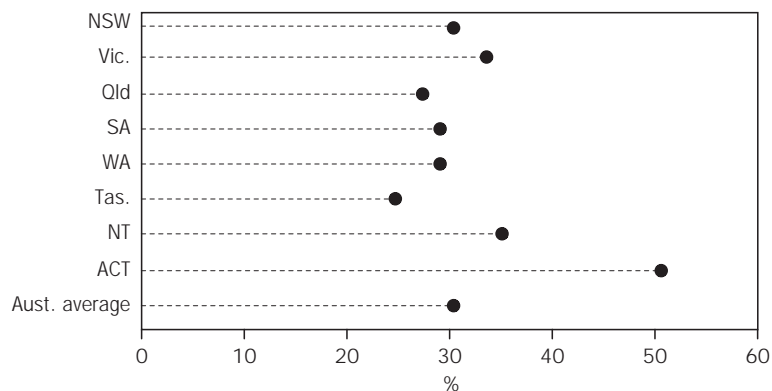


Source: Charles, Allen & Buckeridge, *op.cit.*

Australia has the fifth highest penetration of cellular mobile telephones in the world; (12)

In 1996, 30% of Australian households frequently used computers. (13)

SHARE OF HOUSEHOLDS FREQUENTLY USING COMPUTERS, BY STATE AND TERRITORY, FEBRUARY 1996



Source: ABS (1997), *Household Use of Information Technology, Australia* (Cat. no. 8146.0).

**MULTIMEDIA  
VICTORIA**

The Victorian Government established Multimedia Victoria to provide leadership, facilitate growth and provide other supports for the development of the Victorian information industries.

Multimedia Victoria's origins can be traced back to 1995 when the Premier's Task Force on Communications and Multimedia was established with the specific purpose of providing a forum for high-level government and business consideration of multimedia and telecommunications. This Task Force, chaired by the Premier of Victoria, the Hon. Jeff Kennett MLA, draws its membership from approximately 40 key industry representatives at Chief Executive Officer level, academia, community representatives and three senior Ministers.

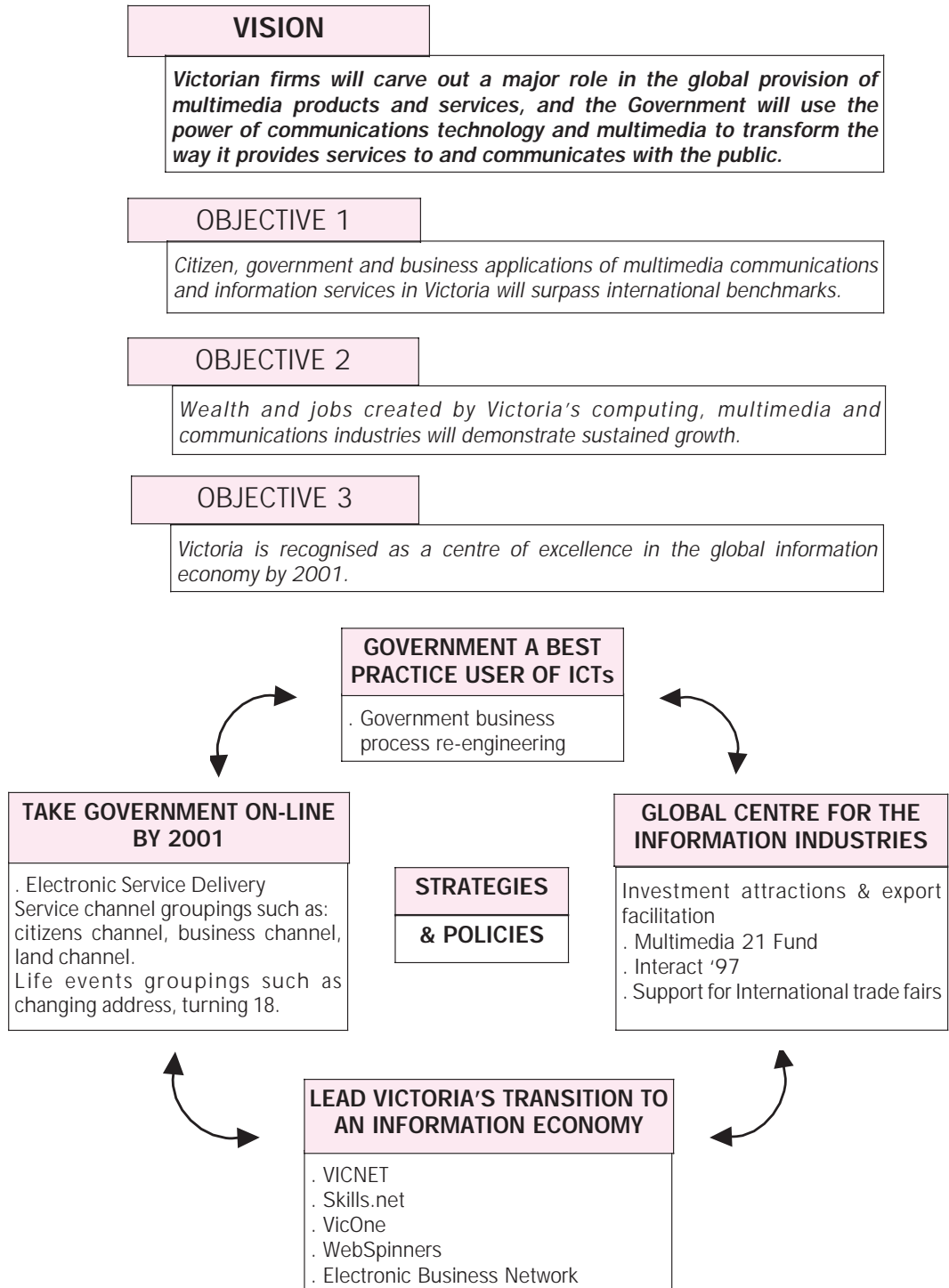
The secretariat to the Task Force, and the Government's vision for this industry was originally established within the Department of Premier and Cabinet. The multimedia portfolio was created in 1996—and with it, *Multimedia Victoria*. Since its inception the Multimedia portfolio has been held by the Hon. Alan Stockdale MLA. Minister Stockdale is also the State's Treasurer. The key purpose of Multimedia Victoria is the implementation of the Government's policy for the Victorian information industries—*Victoria 21*.

**Victoria 21**

The *Victoria 21* policy is being implemented through a range of projects—see diagram on the next page. Broadly speaking these policies address the development of the information infrastructure; Government use of ICTs; community use of ICTs and skills development; information industry development; and content development. The Victorian Government has focused on seven main areas of activity.



## Victoria 21 Policy



**DEVELOPMENTS IN VICTORIA****Promoting the growth of the information industries through investment**

The Victorian economy has benefited from the dynamic growth of the global information industries and from the new opportunities of the information age. Recent new investments have been made across the spectrum of the information industries, reflecting both their changing industry structures and globalisation. For example:

- data processing services—IBM has set up an Asia Pacific data processing venture in Ballarat to service 23 Asian counties;
- help desk facilities—Oracle has established a 340 person Asia Pacific support centre to provide help desk facilities for 27 countries in the region;
- mirror sites—DEC has established its Asia Pacific “Alta Vista Mirror” site in Melbourne in a joint venture with a local company and Netscape has established in Melbourne the first Netscape mirror site outside the US along with its Australasian Head Office;
- mobile telephony—Ericsson has established its Asia Pacific mobile telephone repair facility for the region in Melbourne;
- Java programming language—Sun Microsystems has established a Java Centre of Excellence in Melbourne, with its Asia Pacific site to be located at the Interactive Information Institute at RMIT;
- interactive kiosk applications—Olivetti has established its multimedia development centre for interactive kiosk applications in Melbourne.

In value, total investments of \$1.2 billion have been made between 1995–97 creating 6,900 new jobs. (14)

**Promoting the development of a multimedia skilled community**

While Australian Internet take up rates are relatively high, the development of the information society will depend on widespread community business and acceptance. A number of State Government-led initiatives are assisting the development of community access to and awareness of the potential offered by multimedia communications—as a means of publishing locally-based information and forming communities of interest.

*VICNET* ([www.vicnet.net.au](http://www.vicnet.net.au))—a project of the State Library of Victoria—is an electronic networking infrastructure established on the state’s base of public libraries. It maintains a World Web Site that generates over a million “hits” a week, provides affordable access to networked information, and a focus point for government and community groups to publish their own information on the Internet.

Complementing *VICNET* are a number of programs to build community skills and familiarity with networked information. Each year 6,000 teachers receive training in new information and communications technologies. *Skills.net* ([www.skills.net.au/](http://www.skills.net.au/)) provides funding to local community proposals that provide skills development and fulfil community needs. This will provide Internet skills to more than 40,000 Victorians over the next three years. *Webspinners*—([www.webspinners.net.au](http://www.webspinners.net.au))—is a structured training and work experience program for young people aged 16–19 years that provides participants with the basic skills required for entry level employment in the multimedia industry.

**Fostering the development of a vibrant communications industry**

The evolving information industries are typically collaborative in nature. For example, multimedia content and applications are produced by firms that bring together the skills of many diverse industries; and new technologies are often the product of research and development performed by firms and academic institutions in strategic alliances.

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A number of collaborative institutions for the information institutions have been established in Victoria. Amongst these are *EMERGE*—([www.EMERGE.com.au](http://www.EMERGE.com.au))—one of the six cooperative multimedia centres established by the Commonwealth Government. *EMERGE* brings together the multimedia expertise of four universities and four private companies, and acts as a catalyst for training, research and development, industry intelligence and networking. *Melbourne IT* promotes the commercialisation of Melbourne University's IT&T and multimedia research and expertise, in partnership with Ericsson and Ilog. The *Interactive Information Institute* at the Royal Melbourne Institute of Technology is a centre for the development of creative and broad ranging ICT applications also conducted in partnership with industry to assist commercialisation. The Greenhills Enterprise Centre in Ballarat conducts 'investment ready' programs and an incubator program to support growing information industry firms.

**Extending  
Victoria's role as a  
creative centre for  
the development  
of multimedia  
content**

Multimedia is changing the production processes and nature of the visual arts enabling the transformation of the states' film and television industries. For example, the use of computers spans virtually every phase of film production including script writing, budget planning, set design and pre visualisation of live action set up, and post production. Telecommunications developments have enabled relatively high resolution images to be transmitted between two locations including international destinations demonstrating the possibilities and increased opportunities for Australian post production houses.

*Cinemia* is one of the five core cultural institutions of the State of Victoria and is charged with significant community service obligations embracing these new opportunities. Cinemia aims to provide the people of Victoria with appropriate access to the art form of the moving image and to achieve this end works to support, develop and promote the film and multimedia industries in Victoria. Cinemia administers the *Multimedia 21 Fund* which provides funding for the development of commercial and educational applications by the Victorian multimedia industry ranging from software to assist air traffic controller training to projects for on-line tourism and travel businesses incorporating on-line transaction capabilities. Cinemia has also undertaken a Digital Media Library trial, digitising content which can be delivered on demand over a broadband network.

**Promoting industry  
use of electronic  
commerce**

Currently estimated to be valued at around US\$3 billion per year, electronic commerce is still in early stages of development. However estimates of its future size and importance are staggering—estimates of the potential global value of Internet transactions by 2000 lie in the range of US\$100 billion to US\$150 billion per year. (15). Developing business awareness of the opportunities for re-engineering companies and reaching wider consumer markets will be a key factor determining whether this growth is achieved.

Established with State, Federal and private sector funding the Australian Electronic Business Network (AEBN) is headquartered in Melbourne. The AEBN is a national electronic commerce resource facility aimed at accelerating the uptake of electronic commerce by small to medium-sized businesses through demonstrating business benefits.

A number of industry-based initiatives are also underway in Victoria, specifically in the pharmaceutical, clothing and textile and agriculture sectors which have been the focus of trials to demonstrate potential efficiencies and opportunities of electronic networking and transactions.

**Improving the quality, efficiency and effectiveness of government through the use of multimedia and communications applications**

Governments are significant users of ICTs. The development and deployment of ICTs has therefore presented Government with significant opportunities to improve the way it communicates both with itself and with the public.

Currently Victorian Government networks simply link a government site with a central computer site in a departments headquarters. To take advantage of opportunities presented by ICT developments the Victorian Government has contracted with AAPT Networks to build, own and operate a wide area network that establishes a single data network connecting Victorian Government sites—more than 3100 in all. The network—*VicOne* ([www.net.aapt.com.au/vicone](http://www.net.aapt.com.au/vicone))—is the first high capacity network of its kind in Australia. *VicOne*'s advanced data network will offer a standard operating environment across government, and its broadband capability will enable a rapid exchange of data, seamless interaction between computer systems, and the opportunity to use the latest technology tools such as video conferencing and telemedicine links. All Victorian Government schools are scheduled to be connected to *VicOne* by June 1998—allowing efficient sharing of specialist teaching, administration and the linking of schools, Universities and TAFEs.

**Government goes on-line**

The Victorian Government has begun the process of making all of its information and services available through on-line channels by the year 2001.

The Government has initiated extensive web sites ([www.vic.gov.au](http://www.vic.gov.au)) and has dramatically improved public access to legislative information ([www.vicnet.net.au/vicnet/vicgov/parl/hans.html](http://www.vicnet.net.au/vicnet/vicgov/parl/hans.html)), making democratic processes accessible in a way that has never before been possible.

In a world first (16), the Victorian Government in partnership with the private sector has developed an integrated *electronic service delivery* infrastructure—known as *maxi* ([www.maxi.com.au](http://www.maxi.com.au) and by phone 132723), which was launched in late 1997. Currently it provides access to a range of organisations across the state, such as Yarra Valley Water, Eastern Energy, local councils, Vic Roads and the Registry of Births, Deaths and Marriages. When fully developed *maxi* will give Victorian citizens and businesses access to many government services at Commonwealth, State and local levels, and business services, including utilities, through a single access point.

*Maxi* is a world first for a number of reasons: it is the first multimedia system that:

- allows the same content to be delivered over three different channels—kiosks, the Internet and interactive voice response telephony;
- is designed around the concept of “life events”—consumers only require to know the service they want to access, not the particular government agency;
- addresses the issue of digital signatures and is designed to accept a smart card or disc to input a personal signature on a document;
- combines government with business services.

**The future**

The information society will have the ability to access immense quantities of information and entertainment on demand, to interact with and manipulate large quantities of data, to transact remotely and to communicate while on the move. It is a vision of ubiquitous communications infrastructure, greater productive efficiencies and service delivery, enhanced personal choice and new possibilities for the way communities of interest relate to each other.

The emerging information economy is truly global; time and distance are less important barriers to communication—and it is all-embracing; all sectors and activities of society, polity and the economy will feel its affects.

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For Australia a distant, sparsely populated country, there are dramatic improvements in the opportunities for engagement with the rest of the world and for intra-regional communication. Social interaction, community development, and opportunities for political participation will undergo significant change.

Photo:

Ericsson

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Around the world Government has been identified as a key player in the development of the information society—as leaders and exemplars, and as owners and providers of infrastructure, services and content. Multimedia Victoria's aim is to lead Victoria's transition to an information economy—to promote the development of Victoria's information industries and support the use of new information and communication technologies by citizens, government and business.

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