



**Toward a Development Strategy for the
Western Australian Information and
Communications Technology Industry.
A Discussion Paper**

22 July 1999

OFFICE OF INFORMATION & COMMUNICATIONS



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1. GROWING WESTERN AUSTRALIA'S ICT INDUSTRY- INTRODUCTION

As we put the Industrial Age behind and take the path of the Information Age, we witness a pivotal turning point in our history. At the forefront of this change is the information and communications technology (ICT) industry, creating new pathways for the way in which we live, play, work and do business.

While resource commodities around the globe continue their long-term decline, ICT has become the world's strongest and fastest growing industry sector. Even more significant is the contribution information and communication technologies are making as an enabler of other industries. ICT underpins the competitiveness of all sectors and is a huge source of wealth creation.

The Western Australian economy is no exception as its ICT industry continues to grow four times the pace of the State's economy. Despite this impressive performance, its potential is still largely untapped.

Worldwide, Small to Medium-sized Enterprises (SMEs) play a significant part in the ICT Industry. ICT SMEs differ from small companies in other sectors because of their rapid life cycle, the pace of change in their industry, and their need to compete in a global market.

In many cases the strong technology focus of ICT SMEs is not supported by strong business skills, this is despite the industry's volatility and the resulting demands on management. This shortage of high-level management skills is problematic for the competitiveness, growth and sustainability of the industry.

As the largest consumer of ICT in Western Australia, the State Government recognises that support for ICT SMEs is critical to the overall performance of the industry and that the support must be suited to the nature of the sector. At the same time, it should be remembered that the role of State Government is one of 'partner' not 'provider'.

This document sets out how the State Government proposes to encourage growth of the local ICT industry and provides a path for industry to realise its potential.

The programs in this paper were created as a result of information provided by the Western Australian ICT industry and other industry development approaches taken by international state and federal governments (background documents are available). The programs and initiatives outlined in this paper are captured under the following six key focus areas:

- Government Purchasing Policy & Industry Development
- Driving Success: Gearing Up For Growth
- Infrastructure
- Building On Competitive Advantage
- Positioning & Profiling Western Australia's ICT Industry
- The State Of The Industry

GROWING WESTERN AUSTRALIA'S ICT INDUSTRY - INTRODUCTION

continued

Each of the key focus areas are underpinned by a range of programs and initiatives based on the following seven principles:

- Demand-side initiatives¹
- Developing the export capacity of Western Australian ICT firms and to build export markets for Western Australian Information and Communication Technology Industries
- Opportunities for clustering between Western Australian firms and organisations to acquire critical mass to reach broader markets
- Capitalising on online technologies wherever possible
- Leveraging the State's existing economic and technical strengths
- Opportunities for market creation within the public sector
- For government to adopt a 'light touch', to encourage enterprise and innovation but not to preempt or stifle private sector initiative(s).

Few if any ICT industry success stories have occurred without significant drive and leadership from both political leaders and business. Government clearly has a role to play and this paper is an important first step. It is essential that many in the industry recognise their role; whether it is collaborating with other businesses, extending their operations or mentoring less experienced colleagues.

This discussion paper is a critical step in enabling Western Australia to fully realise its substantial potential and carve out its place in this exciting new world.

¹ This approach refers to programs which build demand for ICT products and services; through this encourage the development of as many globally-oriented companies as possible, each making judgements and decisions about market moves; and encouraging both producer and purchaser clusters. This is in contrast with many policy initiatives which are prescriptive in their framing and

2. KEY FOCUS AREAS, PROGRAMS & INITIATIVES

GOVERNMENT PURCHASING POLICY & INDUSTRY DEVELOPMENT	DRIVING SUCCESS: GEARING UP FOR GROWTH	INFRASTRUCTURE PHYSICAL AND HUMAN
<p>Market Creation Vs Cost Minimisation</p>	<p>Skilling Up For Growth</p> <ul style="list-style-type: none"> ▪ Financing ICT Growth (FIG) ▪ Business Services & Expertise Online ▪ An ICT Perspective for BECs and RDCs <p>Capitalising on Venture Capital</p> <ul style="list-style-type: none"> ▪ Information Forums ▪ Access to Investors <p>Strategic Partnerships and Linkages</p> <ul style="list-style-type: none"> ▪ Clustering ▪ aWAY ▪ Boomerangs ▪ Headhunting SMXs ▪ Partnerships for Development (PFDs) ▪ SMEs and R&D Organisations ▪ Federal Initiatives ▪ Partnering Opportunities Online <p>Sharing Experiences – Learning From Others</p> <ul style="list-style-type: none"> ▪ Case Studies 	<p>Recent Developments</p> <ul style="list-style-type: none"> ▪ STEP ▪ State Government to actively pursue Federal Funds for Infrastructure <p>Investigate Part Funding Support for Institutional Infrastructure</p> <p>Technology Advisory Centre (TACs)</p> <ul style="list-style-type: none"> ▪ A USA Technology Advisory Centre (TAC) <p>Education & Training</p> <ul style="list-style-type: none"> ▪ Establish a Global Knowledge Entrepreneurship Program

Building On Competitive Advantage	Positioning & Profiling Western Australia's ICT Industry	State of the Industry
<p>Resources Sector Knowledge Projects</p> <p>Capitalising on Global Time Zones</p> <p>Remote Products and Services</p>	<p>Turning Up the Lights on Western Australia's Industry</p> <ul style="list-style-type: none"> ▪ A WA ICT Equivalent of the aXcess Australia auto project ▪ Industry Awards ▪ State of the Art ICT Capabilities Showcase ▪ Promotional Case Studies ▪ Exhibiting at Tradeshows <p>A Consolidated Industry That Maintains Individuality</p> <ul style="list-style-type: none"> ▪ An Executive Officer for WA's ICT Industry 	<p>Western Australian Information</p> <ul style="list-style-type: none"> ▪ An annual 'State of the Industry Report' ▪ A WA ICT Capabilities Database <p>National and International Environment</p> <ul style="list-style-type: none"> ▪ Regular Research <p>Public Sector ICT Benchmarking</p> <ul style="list-style-type: none"> ▪ Commission a Scoping Study

GOVERNMENT PURCHASING POLICY & INDUSTRY DEVELOPMENT

Market Creation vs Cost Minimisation

‘One of the more influential ways in which the Government is showing leadership in the information economy is through adopting online technologies to provide better services and improve its own business practices. As a major user and customer, the Government will be a significant catalyst for change, encouraging uptake by signalling its commitment to new technologies and supporting the development of critical mass.’

- Investing for Growth – The Howard Government’s Plan for Australian Industry, 1997, p.71

In numerous economies around the world industry growth has been enhanced through innovative government procurement. Governments are looking for opportunities to cut costs but at the same time are mindful of constituents’ potential opposition as to the impact on services. In this climate, innovative managerial and technical solutions are highly prized.

The structure of the Western Australian economy makes a positive government approach even more attractive with more than half of the purchases of ICT goods and services coming from government. Arguing for this type of intervention runs contrary to generally accepted economic policies which are supported by the World Trade Organisation (WTO) obligations that advocate greater competition.

The approach proposed here positions the Government as a stimulus to growth. It addresses both the apparently conflicting goals of capturing the efficiencies of open markets while also encouraging local companies. This strategy does NOT advocate public sector buying policies based on unilateral support for Western Australian companies. The proposed approach is mindful of the conditions set by the National Competition Policy (NCP). The NCP demands that care will be required in the detail of its implementation but, prima facie, it seems it does not run counter to these agreements.

The foundation of this approach to government purchasing is to distinguish between companies that operate in global and local markets and those offering mass or niche market products, as illustrated in the figure below.

Figure 1. Categorising ICT Firms by Market orientation and Product type

MARKET ORIENTATION	Global	Multinational Corporations (MNC)	Small to Medium eXporters (SMXs)
	Local	Domestically-focused ICT Companies (Tend to be distributors, systems integrators etc.)	Potential Small to Medium eXporters (SMXs) (Where firms are producers or developers, not focused on fee for service business model.)
		Mass	Niche

GOVERNMENT PURCHASING POLICY & INDUSTRY DEVELOPMENT *continued*

Failing to distinguish between mass and niche market focus can lead to an “all or nothing” approach, as illustrated in Figure 2. By taking an open market approach in a complex globalised industry, such as that of ICTs, companies based in small isolated markets have little opportunity to reach critical mass. Conversely requiring government purchasing decisions to support local industry no matter what the price or quality of the product or service can create significant economy-wide costs while artificially shielding companies from the creative pressures of competition.

Figure 2. Strengths and weaknesses of buying global vs. buying local

MARKET ORIENTATION Global (Open, free & fair market) Local (Protectionism)	“Survival of the Fittest” Opportunity to capture maximum economy-wide advantages by exploiting economies of scale. Local ICT firms are left entirely to their own devices, alliances with Multinationals (MNCs) become critical for survival.
	Parochialism Increased risk of developing marginalised, second-rate ICT products, with little incentive to improve and so little export potential. Public sector bears the capital and operational costs and inefficiencies of these inferior products and services.

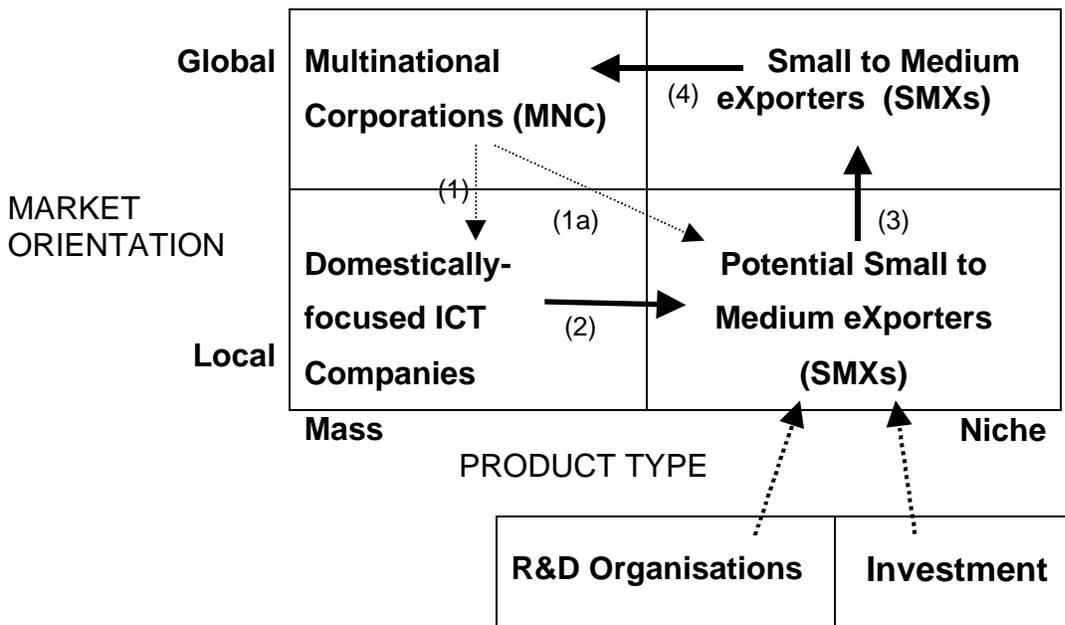
Figure 3 expands these principles by introducing a second dimension of Product Type (See Figure 3). When this dimension of Product Type (defined by whether companies are producing mass or niche products or services) is incorporated, other possibilities open up which get beyond the simple dichotomy outlined in Figure 2. This extra perspective provides a clear logic for developing an export-oriented industry development policy utilising public sector purchasing to assist in the growth of a small, isolated ICT industry such as Western Australia’s.

It proposes a rationale for government purchasing policy, which is supportive of local industry without being a heavy imposition on agencies, or the economy generally. The central idea is that preference (similar to that currently provided to region-based companies) will be given to those Western Australian companies bidding for government contracts which are exporting or are making a clear commitment to building export markets.

GOVERNMENT PURCHASING POLICY & INDUSTRY DEVELOPMENT *continued*

By offering this type of support it will be possible to encourage the Domestically-focused ICT Companies (in the bottom left in Figure 3) to migrate from primarily fee-for-service businesses to becoming producers or developers and so to become Potential Small to Medium eXporters (SMXs) and on to full SMX status. The inter-relationships illustrated below by dotted lines refer to the usual pattern of domestically-focused companies working in a wholesaler-retailer or distributor arrangement with the Multinational Companies (1). As the company makes the transition to Potential SMX (2) it is likely to build a closer and more sophisticated relationship with MNCs which may include technology transfer and/or market access opportunities. Programs such as the Federal Government's Partnership for Development are well conceived for encouraging this type of relationship. As this change occurs in the local company it begins to export (3) and possibly, over time, grows to become an MNC in its own right (4).

Figure 3. Desired SME Migration Path



Under this approach a company's status as a Potential Small to Medium eXporter (SMX) – and so its access to various government purchasing concessions - will be determined by the investment the company makes, and the market makes, in its export efforts. Although government, in consultation with industry, may set the qualifying criteria it is the local and international marketplaces which will determine whether they are met.

A company's right to these concessions would be reviewed at least annually. In this way it will be possible to exploit and support Western Australia's competitive advantages but with the market, rather than government, determining the companies with the best chance of succeeding.

This mixed approach offers the advantage of cost minimisation and access to world's best quality through exploiting open, global markets while also supporting locally-based firms by casting government purchasing in a positive, market-making role.

GOVERNMENT PURCHASING POLICY & INDUSTRY DEVELOPMENT *continued*

Proposed Small to Medium Exporter (SMX) Qualification Criteria

The goal of this program is to identify those Western Australian companies that are committed to expanding into export markets. It does this by setting market-linked conditions which companies are required to meet to retain their SMX-favoured status in bidding for State Government contracts.

The criteria are indicative rather than definitive as industry comment will be invaluable and it is likely that they will have to be varied from ICT sector to sector to take account of the different development cycles and market conditions.

The proposed process requires companies wishing to gain SMX status to meet the initial registration criteria and then to achieve certain export performance targets each year to retain it.

Before being registered as an SMX a company must have:

- Developed an export marketing plan;
- A senior executive team that has completed relevant export marketing training or evidence of relevant experience. (The formation of strategic alliances with companies in target markets will be encouraged.)

The company must also be majority-owned by Western Australian shareholders and have its corporate headquarters in the State.

After the initial year, and in subsequent years, retaining SMX status will be determined by the proportion of the company's income generated from interstate sales and exports. The level of exports each year will be adjusted to take account of changes in global market conditions for particular sectors.

The table below illustrates the kinds of requirements that might be expected of a company to qualify as an SMX.

<i>This table illustrates indicative figures only.</i>	<i>% of revenue from interstate sales</i>	<i>% of revenue from exports</i>
Year 1	5%	% (Market Development)
Year 2	10%	10%
Year 3	20%	15%
Year 4	20%	20%
Year 5	20%	25%
Year 6 and beyond	20%	30%

DRIVING SUCCESS: GEARING UP FOR GROWTH

Many Australian ICT firms have a strong technology orientation but often lack the necessary expertise and information required to commercialise, export, attract investment and form strategic alliances.

This area will provide Western Australian ICT SMEs with access to the 'right' people, information and skills.

Skilling Up For Growth

To: ...increase the number of Western Australian ICT companies that are successful at exporting, attracting investment, forming strategic alliances and therefore, growing their business.

'Australian companies need access to funds to achieve critical mass.'

- Frank Stranges, Chair and Chief Executive, 80-20 Software, The Australian, 26 January 1999, p.33

Initiatives

1. **Create a Western Australian based program modelled on the extremely successful 'Financing IT&T Growth (FIG) Program' to meet Western Australian ICT SME needs:** The objective of the FIG program is to enhance the specific management and business skills of participants, better positioning them to attract investment and succeed in export markets.
2. **'Business Services & Expertise online':** 'Business Services & Expertise online' is an online register that will provide Western Australian ICT firms with easy access to business services and expertise. The register will have a facility that enables ICT firms to 'post' specific services that they require. The register will link into similar existing online services.
3. **An ICT perspective: Small Business Development Corporation (SBDC), Business Enterprise Centres (BECs) and Regional Development Commissions (RDCs):** SBDC, the BEC network and the RDCs, form a valuable business advisory resource for Western Australian SMEs.

In order to increase the awareness of ICT industry issues and the needs of the sector's SMEs, information briefings will be provided. In consultation with the appropriate organisations funding to develop appropriate programs may be available.

4. **Access to existing financial assistance for export market development will continue.**

Need / Opportunity

Increasing the skills base and communication between Western Australian ICT companies is an absolutely essential element for the industry to realise its potential.

DRIVING SUCCESS: GEARING UP FOR GROWTH continued

Capitalising on Venture Capital

To: ...increase the number of Western Australian ICT SMEs accessing venture capital (VC). Generate an understanding among Western Australia's ICT companies of what VCs require and nurture an ICT-aware investor community

'As a technology company, you need to understand that your investors are going to be more interested in the people they are investing in, and the business model they are investing in, rather than the technology itself.'

- Virginia Eke, Chief Executive, Southrock Software, The Australian, 15 June 1999, p.56

Initiative

1. **The WA State Government, in consultation with industry will host quarterly 'Venture Capital Information Forums':** Local, national and international speakers will present on venture capital issues related to ICT SMEs.
2. **State Government will facilitate Western Australian ICT SMEs access to investors by:**
 - (i) Assisting in the identification of suitable venture capitalists.
 - (ii) Bringing Western Australian ICT SMEs and venture capitalists together by facilitating attendance at appropriate forums (local, national or international) and by hosting visits by venture capitalists to Western Australia.
 - (iii) Subsidising company's costs of preparing for and meeting with potential investors.
 - (iv) Posting 'opportunities' for both VCs and ICT SMEs online.

Need / Opportunity

Difficulties experienced by all start-up companies associated with the acquisition of venture capital apply even more so for the ICT industry and need to be addressed at Federal and State level.

The Information Industries Taskforce report (1997) stated that there were mixed messages received from both VC firms and companies seeking capital. Venture funds providers' perspective was that not enough good ventures or proposals came forward; companies on the other hand, believed that there is not enough capital available. This perception is consistent with the Western Australian Industry survey, which highlighted the lack of and access to venture capital as a fundamental weakness in the State.

DRIVING SUCCESS: GEARING UP FOR GROWTH *continued*

Strategic Partnerships and Linkages

To: ...build and strengthen links between Western Australian SMEs, aspiring SMEs, and overseas companies to facilitate the creation of global alliances.

...Support broader networks with former Western Australians and others with links to the State to provide ready access to global market intelligence and global skills for individual companies and the State's economy generally.

...Facilitate the transition of Western Australian companies into global markets and help provide the best possible prospect of them maintaining their viability.

'...a partnership can give you access to capital. Once you have overseas partnerships you can leverage your way into new markets and develop a worldwide network of distribution channels.'

Joe Falcone, Chief Technical Officer & Senior Vice President, Engineering and Service Centura Software, The Australian, 9 February 1999, p.63

Initiatives

A number of related initiatives will be established to achieve these links including:

1. **Clustering** - partnerships between industry partners to create symbiotic links are being adopted widely around the world. For industries such as Western Australia's, with its large number of small companies, clustering is an invaluable approach to building sufficient mass to tackle larger markets.
2. **aWAY** – a Western Australian alumni program to identify, locate and contact Western Australian graduates overseas or interstate with a view to involving them in the Western Australian ICT Industry Development program
3. **'Boomerangs'** - through the aWAY program Western Australian graduates who are working overseas but have an interest in returning would be encouraged with information and other, appropriate incentives to return.
4. **'Headhunting' SMXs** –through ICT clustering projects overseas SMXs which have a complementary skills or product set to the Western Australian members of the cluster would be approached to establish a Western Australian office. A more targeted approach to investment attraction.
5. **Partnerships for Developments (PFD)** - is Federal Government program to assist local companies access MNCs and larger Australian ICT companies. The program has broad support from the ICT industry. Other State Governments (which have allocated considerable resources to the PFD program) can demonstrate significant benefits from participation in the PFD program. The State will develop programs to leverage off the PFD initiative using models similar to those of other States.

DRIVING SUCCESS: GEARING UP FOR GROWTH continued

Strategic Partnerships and Linkages *continued*

6. **Explore mechanisms for improving opportunities for collaboration between research and development (R&D) organisations and SMEs.**
7. **Lobbying & leveraging off Federal initiatives:** The State Government will influence Federal Government policy and program decisions to ensure that Western Australia's ICT Industry issues and requirements are addressed. The State Government will also work closely with key Federal agencies such as Department of Communication and the Arts (DCITA), Department of Science, Industry and Resources (DISR) and Invest Australia to improve the success rates of Western Australian company applications for access to competitive funding programs based on excellence and to strengthen the industry. Collaborative efforts with relevant Australian State Government agencies will continue.
8. **Post details online of opportunities for partnering and alliances between stakeholders.**

Need / Opportunity

Western Australia's small market and distance from the major ICT markets is a significant disadvantage. It presents local companies which aspire to break into global markets with a perennial challenge in maintaining a source of reliable and timely market intelligence. The small size of the local market limits the size of most firms which, in turn, limits their capacity to support elaborate overseas operations.

Forming overseas partnerships – particularly with other SMEs facing similar problems – is an efficient and cost-effective way of overcoming many of these disadvantages. This can be aided with the State's overseas offices.

Increased interaction between research and development organisations and SMEs will more closely align research and development (R&D) with business benefits, diminish duplication of R&D efforts, foster technology innovation and transfer and provide opportunities for commercialisation of R&D outputs by SMEs,

The Western Australian Government needs to work in partnership with Federal Government and other Australian States. This will assist Western Australian industry to effectively leverage off Federal financial assistance programs, link into other Federal programs and benefit from the experiences of industry in other States.

DRIVING SUCCESS: GEARING UP FOR GROWTH continued

Sharing Experience - Learning From Others

To: ...increase awareness and understanding of factors that have influenced the successes and failures of other companies in the ICT industry.

Initiative

1. **Series of Case Studies that address the ‘successful’ and ‘learn the hard way’ experiences of local ICT SMEs.**

These will cover:

- Export
- Accessing investment
- Managing cashflow
- Recruiting and retaining talented staff
- Partnering and strategic alliances

Need / Opportunity

The rapid pace of this industry makes learning from others a far more valuable tool than some more conventional learning tools.

There is a lack of role models which show ‘real life’ examples of how people have done the things they have done.

Interstate Business Incubator

To: ...encourage and support Western Australian-owned ICT companies to expand their operations interstate and so serve as a development path for Western Australian companies to evolve into exporters.

Initiative

By aggregating SME companies’ demand for air travel, accommodation (hotel and office accommodation) and video conferencing to build and maintain client relationships interstate.

- Government’s involvement in this program will be limited to acting as a catalyst for its establishment. (All or part of this catalyst role may be filled by a coalition of industry associations.)
- As a second stage, it could also include a mentoring and partnering program to assist companies efficiently identify market opportunities and the prospects of building alliances with non-Western Australian companies. State Government support would be to ascertain and identify demand for these services and consider the optimal way they can be delivered.

DRIVING SUCCESS: GEARING UP FOR GROWTH *continued*

Interstate Business Incubator *continued*

Need / Opportunity

Gaining access to Eastern States markets offers a number of very important opportunities for Western Australian ICT companies aspiring to enter global markets, it offers the prospect of:

- developing the experience and systems necessary to operate in a distant market without having to deal with different cultural and corporate governance regulations;
- expanding the size of the “domestic” market they can access;
- building links with major Australian ICT companies and the headquarters of MNCs; and;
- being better informed and so better positioned to take advantage of Federal Government support programs.

INFRASTRUCTURE

Recent Developments

The State Telecommunications Enhancement Program (STEP) currently under development, is a key program to deliver enhanced services into rural Western Australia.

The State Government will also ensure that it maximises its telecommunications infrastructure requirements by leveraging off funding available from the further 16.6% sale of Telstra.

A \$158 million IT industry development program has also been announced 'Building IT Strengths' (BITS). Two components of this program have significance for the State in considering infrastructure issues:

1. Establishing private sector run incubators to provide a range of development assistance to ICT SMEs

The needs of businesses in the ICT industry differ substantially from other industries, in terms of technology-related services as well as the level and type of business support provided. These requirements further emphasised those companies that wish to export.

The nature of information industries, which are characterised by rapid technological changes, coupled with (often) under-developed commercial structures, presents a need for a unique blend of support services that need to be provided to SMEs in the ICT industry. The capacity of small firms or start-up companies to meet these needs is generally poor.

2. Funding the capital costs of establishing advanced network testbeds

The Australian Telecommunications CRC (ATCRC), which is clearly chartered to support Australian SMEs, is headquartered and has two (of five) nodes in Perth (Curtin University of Technology and The University of Western Australia). This available funding provides the opportunity to ensure that Western Australia is actively involved in future national broadband projects.

- **The State Government will work in partnership with the Federal Government and actively pursue Federal funds to develop the State's infrastructure. Where applicable, the State will also develop appropriate programs which facilitate access to Federal funds.**

INFRASTRUCTURE *continued*

Investigate part funding support for Institutional Infrastructure

To: ... diversify the State's technical base and enhance Western Australia's capacity to upgrade skills, knowledge and services in a range of industry sectors

Institutional infrastructure that will benefit clusters within the ICT industry need to be identified individually and the merit of part funding considered to attract or establish these types of infrastructure.

In the first instance, the State Government needs to conduct scoping studies, which will incorporate a comprehensive clustering process to ascertain and build demand in areas such as:

- A short run, contract manufacturing plant
- Software testing

The State is considering support of major ICT infrastructure projects under the Government's Science and Technology Policy launched in April 1997. These include:

- High Performance Computing and Visualisation Centre
 - Establishment of the HPVC is required to ensure that key components of the State's economy such as resource, manufacturing, engineering and construction sectors are in a position to effectively compete on a national and international basis.
 - It will position the State internationally in the top ten users of high performance computing and visualisation technology. Allowing the State to develop world class software capability. This area is presently dominated by small firms.
 - **The Federal Government is currently developing a \$1 9.5 million program to establish a unified national high performance computing infrastructure. It is expected that this funding will be available to Western Australia if the State develops such a facility.**
- New Media Village
 - The New Media Village is a concept developed by Imago to create a specialised Technology Precinct which caters for the clustering of multi/new media business organisations.
 - The New Media Village is seen as developing content providers an important element to the overall strategy.

INFRASTRUCTURE *continued*

Technology Advisory Centres (TACs)

To: ...lift the level of market intelligence / industry knowledge of overseas trends and opportunities available to SMXs; and facilitate the establishment of a market presence without incurring normally prohibitively high costs.

Initiative

The Government will establish a specialist Technology Advisory Centre (TAC) in the US, with parallel upgrades of the existing overseas offices to take on the activities associated with TACs.

Where possible, the TAC will provide:

- fully serviced premises (immediate interim office space) available on a variety of flexible rental arrangements;
- business and market development services, including market research, on-ground logistics, and business match-making;
- secretarial and administrative backup; and
- referrals to venture capitalists, lawyers and other advisory services.

Need / Opportunity

The existing Western Australian Government overseas office network targets the SouthEast and North Asian region in the main, with a representative office in London which also has to cover Europe. The focus of these offices will include ICT as one of Western Australia's priority industry sectors.

A current weakness within the overseas network is the lack of any Western Australian representation in the US. This is particularly relevant for the ICT industry, given the US market size and strategic importance for the technology industry.

Global Knowledge Industry Entrepreneurship Program

To: ...provide the Western Australian ICT sector with a ready supply of globally oriented managers and people well equipped to launch start-up companies. It would also have a heavy emphasis on retraining existing managers.

'The industry needs its employees to be well trained, but it also needs experienced people from other industries who want to gain IT&T skills. People already in the industry also have training needs. IT&T is a fast developing field that requires employees to continually upgrade their skills.'

ATUG, THE AUSTRALIAN, 9 February, p63.

INFRASTRUCTURE *continued*

Global Knowledge Industry Entrepreneurship Program *continued*

Initiative

The needs of aspiring global information industry workers or business operators are very different from those that most educational or training institutions are currently providing.

The Government will:

1. Commission a study to establish global trends in management education of companies in the global knowledge economy;
2. In conjunction with industry representatives and the education sector develop a project plan;

and

3. Seek proposals from Western Australian educational institutions to operate such a program.

This program would be structured to accommodate both full time students and business operators who need to acquire skills “on the run”.

Need / Opportunity

Knowledge Industries and Network Economies have very different dynamics to the industry and economic patterns we are accustomed to. The move from optimisation to innovation in products and services, far greater levels of uncertainty, valuing intangibles, the need for almost constant risk assessment and the need to think globally in terms of potential markets and competition are all features of this new environment.

Whilst this program would operate in conjunction with some of Western Australia’s existing institutions, it would be structured to maximise its advantage, gained from association with its international partner (s).

BUILDING ON COMPETITIVE ADVANTAGE

This area deals with three of Western Australia's competitive advantages in a global economy: its strength in resources and primary industries, the State's time zone and the expertise it has developed in using technologies to overcome distance.

Resource Sector Knowledge Projects

To: ...exploit the State's existing knowledge-base in the natural resource sectors (mining, oil and gas, agriculture, forestry, fishery etc.) and build on these to access high value knowledge markets and create greater economic diversity.

'Information industries offer the prospect of increased productivity and access to innovation and new market opportunities for all industries across the economy. Indeed, the bigger gains will flow from all industries applying these technologies. How Australia reacts to the new market opportunities will have a major impact on our future living standards.'

- Investing For Growth – The Howard Government's Plans for Australian Industry. 1997, P.77

Initiatives

Achieving this outcome will require the active cooperation of innovative organisations from each of these sectors. Government will assist companies to:

1. Identify existing areas of expertise and market opportunities for resource sector knowledge products and services²;
2. Canvas collaborative work arrangements between the public and private sector groups necessary to realise the opportunities identified;
3. Prepare a business plan ascertain the optimal approach to exploit these opportunities;
4. Develop alternative, knowledge-based, revenue streams based on the significant expertise in each industry. Substantial opportunities exist to broaden the state's revenue based on the globally recognised strengths Western Australia already enjoys in these sectors

Need / Opportunity

The Western Australian economy has been built on a series of extractive industries that have been extremely successful over a considerable period of time. In doing so it has developed an international reputation for productively exploiting these resources. A key component of this high productivity has been the use of technology, much of which has been developed either within these industries or by local specialist firms.

² Knowledge products and services could include consulting services, software and hardware

BUILDING ON COMPETITIVE ADVANTAGE *continued*

Resource Sector Knowledge Projects *continued*

To some extent, each of these industries is facing the triple threats of:

- (1) Declining prices and/or
- (2) Diminishing available resource
- (3) Growing public resistance to unsustainable use of resources as well as other socio-political/economic uncertainties globally.

These factors all contribute to a world-wide declining future for these industries. Given the State's heavy dependence on their productivity, these trends do not bode well for Western Australia's long-term future.

The global move towards sustainable utilisation of natural resources places Western Australia in an ideal position. There exists a window of opportunity to develop systems that provide the balance between 'legislation to protect the long term viability of resources' and 'corresponding commercial exploitation of these resources for the benefit of the community.'

This move to sustainable utilisation cannot be achieved without the use of information and communications technology. Identified below are areas of opportunity for the employment of technology:

- The productivity improvements required in the non-renewable resource sector for their continued exploitation.
- The monitoring and understanding of the environmental costs of renewable and non-renewable resource utilisation.
- The technology required to minimise the costs to the environment from resource utilisation.
- The monitoring and understanding of renewable resources to provide input into the legislative process that is required to provide the framework for sustainable commercial utilisation.
- The commercial technology required to utilise fragile renewable resources within a complex regulated environment that is designed to allow continued sustainable commercial exploitation.

It is also important to recognise that influencing these areas provide the opportunity to develop a Western Australia's ICT industry that will support these changes.

Capitalising On Global Time Zones

To: ...increase the number of professional and PC-based service jobs in Western Australia.

Initiative

This initiative will exploit Western Australia's time zone, the skills base of its workforce and its strong position as a centre for resource industries to become a centre for services delivered electronically to global clients. (Also see Remote Products and Services p24)

BUILDING ON COMPETITIVE ADVANTAGE *continued*

Capitalising On Global Time Zones *continued*

Realising this opportunity will require:

- The development of distributed work management skills;
- Expertise in distributed work technology integration;
- Working with clusters of Western Australian service providers (including but not exclusive to the resource sector) to develop an export market plan for their information products and services and
- The development of an international sales and account management network in targeted overseas centres.

A government-supported initiative to promote this form of global work would involve the following elements:

1. A program of developing distributed work programs within selected public sector agencies (as an incentive to decentralisation, improvement of services to the regions, a test bed in developing the hard and soft technologies outlined above, and the establishment of companies capable of supporting this style of work);
2. Support for the development of distributed global work marketing plans
3. The creation of distributed work liaison positions in State Government offices overseas as part of a comprehensive market identification research project;
4. Establishing dedicated distributed work sales staff in selected overseas locations for specific industry sectors.

Distributed work has significant implications for regional development. Working with the Telecentre Support Unit (within the Department of Commerce and Trade) and Regional Development Commissions skills audits should be undertaken in regional centres to quantify existing skills, market demand, the technologies required to link workers with customers and to draft business plans to offer these services, both within WA and overseas.

Need / Opportunity

For Australia generally, and Western Australia in particular, the services sector has become an increasingly important part of the economy and the workforce³. Our workforce enjoys an international reputation for its high level of skills.

³ The OECD average share of value added in services in GDP increased from 52.6 per cent in 1960 to reach 68.2 per cent in 1998. Employment in services expanded from 43 per cent of civilian employment in OECD countries in 1960 to almost 65 per cent in 1995. In certain countries services provided employment for more than 70 per cent of the population in 1995: United States, United Kingdom,

BUILDING ON COMPETITIVE ADVANTAGE *continued*

Capitalising on Global Time Zones *continued*

As an increasing proportion of the output of service-based work is completed on information and communication technology the movement of work between distant locations becomes feasible.

Australia and Western Australia's highly skilled workforce, its relatively low rates of professional pay, its good technical infrastructure along with its time zone make it ideally suited to capitalise substantially on these possibilities.

The relationship of our time zone to Europe and North America will open up further opportunities as firms operating in these two continents seek to gain market advantages through offering faster turn-around of jobs and better customer service.

Remote Products and Services

To: ...establish Western Australia as a leading supplier of tangible products (hardware and software) and the techniques to enable high level communication between distant locations.

Initiative

This program will create a marketing cluster to bring together "hard" and "soft" technologies from Western Australian organisations, sourced from groups overseas and interstate and developed locally. It will have a systems integration function to bring all these elements together, in much the same way as has been done with the aXcess concept car (See footnote p.26) to provide a total solution.

It will have a number of elements:

1. A scoping study and business plan to ascertain the potential members of a Remote Area Products and Services cluster, the potential market opportunities and the resource required;
2. The establishment of a research group or centre to gather information on technologies and techniques which would then be harnessed as 'tools for enhanced development (with a focus on regional development) in the State' and as 'exportable products and services'.
3. The drafting of an export marketing plan; and
4. The implementation of a program of distributed work management within the State Public Sector.

BUILDING ON COMPETITIVE ADVANTAGE *continued*

Remote Products and Services *continued*

Need / Opportunity

Understanding the optimal technology applications and the appropriate management practises for dealing with distributed work enables organisations to take advantage of new opportunities and address growing competitive pressures.

For Western Australia, with its vast distances and isolation, building strong expertise in remote product and services has significant domestic and external attractions.

Domestically it offers great opportunities for decentralisation and better use of people and their skills in regional Western Australia.

It also opens up significant export opportunities, for both products and services, and will enhance investment attraction initiatives. By providing seamless relocation/new location set-up this expertise would support the presence of multinational companies and multinational SMEs (SMXs) remote from their head office(s).

From a services perspective, as more work is being converted into digital format and our capacity to gather, store, manipulate and move it increase exponentially there is a growing need to find technological solutions which take account of the human factors in working in a distributed workplace.

POSITIONING & PROFILING WESTERN AUSTRALIA'S ICT INDUSTRY

Companies which are as dependent on innovation for their survival and development face a constant challenge to attract and retain the highest quality staff. The quality of their staff will determine their fate, particularly those competing globally.

Western Australia has an excellent record in developing highly skilled individuals and in attracting many capable people to the State. Its ability to retain those with global level aspirations and abilities has probably never been so tested as it is today. The ever increasing mobility and fierce competition for global knowledge workers make this a major issue for any regional knowledge economy.

For this reason creating a sense of excitement is not just about adding to the 'hype' the industry is famous for – it is a survival strategy.

Turning Up the Lights On Western Australia's Industry

To: ...create recognition and demand - locally, nationally and internationally - for the State's industry capabilities through positioning and profiling.

'The IT & T sector is critical to the future of the economy and demands a far higher profile than it enjoys in Australia.'

Prins Ralston, President, Australian Computer Society, The Australian, 26 January 1999, p.47

Initiatives

1. **A Western Australian ICT equivalent of the National aXcess Australia auto project will be developed in partnership with industry:** A series of model systems or organisations which have integrated software (or other technologies) from a variety of Western Australian providers to create a complete working system.⁴
2. **Industry Awards:** In consultation with the industry associations, ensure that the Western Australian Information Technology and Telecommunications Awards (WAITTA) has priority of place on the calendar of industry, media and government. Significantly increase the prestige of and participation in this event through entrant criteria, award categories, prizes and publicity.
3. **State of the Art ICT Capabilities Showcase Tools:** In cooperation with SBDC, multiple mediums (including online) will be used to demonstrate, both visually and interactively, the core competencies and strengths of Western Australia's ICT sector as enabling technology for all industry. Created by local sources, the display must be first class having a striking impact on the viewer.

POSITIONING & PROFILING WESTERN AUSTRALIA'S ICT INDUSTRY *continued*

⁴ The aXcess Australia, Australian Concept Car project was a highly successful collaboration between the Federal Government and SMEs in the automobile component industry. The outcome of the project has been the design and production of a vehicle that incorporates products from numerous companies. The car has since gone on to tour industry exhibitions around the world and has been

Turning Up the Lights On Western Australia's ICT Industry *continued*

4. **Promotional Case Studies:** A variety of successes and wins of local participants in the State's ICT sector will be used to promote Western Australian capabilities. (NB. These case studies differ from the more formal, experiential case studies that will be developed for Sharing Experiences - Learning From Others)
5. **Exhibiting at Tradeshows:** Select tradeshows (across industry sectors) will be used as a means of promoting the State's ICT core competencies and strengths. The State will exhibit the WA ICT equivalent of aXcess and the ICT Capabilities Showcase Tools in order to promote its capabilities. The sole purpose of this exercise is to promote the State and its industry, therefore, the Department may not always be accompanied by local businesses at the exhibitions.

Need / Opportunity

Western Australia needs to break through the global noise of ICT activity and distinguish itself among local, national and international markets. The industry is highly segmented (across industry) as well as being fragmented within the ICT sector. These initiatives provide a beginning to building a strong coherent image.

A Consolidated Industry That Maintains Individuality

To: ...increase interaction and cooperation between stakeholders in the Western Australian ICT industry.

Initiative

1. **An Executive Officer for Western Australia's ICT Industry** - the State Government, through the Department of Commerce and Trade will provide financial assistance in partnership with industry groups to co-fund this initiative as per the existing departmental guidelines.

Need / Opportunity

Western Australia's ICT industry is segmented with several industry associations representing the different segments of the industry. Many businesses do not see themselves as participants in the industry rather, they define themselves via the client industry that they service.

THE STATE OF THE INDUSTRY

The State Government will help the ICT industry keep abreast of rapidly changing environments by providing opportunities in knowledge building and information analysis. This area addresses the information needs for a globally competitive industry and will be published in a readily accessible form.

Western Australian Information

To: ...have adequate, timely information on the Western Australian ICT industry to grow the industry

It is increasingly recognised that knowledge, both as input and output, is central to the process of growth and job creation. Today, knowledge in all its forms plays a crucial role in economic processes.

OECD (1996) p.7. Winning Companies and Jobs –How high growth and knowledge intensive industries create jobs. A report for the Australian Business Foundation by the Allen Consulting Group

Initiatives

The Government will commission research to maintain an up-to-date record of:

- Western Australian ICT industry trends, demographics and perceptions
- Critical indicators for evaluating the Western Australian economic climate
- Critical indicators that flag current and potential gaps and requirements in capabilities for a globally competitive Western Australia's ICT industry. The types of areas that need to be monitored here include:
 - current needs and shortcomings in ICT education and training policies for the ICT industry
 - current needs and shortcomings in ICT education and training policies for individual sectors of user industries such as building and construction, education and training, manufacturing
 - cost of telecommunications access for small to medium enterprises (SMEs) in Western Australia and benchmarking against other markets

The State Government will obtain this strategic level of information through a combination of primary and secondary research and an annual Western Australian ICT Industry Survey.

THE STATE OF THE INDUSTRY *continued*

Western Australian Information *continued*

The outcomes of this information gathering will be a suite of tools to make this information accessible to government, industry and the community including:

1. **An annual ‘State of the Industry’ report which, documents the Western Australian ICT industry's progress, contains a scorecard of milestones set and achieved, and identifies the next milestones.**
2. **A Western Australian ICT Capability Database** - A comprehensive, up-to-date online database of Western Australian ICT capabilities.

Need / Opportunity

Information is critical for policy analysis, meeting education and training needs, monitoring trends in the industry and identifying clusters.

National and International Environment

To: ...understand national and global ICT trends that affect Western Australia's ICT industry

Initiatives

The Government will commission and/or gather internally:

1. **Information on the industry vis-à-vis emerging global and national trends.**
2. **Collation of additional, appropriate primary and secondary data in a systematic way.** This will be done in collaboration with industry, industry associations, universities and training providers and government agencies.

Need / Opportunity

This information is needed to track performance against other Australian states and selected overseas countries. It will provide benchmarks to assess the health of the ICT sector of Western Australia's economy in a global and national context and provide local industry with an understanding of trends, opportunities and threats in the national and international environment.

THE STATE OF THE INDUSTRY *continued*

Public Sector ICT Benchmarking

To: ...provide all Western Australian Government agencies with ready access to information on the optimal use of ICT by comparable public sector organisations nationally and internationally.

Initiative

In partnership with a research organisation, the Government will undertake a scoping study to determine:

- The methodology for gathering this information;
- The most suitable partners⁵; and
- A business plan for the marketing of the information.

Need / Opportunity

By having information on the application of ICT by other, similar organisations operating around the world, it will be possible for Western Australian agencies to benchmark their purchasing decisions and ensure they are operating as close to world's best practise as their resources allow. It will also keep them well abreast of trends and provide an invaluable means of building networks with colleagues overseas.

As the initiator of this global audit, the WA public sector will be seen as an innovative leader.

⁵ The survey would focus on the ICT use of other state or provincial governments, rather than

3. THE WESTERN AUSTRALIAN INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) INDUSTRY

The Information and Communications Technology (ICT) Industry is an enabler for the development of the knowledge-economy. Most of the sectors that make up the industry are amongst the fastest growing in the world.

Aside from the industry's own spectacular growth, its products and services are having a profound impact on virtually every other industry in developed economies. This is certainly the case for Western Australia. The major reason for the depth of ICTs effects is that they are playing an increasingly important role in enhancing all the major stages of production/development through:

- shortening innovation cycles,
- reducing production costs,
- slashing transaction costs,
- radically altering marketing, and
- providing management with access to timely strategic information.

No other technologies have had such a profound effect across such a range of different processes and across so many industry sectors.

Even Western Australia's huge mining and resources sector is an intensive user of knowledge products and services. Although the popular imagery of these industries may be based around massive machinery moving mountains or drilling deep into the seabed, none of these projects are even contemplated without massive data gathering and analysis taking place.

Defining the ICT Industry

The Information and Communications Technology industry is one of the most diverse, volatile and rapidly growing sectors of the economy. There is considerable discussion internationally on what sectors should and should not be included as part of the industry. As its influence extends further and more deeply across the economy these definitional issues are becoming more problematic.

As the focus of this policy is on industry growth and export it excludes retail sales. Beyond this the approach has been traditional, to ensure historical data could be drawn on. The industry has been defined as including:

- Manufacture of ICT equipment.
- Production of software.
- Distribution of ICT products (excluding retail).
- Provision of ICT services.
- Provision of services through the use of ICT.

The last of these categories is the least clear. This policy only covers companies that use ICTs extensively and, in most cases, produce an ICT product or service. So a software developer delivering their product to clients through the Internet falls within the category but a firm designing and manufacturing with the aid of CAD/CAM software on a computer does not.

THE WESTERN AUSTRALIAN INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) INDUSTRY *continued*

Industry Trends

- Western Australia's ICT industry grew by almost 30% during 97/98
- Growth for 98/99 is predicted to be even higher
- Western Australia's ICT industry growth has been four times the pace of the State's economy
- It is predicted to grow at more than six times the rate of the rest of the WA economy this year
- Strongest growth by companies involved in **Production of Software, Distribution of ICT Products** and **Provision of ICT Services** and this is expected to continue.

WA's Gross Domestic Product in comparison with ICT Industry Revenue⁶

	Total 97/98 \$m. (est)	% Growth 97/98 (est)	Projected % Growth 98/99
WA Gross Domestic Product	54,872 m.	8.5%	5%
ICT Industry Revenue	1,116m.	29.2%	34.2%
ICT by industry grouping:			
Manufacture of ICT equipment	102m.	10.7%	15.6%
Production of software	125.6m.	57.9%	46.7%
Distribution of ICT products	493.2m.	43.2%	35.1%
Provision of ICT Services	358.5m.	49.6%	38.9%
Provision of services through ICT (Applications)	33.5m.	24.3%	75.9%
Commercialisation of ICT	0.22m.	0.0%	20%
Other	3.1m.	17.5%	7%

⁶ Source: WA GDP: Treasury Department, Govt of WA, Western Australian Economic Summary, Sept.

Information & Communications Technology Industry Issues & Trends

Global Issues

The extension of globalisation has significantly expanded opportunities for Multi National Corporations (MNCs). *Local markets are now far more exposed to competition.*

Globalisation is driving increasing levels of competition in all markets. This trend carries the weight of law through the impact of GATT and the WTO.

This reduces the capacity for intervention by national (and State) governments.

An imbalance exists between governments and MNCs in relation to industry information, while labour market pressures place increasing pressure on governments to attract MNCs as a source of jobs.

State governments' bargaining positions are very often significantly weaker than MNCs.

Commodities have experienced a continuing long-term decline in price. Developed economies are moving into the fastest growing sectors - information and knowledge-based industries and Elaborately Transformed Manufactures (ETMs).

Commodity-dependent economies are the most vulnerable to global shifts, any shocks are felt first in these economies.

ICTs are significantly changing the shape of industries and the relationships between regions; between centralisation and decentralisation.

A great deal of high value knowledge economy work is being concentrated in a number of regions (such as Silicon Valley) while highly attractive global niches are opening for distant, specialised companies (eg WA's resource sector service organisations).

Management at all levels in both the public and private sectors is becoming more challenging as the "steady state" era ends and is replaced by far greater volatility.

There is a need to instil openness to flexibility and change at all levels of the economy, but particularly amongst managers.

Global ICT spending is predicted to grow almost 10% annually - from \$US720.5b in 1997 - to over \$US1.1 trillion in 2002. Software, services and data communications will be the leading sectors.

The online, or Internet, economy is growing 30 times faster than the global economy.

Regional Western Australian Issues

Those establishing and building ICT companies in regional areas face all of the issues and challenges outlined, plus a number of others. These include:

Limited access to competitive pricing of telecommunications products and, in some cases, more advanced services. *This is a fundamentally important issue for any knowledge intensive companies.*

The supporting services required for sophisticated ICT and other knowledge-based businesses are often non-existent (eg. international marketing, legal or accounting advice);

Consistent difficulties in retaining and attracting skilled, motivated staff.

The crucial importance of personnel issues for any knowledge intensive company wishing to compete in global markets cannot be understated.

By definition these firms tend to be some distance from larger target markets.

Adding to the costs of some inputs but, more importantly, being removed from current market intelligence.

Australian Issues

Australians generally have an excellent quality of life. Our distance from the rigours and realities of global conditions has masked the speed and rate of global economic decline and, possibly more importantly, our lack of preparedness for forthcoming changes. *Mobilising political support to undertake the necessary changes is difficult.*

Australia has traditionally had a narrow economic base dependent on commodities. As with virtually all commodities, those Australia depends on have fallen in price and continue to fall. *The scale of our natural resource riches makes the need for a greater emphasis on knowledge products and services seem of marginal importance to many.*

Australia is a heavy consumer of (predominantly imported) Information and Communication Technologies. Multi National Corporations dominate Australia's ICT Industries. *Australia has a massive, and growing, trade imbalance in ICTs.*

Australia owns relatively few global brands. *This places most indigenous companies at the lower value end of their industry's supply chain.*

The investment community tends to be risk averse. *Attracting local investment to knowledge product or service enterprises has been notoriously difficult.*

There is a low level of understanding and appreciation of roles between Australia's researchers and investors in commercialising technologies. *Innovations don't make it to market through Australian investors.*

Australia has an excellent record in research and development but a dismal history in commercialising this work. *The heavy investment made in R&D has not been fully returned.*

Australia's tax regime, particularly its capital gains tax rates, are considered major disincentives for high-growth, high technology companies. *This dissuades investment by off-shore venture capital firms and deters local investors from high-growth, high technology opportunities.*

There are signs of a "brain drain" beginning to develop, centred on ICT-skilled people. *The loss of talented people removes any nation's greatest asset in a knowledge economy.*

Although the growth in Australia's Internet population has been rapid we have slipped from fifth in the OECD in July 1997, to ninth a year later. *It is now below the OECD average.*

Western Australian Issues

The Western Australian ICT industry is fragmented. Many identify their business more in terms of the clients they service than their engagement with ICT.

The growth rate for the Western Australian ICT industry is extremely high. Orientation to export and interstate markets is also high. Products and services are sold interstate and overseas by more than 60% of WA companies.

Production of software sector had the highest growth rate last year (57.9%); the provision of services through ICT is expected to dominate this year, with projected growth of 75.9%.

More than half the companies expect increasing competition from global competitors to affect their organisations over the next three years.

WA ICT companies believe the lack of capital for export and for the development of new products; the capacity to keep value-adding and short product life are barriers to their future success.

4. ACRONYMS USED IN THIS DISCUSSION PAPER

BEC	- Business Enterprise Centre(s)
BITS	- Building IT Strengths
CRC	- Cooperative Research Centre
DCITA	- Department of Communication, Information Technology & the Arts
DISR	- Department of Industry, Science and Resources
HPVC	- High Performance Computing and Visualisation
ICT	- Information and Communications Technology
MNC	- Multinational company(s)
NCP	- National Competition Policy
NMV	- New Media Village
PfD	- Partnerships for Development
R&D	- Research and Development
RDC	- Regional Development Commission(s)
SBDC	- Small Business Development Corporation
SME	- Small to Medium Enterprises
SMX	- Small to Medium Exporters
STEP	- The State Telecommunications Enhancement Program
TAC	- Technology Advisory Centre
TIAC	- Western Australian Technology & Industry Advisory Council
VC/VCS	- Venture Capital / Venture Capitalists
WTO	- World Trade Organisation

5. INVITING PUBLIC COMMENT

Development of this document

The initiatives outlined in this document have taken into consideration the views from a variety of sources, including:

- A survey of WA ICT Industry which concluded in January 1999
- A scan of national and international government initiatives being implemented elsewhere including Malaysia, Singapore, UK and Israel as well as other states of Australia.
- A Scenario Planning workshop held in Fremantle, February 1999 for representatives of WA's ICT industry, government and academia
- A workshop comprising representatives of industry associations in April 1999
- Technology and Industry Advisory Council's (TIAC) report, *From Mines to Minds: Western Australia in the Global Information Economy* published in February 1999;
- Key stakeholders within the portfolio of Hon. Hendy Cowan, MLA
Deputy Premier, Minister for Commerce and Trade, Regional Development, Small Business

What Role Can You Play ?

This discussion document has now been released for public discussion for a period of TBA weeks.

Your comment and participation will ensure that the most significant of these programs and initiatives are incorporated into the final strategy.

This can be done through written submissions and/or participation in one of a series of public workshops.

Details of public consultation period - TBA

Submissions

Please send written submissions to:

Contact person - TBC
Industry & Business Development Team
Office of Information and Communications
Tel:
Fax:
Email:

