

Western Australian

Technology & Industry

Advisory Council

Annual Activity Report

July 2004 – June 2005





WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

Annual Activity Report

July 2004 – June 2005

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WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

Part 1



WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

Hon. Alan Carpenter MLA
Minister for State Development; Energy
19th Floor
197 St George's Terrace
PERTH WA 6000

Dear Minister

On behalf of Council I am pleased to submit the Annual Activity Report for the Western Australian Technology and Industry Advisory Council (TIAC) for the year ending 30 June 2005, for your information, and subsequent presentation to Parliament in accordance with Section 26(1) and Section 26(2) of the Industry and Technology Development Act 1998.

Council has also reported through the Department of Industry and Resources' Annual Report and Financial Statement in accordance with Section 26(3) of the Industry and Technology Development Act 1998 in compliance with Section 62 of the Financial Administration and Audit Act 1985.

Council acknowledges the valuable support given to TIAC by both your office and the Department of Industry and Resources.

Yours sincerely

JOHN THOMPSON
CHAIRMAN

1 July 2005

On behalf of Council Members:

Ms Sharon Brown
Dr Jim Limerick
Mr Rob Meecham
Ms Catherine Moore

Ms Wendy Newman
Mr David Robinson
Mr Graeme Rowley AM
Mr David Singleton

Ms Vivienne Snowden
Professor Lance Twomey
Mr Tim Ungar

1.1 Introduction

The Western Australian Technology and Industry Advisory Council (TIAC) was created by legislation in 1987 (Technology Development Amendment Act - No. 32 of 1987) and was continued under Section 20 of the Industry and Technology Development Act 1998.

TIAC was preceded by the Technology Review Group 1978-1983, and the Science, Industry and Technology Council (SITCO) 1983-1987.

Council is made up of representatives from various sectors of the State's economy who, in terms of the relevant Act, use their varied background and experience, to provide independent policy advice to the Minister so as to make a significant contribution to the development of strategies relating to the State's economic development.

Members of the Council are appointed, by the Minister, under Section 22 of the Industry and Technology Development Act 1998 so as to be representative of the interests of the people of the State. A list of members is provided in Section 1.10.

TIAC reports through the Minister to Parliament under Section 26(1) and Section 26(2) of the Industry and Technology Act 1998.

TIAC reports under the Financial Administration and Audit Act 1985 through the Department of Industry and Resources under Section 26(3) of the Industry and Technology Development Act 1998.

1.2 Objectives of the Industry and Technology Development Act 1998

The objectives of the Industry and Technology Development Act 1998 under Section 3 are to:

- (a) promote and foster the growth and development of industry, trade, science, technology and research in the State;
- (b) improve the efficiency of State industry and its ability to compete internationally;
- (c) encourage the establishment of new industry in the State;
- (d) encourage the broadening of the industrial base of the State; and
- (e) promote an environment which supports the development of industry, science and technology and the emergence of internationally competitive industries in the State.

1.3 Functions of the Western Australian Technology and Industry Advisory Council

The Council, under Section 21 of the Act is required to:

- (a) provide advice to the Minister, at the initiative of the Council or at the request of the Minister, on any matter relating to the objects of the Industry and Technology Development Act 1998; and

- (b) carry out, collaborate in or produce research, studies or investigations on any matter relating to the objects of the Act, including matters relating to the:
- role of industry, science and technology in the policies of Government;
 - social and economic impact of industrial and technological change;
 - employment and training needs and opportunities relating to industrial, scientific and technological activities in the State;
 - adequacy of, priorities among and co-ordination of, scientific, industrial and technological activities in the State;
 - methods of stimulating desirable industrial and technological advances in the State;
 - application of industrial, scientific and technological advances to the services of the Government; and
 - promotion of public awareness and understanding of development in industry, science and technology.

1.4 Outcomes

In order to deliver its objectives and provide its functions, Council has divided its programmes into two main areas:

- (a) provision of Ministerial advice; and
- (b) promotion and public awareness raising activities.

1.4.1 Provision of Ministerial Advice

The advisory role to the Minister on the objectives of the Act and the encouragement, promotion and use of technology in the State, centres around three key activities:

- (a) the development of reports on issues pertaining to the Act and the role of science, industry and technology development in the State. Council's reports are subjected to a public consultation phase before recommendations are submitted to the Minister;
- (b) the analysis of reports written or commissioned by various national and international technology and economic development focused organisations and when appropriate, the submission of recommendations to the Minister on strategies relevant to Western Australia; and
- (c) Council's participation on various State advisory and funding committees or councils.

1.4.1.1 Report Activity (July 2004 – June 2005)

In its advisory role to the Minister, Council has:

- (i) launched for public comment, the report entitled, *Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government*. This report is the second of two reports in a project titled, *Supporting Major Economic Infrastructure for State Development*.
- (ii) launched for public comment, the report entitled, *Trade in Western Australia Health Industry Services: Directions for Development*.

Copies of TIAC's reports are available in the Parliamentary Library, State Library, the libraries of the various universities and on the Internet at www.wa.gov.au/tiac.

A copy of the Executive Summary of each of the above reports is provided at Appendices 1 and 2.

1.4.1.1.1 Background and Expected Use of Reports

The State Government has established a Cabinet Taskforce to co-ordinate and oversee major infrastructure projects and a Commonwealth-State Relations Taskforce. These Taskforces are in a position to respond to the issues raised in TIAC's 2004 reports entitled, *Initiating and Supporting Major Economic Infrastructure for State Development*.

The Commonwealth Government, in April 2005, initiated a \$50 million budget measure to subsidise communications companies' investment in broadband networks in outer metropolitan areas. It is expected that customers for broadband will be connected more quickly because companies will be able to apply to the government to fund the infrastructure. This programme may assist in addressing some of the issues raised in the joint TIAC – ICT Forum 2003 report entitled, *Enabling a Connected Community: Development Broadband Infrastructure and Services in Metropolitan Western Australia*.

State Cabinet, in December 2004, endorsed the co-ordinated development of a Western Australian Knowledge Economy. This decision supports TIAC's choice of *Towards a Western Australian Knowledge Economy* as a theme for its reports between 1999 and 2004.

A summary of other outcomes from TIAC reports between 1998 and 2004 is provided in Part 3.

1.4.1.2 Participation on State Advisory and Funding Committees and Councils

TIAC has accepted invitations for representation and participated in:

- (a) the Federal Government's Commonwealth, State and Territory Advisory Council on Innovation;
- (b) the Minister's Knowledge Economy Taskforce;
- (c) the Information and Communication Technologies Strategic Advisory Group to the Department of Education and Training;
- (d) the Department of Premier and Cabinet's Steering Group for the Collaboration Arrangement with CSIRO to Develop a Physical Economy Model for Western Australia; and
- (e) the Centres of Excellence State Funding Advisory Committee of the Office of Science and Innovation.

1.4.2 Promotion and Public Awareness Raising Activities

Council's promotional and public awareness raising programmes consist of two main types:

- (a) the 2020 Breakfast seminars, commenced in 1990, are short, economic development focused, information dissemination events; and
- (b) TIAC's Internet website, to promote and increase the public awareness of its reports and encourage school students to participate in TIAC's virtual Science and Technology Forum. This activity is managed in conjunction with the Science Teachers' Association (STAWA) Science Talent Search organisation.

TIAC's website received approximately 211,000 hits in May 2005 which represented more than twice the highest figure of 103,000 in March 2004. An average of 49,000 hits per week were recorded during this report year with a total download of 17.7 gigabytes of TIAC reports. The targeted website hits and downloads may be considered as indicators of the relevance of TIAC's reports. Annual details of TIAC's web activity are provided in Part 3.

1.4.2.1 2020 Breakfast Seminars

The following 2020 Breakfast seminars were conducted in the 2004 – 2005 reporting year:

- (i) *Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government;* and
- (ii) *Trade in Western Australian Health Industry Services: Directions for Development.*

1.4.2.2 Virtual Science and Technology Forum Activities

The virtual Science and Technology activities were conducted through the Science Teachers' Association of Western Australia (STAWA) Science Talent Search organisation. Topics of the 2004 winners included:

- Upper Secondary School – *Soundworx* by Caleb Tan;
- Lower Secondary School – *Fire Frenzy* by Jade Cleave and Lauren Gleeson;
- Primary School – *Skating into Science* by James Giddy;

The presentations may be viewed on TIAC's website at www.wa.gov.au/tiac.

1.5 Financial Provisions

The expenses of Council are provided for under Section 15 of the Industry and Technology Development Act 1998 via the Western Australian Industry and Technology Development Account.

TIAC was allocated a total budget for 2004-2005 of \$777,657 plus superannuation costs. The operational component of TIAC's 2004-2005 budget was \$591,024 of which \$118,000 were quarantined as operational funds for the ICT Forum.

1.6 Members' Remuneration

Council members' remuneration and allowances were determined under Section 24 of the Technology and Industry Development Act 1998 resulting in:

(a) Chairperson's Salary	\$40,000.00 (per annum)
(b) Member's Sitting Fee – Non-Public Sector	
Council Meetings	\$800.00 (per meeting)
Other Meetings	Nil
(c) Member's Sitting Fee – Public Sector	
Council Meetings	Nil
Other Meetings	Nil

Council conducted eleven Board meetings, 10 Steering Committee meetings for the planning and development of its reports, two 2020 Breakfast seminars and participated in 25 meetings of other funding and advisory committees.

1.7 Executive Staff

Council is provided with a full time executive staff of 2.8 officers seconded from the Department of Industry and Resources.

TIAC's executive staff also provided secretarial and executive services to the Minister's Information and Communications Technology Industry Development Forum (ICT Forum).

The ICT Forum was established in 2004 by Ministerial direction under Section 25 and 23(14) of the ITD Act 1998 as a specialist advisory committee of TIAC reporting through its Chair to the Minister for State Development.

The text of the Minister's direction was attached as Appendix 6 in TIAC's 2003-2004 Report as per Section 25(2) of the ITD Act 1998.

1.8 Financial Statement

TIAC reports under the Financial Administration and Audit Act 1985 through the Department of Industry and Resources' Annual Report and Financial Statements.

1.9 Outlook for 2005-2006

Council has, over the past five years, been developing a series of reports under a theme titled, *Towards a Western Australian Knowledge Economy*. In this series, it has carried out studies which have discussed the advantages of:

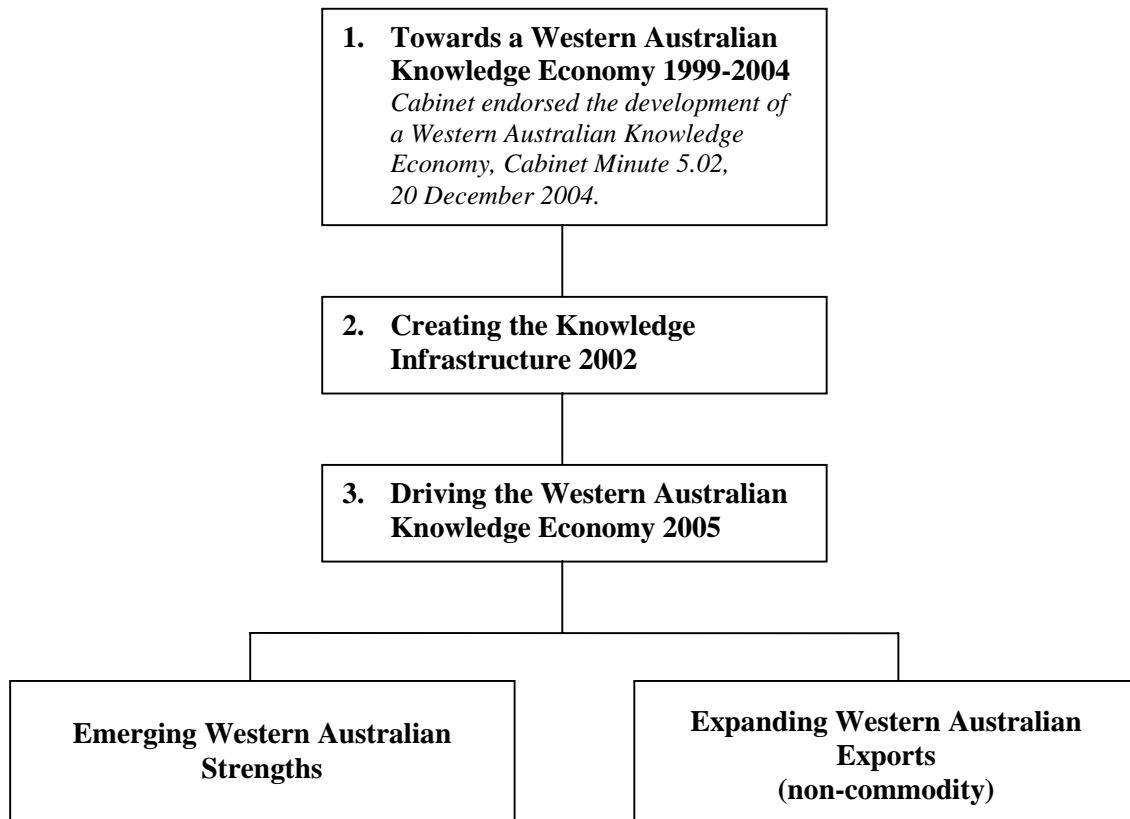
- (i) encouraging the further development of a 'knowledge component' to Western Australia's traditional industry strengths in mining and agriculture; and
- (ii) diversifying the State's economy and exports by developing 'knowledge' industries supported by a knowledge infrastructure.

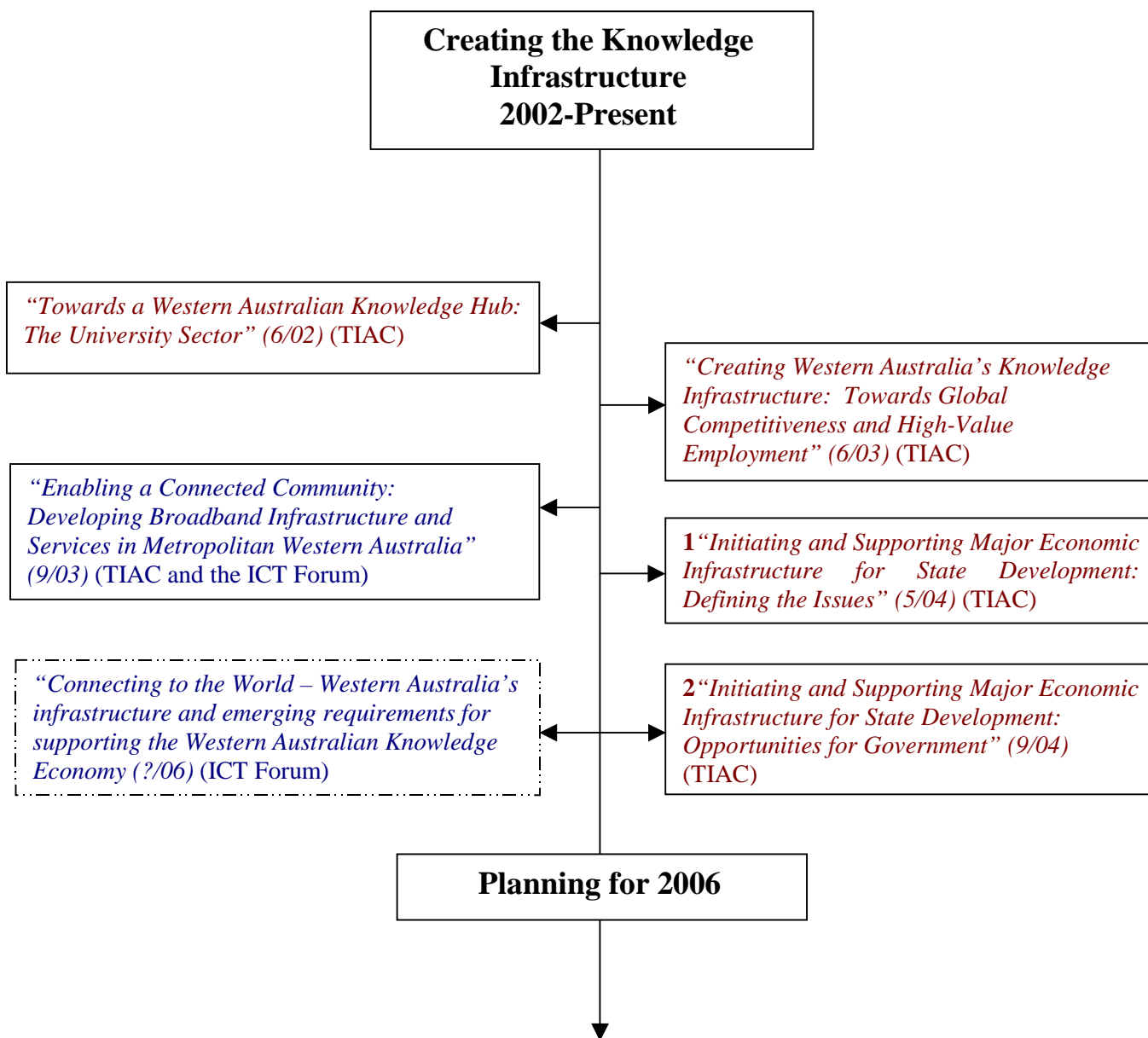
Council proposes to continue its reports to Government on various aspects which will emphasise the need to manage the consequences of globalisation, continue the development of a Western Australian Knowledge Economy and the diversification of the State's exports.

A diagrammatic summary of TIAC's series of reports under the theme, *Towards a Western Australian Knowledge Economy*, and details of the subsequent themes, *Creating the Knowledge Infrastructure 2002*, and *Driving the Knowledge Economy 2005*, is provided on the following pages.

In the 2005 – 2006 reporting period, TIAC will launch, for public comment, the reports:

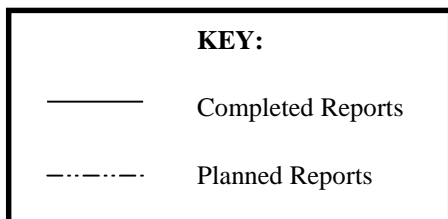
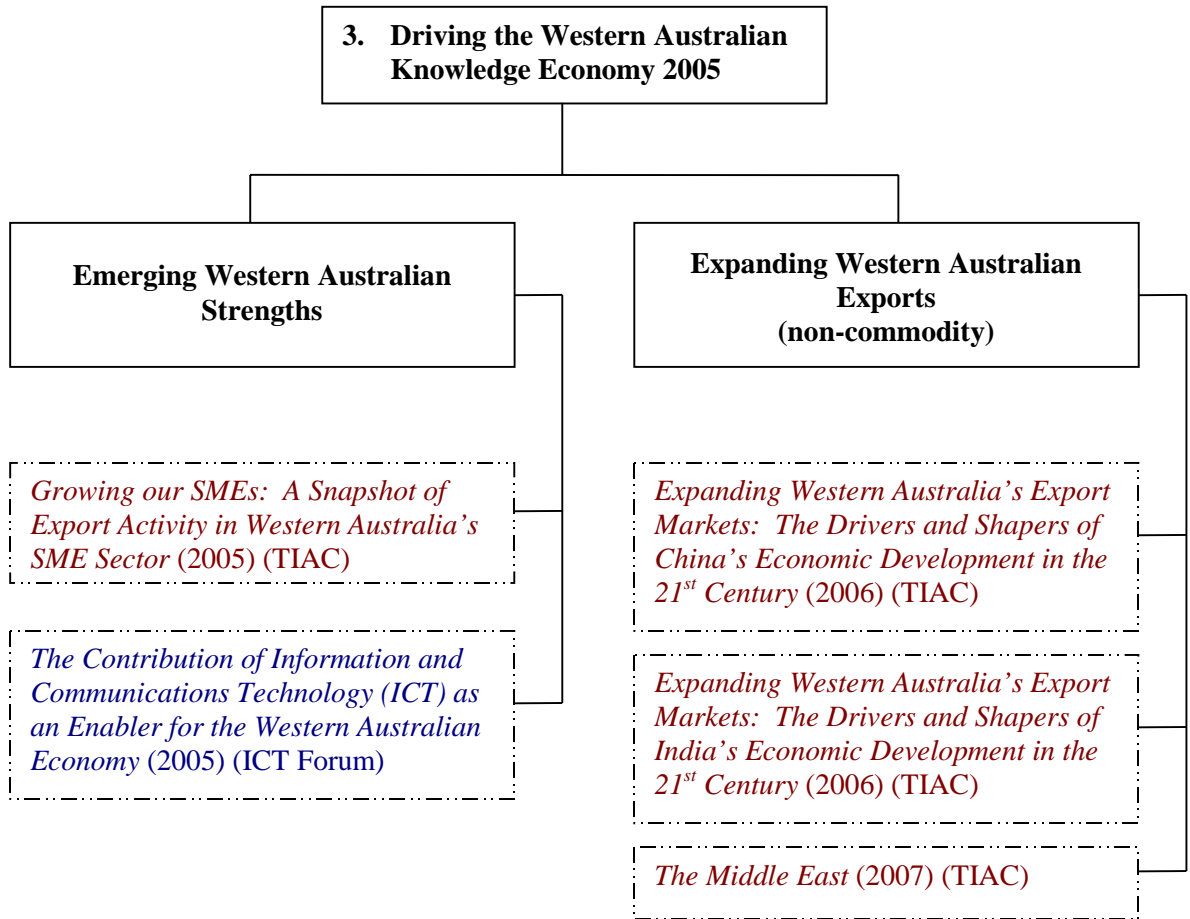
- (i) *A Snapshot of Export Activity in Western Australia's SME Sector*; and
- (ii) *Expanding Western Australia's Export Markets: The Drivers and Shapers of China's Economic Development in the 21st Century*.





KEY:	
————	Completed Reports
- - - - -	Planned Reports

Copies of these reports can be obtained from our website: www.wa.gov.au/tiac



1.10 Membership of the Western Australian Technology and Industry Advisory Council Membership

Mr John Thompson
TIAC Chairman

Mr David Robinson
Secretary
UnionsWA

Ms Sharon Brown
Strategic Business Manager
AlphaWest

Mr Graeme Rowley AM
Executive Director Operations
Fortescue Metals Group Limited

Dr Jim Limerick
Director General
Department of Industry and Resources

Mr David Singleton
CEO and Managing Director
Clough Limited

Mr Rob Meecham
Director, Business Development
Challenger TAFE

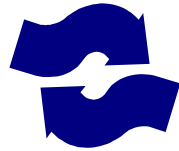
Ms Vivienne Snowden
Executive Consultant
Snowden

Ms Catherine Moore
Global Services Centre Manager
Corporate IT Services
Rio Tinto

Professor Lance Twomey
Vice Chancellor
Curtin University of Technology

Ms Wendy Newman
Principal Consultant
Quintessence Consulting

Mr Tim Ungar
Chairman
TSA Telco Group



*Western Australian
Information and Communications Technology
Industry Development Forum*

Part 2

Hon. Alan Carpenter MLA
Minister for State Development; Energy
19th Floor
197 St George's Terrace
PERTH WA 6000

Dear Minister

On behalf of the members, I am pleased to submit the Annual Activity Report for the Western Australian Information and Communications Technology Industry Development Forum (ICT Forum) for the year ending 30 June 2005, for your information, and subsequent presentation to Parliament in accordance with Section 26(1) and Section 26(2) of the Industry and Technology Development Act 1998.

The Forum, similarly to TIAC, has also reported through the Department of Industry and Resources' Annual Report and Financial Statement in accordance with Section 26(3) of the Industry and Technology Development Act 1998 in compliance with Section 62 of the Financial Administration and Audit Act 1985.

Members acknowledge the valuable support given to the Forum by TIAC, your office and the Department of Industry and Resources.

Yours sincerely



HON. MAL BRYCE AO
CHAIRMAN

1 July 2005

On behalf of Forum Members:

Mr Nic Beames
Ms Jo Bryson
Dr Bob Cross
Mr Peter Fairclough

Mr Neil Fernandes
Dr Walter Green
Mr Geoff Harben
Ms Cheryl Robertson

Mr Brett Sabien
Ms Lyne Thomas
Mr Richard Thorning
Mr John Tondut

2.1 Introduction

The Western Australian Information and Communications Technology Industry Development Forum (ICT Forum) was established as a committee of TIAC by the Minister for State Development in June 2004 under Section 23(14) and 25 of the Industry and Technology Development Act 1998 (ITD Act 1998).

The Chair of the ICT Forum reports directly to the Minister. The activities of the Forum are to be reported to Parliament in TIAC's Annual Activity Report under Section 26 of the ITD Act 1998.

The text of the Minister's direction was attached as Appendix 6 in TIAC's 2003-2004 Annual Activity Report as per Section 25(2) of the ITD Act 1998.

A list of members is provided in Section 2.10.

2.2 Objectives of the Industry and Technology Development Act 1998

The objectives of the Industry and Technology Development Act 1998 under Section 3 are to:

- (a) promote and foster the growth and development of industry, trade, science, technology and research in the State;
- (b) improve the efficiency of State industry and its ability to compete internationally;
- (c) encourage the establishment of new industry in the State;
- (d) encourage the broadening of the industrial base of the State; and
- (e) promote an environment which supports the development of industry, science and technology and the emergence of internationally competitive industries in the State.

The ICT Forum as a specialist advisory committee, is required to focus on the Information and Communications Technology (ICT) Industry under a specific Terms of Reference.

2.3 ICT Forum – Terms of Reference

2.3.1 Scope

As a vital part of this State's future development, the Information and Communications Technology Industry Development Forum (ICT Forum) is concerned with:

- (a) the advancement of the Information and Communications Technology (ICT) Industry in Western Australia;
- (b) the industry's capacity to support the creation and maintenance of high quality jobs throughout the State's economy;

- (c) access to ICT services throughout the State and ensuring the overall interests of Western Australia are served;
- (d) the promotion of ICT as a driver of competitiveness and efficiency across industry; and
- (e) the facilitation of ICT as a key enabler in a Western Australian ‘Knowledge Economy’.

2.3.2 Strategic Role

To advise the Minister for State Development on policies and strategies necessary to ensure the continuing development of the Information and Communications Technology Industry and the application of information and communication technologies across industry and the community generally in Western Australia.

2.3.3 Outcomes

The Forum will assist the Government:

- (a) in setting the environment for the development and attraction of expanded and new business opportunities for Western Australia in information and communications;
- (b) by providing policy advice, which will facilitate the establishment of “leading edge” telecommunication systems in the State;
- (c) by providing policy advice on meeting the ICT needs of both regional and metropolitan Western Australia;
- (d) by advising the Minister on broadband related issues namely;
 - (i) identifying the core value propositions and support mechanisms needed by various target groups (e.g. residents, SMEs, non-metropolitan areas) concerning broadband take-up and use; and
 - (ii) advising on a strategy designed to raise and maintain a public awareness programme to encourage the take-up and use of broadband services by target groups; and
- (e) by providing advice to the Minister, at the initiative of the Forum or at the request of the Minister, on any matter relating to the ICT industry and ICT applications generally.

2.3.4 Operations

The Forum will meet a maximum of 10 times per year with working parties established and meeting as required from time to time.

An Executive Officer from the Technology & Industry Advisory Council will co-ordinate meetings and prepare minutes. The Forum is to submit to the Minister a copy of the minutes of each meeting within 14 days after the meeting at which the minutes were confirmed.

This Forum will report through the Chairperson to the Minister for State Development.

Recommendations for action will be made to the Minister through the Chairperson. This will include business cases to support funding requests to conduct research or undertake specific projects.

2.3.5 Membership

An independent Chairperson will be appointed by the Minister.

The Forum will consist of up to 16 people with the option of initiating working parties with additional expert membership to progress specific projects.

The members will be appointed for their own strategic skills rather than as representatives of sectors or associations of the industry.

The Minister for State Development will appoint members.

Members will be appointed for three -year terms.

2.4 Outcomes

In order to deliver its strategic role, the ICT Forum has divided its programmes into two main areas:

- (i) submissions on policies under development by the State or Federal Governments;
- (ii) the development of reports on strategic issues relating to the advancement of the ICT industry.

2.4.1 Submissions

The ICT Forum's submissions on policy consist of two types. They are submissions to the State Government and submissions responding to initiatives of the Federal Government. In the 2003-2004 period, they consisted of the following:

- Submission to the Minister on the draft Western Australian Information and Communications Technology Industry Development Strategy, *A Growing and Sustainable ICT Industry for Western Australia: A Strategic Approach* (August 2004).
- Submission to the Minister on the State Communications Policy, *Building Future Prosperity: WA – A Connected Community* (September 2004).

- Participation on the Minister for State Development’s Knowledge Economy Taskforce (July-December 2004).
- Submission to the Minister on developing a State perspective with regard to implications for Western Australia of the complete privatization of Telstra (January 2005).
- Submission to *Telecommunications Competition Regulation Issues Paper* (May 2005).

The submissions to the State Government were received favourably and acted on; the results of the submission to Federal Government’s *Telecommunications Competition Regulation Issues Paper* is unknown.

2.4.2 Reports on Strategic Issues

The ICT Forum is completing a report entitled, *The Contribution of Information and Communications Technology as an Enabler for the Western Australian Economy*. The report is expected to be launched for public comment in August/September 2005.

2.5 Financial Provisions

An amount of \$118,000 was quarantined in the 2004-2005 TIAC budget as operational funds for the ICT Forum.

2.6 Members’ Remuneration

The Forum members’ remuneration is determined by the Public Service Commission.

- | | |
|--|-------------------------------|
| (a) Chairperson’s Salary | \$21,700.00 (per annum) |
| (b) Member’s Sitting Fee – Non-Public Sector | Currently under consideration |
| (c) Member’s Sitting Fee – Public Sector | Nil |

2.7 Executive Staff

TIAC’s executive staff provided secretarial and executive services to the ICT Forum.

2.8 Financial Statement

The ICT Forum via TIAC, reports under the Financial Administration and Audit Act 1985 through the Department of Industry and Resources’ Annual Report and Financial Statements.

2.9 Outlook 2005-2006

The ICT Forum in collaboration with the Department of Industry and Resources, Office of Science and Innovation (OSI) and IVEC are developing a study with a working title, *Connecting to the Word: Western Australia's Infrastructure and Energy Requirements for Supporting the Western Australian Knowledge Economy*.

The Forum will also continue to make submissions to both the State and Federal Governments as opportunities arise.

2.10 Membership of the ICT Forum

Hon. Mal Bryce AO
Chairman

Mr Geoff Harben
General Manager Public Sector
Ernst & Young

Mr Nic Beames
Director of Content
Dynamic Digital Depth

Ms Cheryl Robertson
Western Australian Branch Manager
Sun Microsystems

Ms Jo Bryson
Executive Director
Office of E-Government

Mr Brett Sabien
Manager – Telecentre Support Branch
Dept of Local Government and Regional Development

Dr Bob Cross
Chair of ACS
Edith Cowan University

Ms Lyne Thomas
Assistant Director General Development Strategies
Department of Industry and Resources

Mr Peter Fairclough
Group Manager – Corporate Affairs
Telstra Corporation Limited

Mr Richard Thorning
General Manager WA Optus Business
SingTel Optus Pty Ltd

Mr Neil Fernandes
Managing Director
Central TAFE

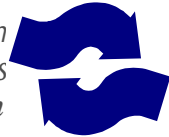
Mr John Tondut
Procurement Reform
Department of Treasury and Finance

Dr Walter Green
Director
Communications Expert Group Pty Ltd

WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY
ADVISORY COUNCIL



*Western Australian
Information and Communications
Technology Industry Development **Forum***



Part 3

Indicators of Relevance

3.1 Indicators of Relevance

TIAC was reviewed in 2004 with the resulting report being tabled as Parliamentary Paper No. 2810 on 22 September 2004. The review's conclusion on TIAC's effectiveness were as follows:

- (i) TIAC has been effective in its activities of provision of advice and in raising public awareness and is not constrained in carrying out these roles by the current ITD Act.
- (ii) The activities of TIAC are essential for promoting policy debate and assisting in policy formation. TIAC has strongly informed policy development.
- (iii) TIAC has demonstrated its flexibility in responding to Ministerial requests to develop and implement three-year programmes targeting specific industry sectors.
- (iv) TIAC should have specific appropriation identified within the responsible Department budget including forward estimates.

Other indicators of relevance that are monitored by TIAC include:

- (a) Publications of TIAC linked to its functions a per the ITD Act 1998;
- (b) Outcomes of TIAC's reports;
- (c) TIAC website statistics.

Details of this monitoring are given in Section 3.2, 3.3 and 3.4 respectively.

3.2 Publications of TIAC Linked to Function

Publication Title	Linkage to Function	Date
Support for West Australian Software Industry	PF5, SF5	July 1988
New Challenges & Opportunities	PF5, SF7	July 1988
Technology Parks	PF1, PF5	July 1988
Intelligent Buildings: What role for the WA Government?	SF6	Sept 1988
US State Government Policies Designed to Encourage the Commercialisation of New Ideas: Some Recommendations for WA	PF1, PF3, SF5	Sept 1988
WA Software Industry (Second Report)	PF5, SF5	Oct 1988
An Industrial Science Policy for Western Australia: Some Seed Ideas	PF5, SF1	Oct 1988
Towards a West Australian Science Policy for the 1990's	PF5, SF1	Nov 1988
Inquiry into Venture Capital in Western Australia	PF1, PF3, SF5	March 1989
The Case for a New Branch of Manufacturing to Provide <u>Smart</u> Equipment for the Mining Industry	PF2	March 1990
The Export Debate	PF5	May 1990
Tomorrow's People in Science & Technology	SF1	March 1991
Bentley Technology Precinct: An Exploratory Study	PF1	Sept 1992
The Western Australian Technology School of the Future: A Feasibility Study	SF3, SF5	Oct 1992
Capturing Opportunities in Asia with Western Australian Science & Technology	PF5	Nov 1992
Telecommuting 2000: Making the Future Work for Western Australia	PF2, SF5	Dec 1992
Telework 2000: Making the Future Work for Western Australia	PF2, SF5	July 1993
R&D and the State's Economic Development: What is the best fit?	PF1, SF4	April 1994
Medical Research Infrastructure Funding in Western Australia	PF1, SF4	April 1995
Towards an Information Infrastructure Policy for Western Australia – the Business Aspect	PF2, SF1	Feb 1996
Financing Options for Regional Infrastructure in Western Australia	PF1, PF4	Nov 1996
Telecommunications Deregulation – Is Western Australia Prepared?	SF7	Dec 1996
Western Australia's Minerals and Energy Expertise: How can it be optimised? – Defining the Issues – A Background Paper	PF5, SF3	Sept 1997
Research & Development: Role of the State Government in attracting External Funding	PF1, SF1	May 1998

3.2 Publications of TIAC Linked to Function (Cont'd)

Publication Title	Linkage to Function	Date
From Mines to Minds: Western Australia in the Global Information Economy	PF1, PF2, PF5, SF1, SF5	Feb 1999
Western Australia's Minerals and Energy Expertise: How can it be optimised? – <i>Growing the R&D Sector</i>	PF1, PF5, SF3	June 1999
Technology, Skills and the Changing Nature of Work	PF5, SF1, SF3	April 2000
Drivers and Shapers of Economic Development in Western Australia in the 21st Century	ALL PF, ALL SF	Sept 2000
Export of Western Australian Education and Training: Constraints and Opportunities	PF2	Oct 2000
Biotechnology West: Strengths, Weaknesses and Opportunities	PF4, PF5, SF5	Dec 2000
Directions for Industry Policy in Western Australia within the Global Knowledge Economy	SF1	Mar 2002
The Organisation of Knowledge: Optimising the Role of Universities in a Western Australian Knowledge Hub	PF1, PF2, PF5	Jun 2002
Creating Western Australia's Knowledge Infrastructure: Towards Global Competitiveness and High-Value Employment	PF2	Jun 2003
Enabling a Connected Community: Developing Broadband Infrastructure and Services in Metropolitan Western Australia	PF2, PF5	Sept 2003
Initiating and Supporting Major Economic Infrastructure for State Development: Defining the Issues	PF1, PF2, PF3, PF5	May 2004
Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government	PF2, PF3, PF5, SF1	Sept 2004
Trade in Western Australian Health Industry Services: Directions for Development	PF1, PF2, PF5, SF1, SF4	Nov 2004
TOTAL 1988- 2004	37	

* 5 Primary Functions (Objects of the Act) = PF(1-5)

* 7 Secondary Functions (Functions specific to TIAC) = SF(1-7)

3.3 Outcomes of TIAC's Reports

Report Title	Date Published	Possible Indicator of Relevance - Date
<i>Towards a West Australian Science Policy for the 1990s</i>	1988	Launch of a State Science and Technology Policy (1997).
<i>Inquiry into Venture Capital in Western Australia</i>	1989	Part of Industry Policy (2004).
<i>Bentley Technology Precinct: An Exploratory Study</i>	1989	Precinct Plan implemented (2004).
<i>The Western Australian Technology School of the Future: A Feasibility Study</i>	1992	Part of ALP election promise (2001). Part of Perth Modern Development (2004).
<i>Tomorrow's People in Science and Technology</i>	1991	Issues and elements contributed to the formation of the Science Council and contained in OSI projects (2001).
<i>R&D and the State's Economic Development: What is the best fit?</i>	1994	
<i>Research and Development: Role of the State Government in attracting External Funding</i>	1998	
<i>Medical Research Infrastructure Funding in Western Australia</i>	1995	Funding implemented (1997).
<i>Towards and Information Infrastructure Policy for Western Australia – the Business Aspect</i>	1996	Issues relating to ICT and Telecommunications Policy included as part of Industry Policy (2004). Proposed development of ICT Strategy and Telecommunications Strategy (2004).
<i>Telecommunications Deregulation – Is Western Australia Prepared?</i>	1996	
<i>From Mines to Minds: Western Australia in the Global Information Economy</i>	1999	
<i>Western Australia's Minerals and Energy Expertise: How can it be optimised? – Defining the Issues – A Background Paper</i>	1997	One of the proposed Research Institutes under the OSI plan (2003-2004).
<i>Western Australia's Minerals and Energy Expertise: How can it be optimised? – Growing the R&D Sector</i>	1999	
<i>Drivers and Shapers of Economic Development in Western Australia in the 21st Century</i>	2000	Quoted in Innovate WA Policy – ALP (2001).
<i>Export of Western Australian Education and Training: Constraints and Opportunities</i>	2000	Part of Industry Policy (2004).
<i>Biotechnology West: Strengths, Weaknesses and Opportunities</i>	2000	Part of Coalition election promise (2001). Part of DoIR work program – Biotechnology Strategy (2004).
<i>Directions for Industry Policy in Western Australia within the Global Knowledge Economy</i>	2002	Industry Policy Statement launched 2004.
<i>The Organisation of Knowledge: Optimising the Role of Universities in a Western Australian Knowledge Hub</i>	2002	Elements and issues contributed to OSI Research Institutes plan (2004).
<i>Creating Western Australia's Knowledge Infrastructure: Towards Global Competitiveness and High-Value Employment</i>	2003	Issues and elements to contribute to the Government's Knowledge Economy Strategy (2004).
<i>Enabling a Connected Community: Developing Broadband Infrastructure and Services in Metropolitan Western Australia</i>	2003	Federal Government budget provides \$50m for metro broadband subsidy to disadvantaged (2005).

3.3 Outcomes of TIAC's Reports (Cont'd)

Report Title	Date Published	Possible Indicator of Relevance - Date
1. <i>Initiating and Supporting Major Economic Infrastructure for State Development: Defining the Issues</i>	2004	Business Council takes up issue of Federal Government involvement in infrastructure development (2004).
2. <i>Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government</i>	2004	State Government creates Cabinet Taskforce to oversee major infrastructure projects (2005). State Government established Commonwealth-State Relationship Taskforce.
TIAC's <i>Towards a Knowledge Economy</i> theme of reports	1999-2004	State Cabinet endorses coordinated development of a Western Australian Knowledge Economy (2004).

3.4 TIAC Website Statistics 1999-2005

Budget Year	Targetted Requests (Annual)	Total Data Transfer (Annual)
1999-2000	94,041	0.849616 gigabytes
2000-2001	225,288	2.9 gigabytes
2001-2002	403,442	4.96 gigabytes
2002-2003	691,377	9.39 gigabytes
2003-2004	901,071	13.352 gigabytes
2004-2005	1,398,786	17.736 gigabytes



WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government

September 2004

Additional copies of this report can be obtained from our website: www.wa.gov.au/tiac

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Executive Summary

Governments in Australia, and indeed governments around the world, are increasingly focused on attracting foreign direct investment to their shores. Several countries, including Australia, are seeking to attract major resource-based projects, including an increasing number of downstream processing projects. The competition for such investment is intense.

Western Australia is a particularly development-oriented State. Major resource projects and the development of its natural resources have been keys to the strong economic performance of the State.

For the past four decades, the growth of Western Australia has been closely associated with large scale minerals, and more recently, gas projects. Indeed the State's history since the late 1800's has been one of economic development on the back of minerals and other primary development and production. A direct result of the resources-driven economy has been higher growth rates and higher employment rates in Western Australia than for the rest of the nation.

Major resources projects have been drawn to Western Australia and Australia by the presence of minerals, energy and agricultural resources, encouraging governments, and a stable economic, policy and political environment.

Western Australia and other regions of the nation have great potential for further development. Projects include processing of world-class gas resources into LNG and gas-to-liquids products, and utilisation of energy in processing of minerals and other primary products.

Looking forward, these conditions are not sufficient on their own to ensure the attraction of major projects. Many economies that were previously closed to the world's resources explorers and investors have now opened their doors. Cases in point exist across Africa, Eastern Europe, South America, Asia (especially China), and the former Soviet Union nations.

Not only are these countries more open to foreign investors, they positively encourage investment as they work to develop their economies and social conditions. Many contain areas of high prospectivity for minerals and energy and have positive policies that actively promote exploration and development. Many also have the capacity and willingness to give direct and discriminatory support to new projects in the form of tax relief, provision of infrastructure and even concessional finance.

While the world market for many resource *products* is currently buoyant (some would even describe it as a "sellers' market") the market for resource *projects* is increasingly a buyers' market. Countries and sovereign states of the world are actively competing against one another for the investment dollar.

Australia and particularly Western Australia now operate within this global condition. Its task in attracting large projects is made more complex by Commonwealth-State financial relations and the mechanics of the Commonwealth Grants Commission, which works to equalise fiscal imbalances – effectively diluting the incentives for States to improve their economic performance. Also, being a member of the World Trade Organisation (WTO) imposes certain disciplines on the sorts of support that can be offered to individual firms.

At the same time, there is much that Australia and its States and Territories can do to make themselves more attractive locations for major investments. Western Australia for example does have the advantage of a long history of attracting and sustaining new major projects, often in remote areas. It has skills in design and construction work, and in large scale mining operations. The infrastructure that it does have is relatively new and efficient.

This report identifies ways in which Australia and Western Australia can build on this history of achievement with resource projects and continue to be globally competitive investment destinations. Provision of infrastructure is an important factor, but one which should be considered within the context of all the factors which go to achieving competitiveness as an investment destination.

This review of opportunities that are available to government draws on experience elsewhere around the world in attracting new investment. It examines in some detail a number of case studies to elicit the lessons and models that might be useful in an Australian and Western Australian context.

Conclusions and Recommendations

While Australia, and the individual States and Territories that comprise the nation, remain generally competitive for major economic development, several substantial deficiencies have been identified in this report. In addition, there is a need for “world best practice” approaches to sustaining a competitive investment climate.

Current approaches to investment attraction, development facilitation and provision of infrastructure in Australia are not working as efficiently or effectively as they should, principally due to a lack of co-ordination between Commonwealth, State and local governments.

During the past two years, Commonwealth and State agencies responsible for attracting inward investment have started to work more closely and in a more co-ordinated way. Commonwealth and State approvals processes are also more closely co-ordinated than previously. There remains room for improvement, however, through adoption of whole-of-government approaches and greater co-operation and co-ordination between all tiers of government.

In particular, infrastructure policies and investment incentives schemes remain substantially uncoordinated. In some jurisdictions, these policies are deficient. At best, this situation is confusing for project proponents. At worst, it could mean that proponents look elsewhere to make their investment, resulting in substantial opportunities forgone.

Investment Climate

The investment policy climate in Australia is very good by most measures. However, Australia is competing for investment with a number of developing countries that are able to offer lower costs that may balance out less competitive factors (e.g. greater sovereign risk). Australia therefore needs to continue to improve its climate for investment, particularly so as to attract footloose industries.

In 2002, the Australian Government, through Invest Australia, produced a report *Global Returns: the national strategic framework for attracting foreign direct investment*. The framework is designed to provide direction for a strategic, targeted and co-ordinated approach to attracting foreign direct investment (FDI) into Australia. It recognises the strong partnerships that are needed with States and Territories and the private sector to implement the framework effectively. To this end, a National Investment Advisory Board has been established to co-ordinate investment attraction activities between jurisdictions.

Recommendations

1. State and Commonwealth governments should continue to work together to implement the provisions of Global Returns. In particular:
 - Ensuring that the National Investment Advisory Board (NIAB) is effective in its co-ordination role;
 - Closely co-ordinating international representation and marketing;
 - The intergovernmental National Investment Research Group (NIRG) to co-ordinate a whole-of-government approach to investment-related research and analysis;
 - Implementation of mechanisms for gaining advice from the private sector and partnerships in investment attraction activities; and
 - Involving local government in investment facilitation.
2. Governments should continue to work together to improve the overall investment climate through co-ordinated policy initiatives. This will require:
 - Receipt of feedback from the NIAB, NIRG and private sector on policy deficiencies in addition to advice on investment attraction;
 - Bureaucratic and political commitment at all levels of government to analyse and act on identified issues;
 - Greater transparency of processes, decision-making, project support, infrastructure policy; and
 - The Western Australian Government to focus on whole-of-government efficient investment attraction and approvals processes.

Infrastructure Policies

Neither the Commonwealth nor Western Australia have comprehensive policies on infrastructure, although they do have policies on certain infrastructure elements (e.g. roads). This is a major policy gap, particularly if trade-off decisions need to be made on infrastructure spending, and if the two governments are to work together in providing infrastructure.

The Commonwealth has an Employment and Infrastructure Committee of Cabinet and has recently announced the Energy White Paper and AusLink road funding initiative, but its activities fall short of a coherent infrastructure policy.

The Government of Western Australia has announced that it will undertake a comprehensive State Infrastructure Study to audit the infrastructure that already exists in Western Australia and identify the longer term infrastructure needs for industry and community development. The study will be the first stage in the development of a co-ordinated State Infrastructure Strategy to provide a whole-of-government approach to identifying specific priorities for the allocation of resources to infrastructure projects over the long-term.

The Western Australian Government has also developed a Strategic Planning Framework for the Western Australian Public Sector – within a sustainability framework – that includes the goal: “To develop a strong economy that delivers more jobs, more opportunities and greater wealth to Western Australians by creating the conditions required for investment and growth”. Strategic outcomes include “greater economic infrastructure that facilitates new development”.

In the past, high levels of state debt relative to revenue have inhibited public investment in infrastructure in Western Australia and some other States. More recently, levels of State debt have fallen to a level where governments have more room to make infrastructure investment decisions before threatening AAA credit ratings. That said, demands for infrastructure are increasing and governments need frameworks and mechanisms for assessing infrastructure needs and priorities.

Recommendations

3. The Commonwealth should develop a whole-of-government infrastructure policy to provide a framework for Commonwealth involvement in infrastructure provision in close co-operation with State and local governments, particularly in the development of strategic infrastructure to support major development of national significance.
4. The State Government, in consultation with local government should expedite development of a comprehensive, whole-of-government State Infrastructure Strategy with a key objective of state economic development within a sustainable development framework. Key elements of this policy should include:
 - Integration of the provision of all classes of social and economic infrastructure in support of development;
 - An economic development focus to all infrastructure planning;
 - Policies for direct government involvement;
 - Mechanisms to identify opportunities for private sector and involvement of government business enterprises (GBEs) in infrastructure provision, and facilitation of such involvement;
 - Mechanisms to assess relative costs and benefits of infrastructure on a case-by-case basis;
 - An integrated view of infrastructure, including “hard” infrastructure (e.g. energy, roads, ports, community facilities), “soft” infrastructure (e.g. research, training), and both traditional and new economy infrastructure (e.g. innovation, skills development); and
 - Cabinet-level and cross-agency co-ordination of infrastructure planning, including redefined roles for existing infrastructure co-ordination bodies.

Private Sector Involvement

A goal of governments should be to maximise private sector provision of infrastructure in order to reduce the cost and finance burdens on governments, reduce risks and maximise efficiency of both delivery and operation.

Recommendations

5. Within revised infrastructure policies, Commonwealth, State and local governments should develop further ways in which to encourage private sector involvement in major economic infrastructure, either through direct provision by proponents, provision by third party providers, or through appropriate public-private partnership (PPP) arrangements. Governments should actively seek to extend private sector infrastructure provision to resource development projects through:
 - Better appreciation of, and approaches to management of risk to both providers and governments;
 - Taxation regimes conducive to investment in high capital cost, long life assets;
 - Revision of regulation of infrastructure assets to provide long-term benefits to customers and the economy; and
 - Western Australian Government undertaking systematic performance reviews of strategic infrastructure provision (however provided) to assess long-term economic benefits/costs of different mechanisms and cases.

Decision-making

Governments need more comprehensive, nationally consistent approaches to decision-making in order to have rigorous and transparent approaches to assessment of costs and benefits, and to better manage risk. While the Department of Treasury and Finance (DTF) and the Department of Industry and Resources (DoIR) currently have a mechanism under development for consistent assessment of costs and benefits of major projects, an approach for assessing costs and benefits of all classes of infrastructure is required in Western Australia.

Recommendations

6. Western Australia should include – within the State Strategic Planning Framework and its new infrastructure strategy – a mechanism to assess the costs and benefits of infrastructure on a project-by-project basis.
7. Western Australia and the Commonwealth (and other jurisdictions) should agree on a common project assessment methodology that examines regional, State and national economic costs and benefits.

Commonwealth-State Financial Relations

The current approach to Commonwealth-State financial relations does not adequately account for the costs incurred by States in providing major economic infrastructure for development. This creates a disincentive for States and Territories to invest in major projects that result in national economic benefit but that result in marginal or negative financial impact on the State.

Recommendations

8. The Commonwealth Grants Commission to seek to resolve methodological issues for assessment of disabilities arising from provision of major economic infrastructure by States:
 - The Western Australian Government should work with States and Territories with similar concerns to put forward alternative methodologies.
9. The Commonwealth should undertake a review of Commonwealth-State financial relations to achieve a framework that provides incentives to States to support economic development of national significance.



WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

**Trade in Western Australian Health Industry Services:
Directions for Development**

November 2004

Additional copies of this report can be obtained from our website: www.wa.gov.au/tiac

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Executive Summary

Opportunities for Trade in Health Services

Global health expenditure as a proportion of GDP has grown significantly over the last two decades. This surge in health spending is a function of several variables including:

- rising income;
- ageing populations;
- rapid growth in surgical procedures such as coronary bypasses and angioplasty procedures, as well as hip and knee replacements and plastic surgery; and
- growing adoption of new and sophisticated medical diagnostic technologies like CAT, MRI and PET Scanners.

All of these developments have contributed to growth in health services trade as countries position themselves to take advantage of emerging business opportunities arising from greater health spending.

In addition, many developing countries are also facing significant health challenges such as HIV/Aids, tuberculosis, eye diseases, nutritional and water-related diseases and women's health. Meeting these challenges also presents opportunities for increasing trade in health services.

Western Australia's health services capability together with proximity to Asia and the Middle East, gives local health service providers an edge in winning a share of the growth of health services trade. However, the international health sector is very competitive, with strong alliances between hospitals and medical facilities across Asia-Pacific, North America and Europe and the Middle East.

The Challenge

The challenge for Australian companies is to develop appropriate entry strategies to win market share in this competitive environment. There are some Western Australian companies and institutions that are successfully engaged in health services trade. However, many companies and institutions are still primarily focused on the domestic market.

In addition, the health services sector in Western Australia is diverse and fragmented. Without a centre of gravity, such as an industry organisation, that can coordinate marketing efforts and support companies and institutions, opportunities for trade are often missed. The challenge, therefore, is to provide a platform for health service providers to capitalise on emerging opportunities and build the reputation of Western Australia as a reliable and competitive supplier of health services.

Strategic Framework

An urgent priority is to raise the profile of Western Australia's health services sector and promote its capabilities both nationally and internationally. This requires a strategic approach, including:

- adequate government resourcing to support and facilitate the State's health services trade effort;
- the formation of an industry organisation to work in conjunction with the State Government to initiate and develop strategies to raise the sector's profile;
- ongoing monitoring of and action to minimise and/or remove obstacles to trade in health services;
- mechanisms to identify and match opportunities for trade in health services with Western Australia's health services capability; and
- encouraging and promoting collaboration amongst key stakeholders in the sector.

Government Resourcing and Support

The State Government should play a key role in facilitating and encouraging trade in health services. This is entirely consistent with the Government's objective of broadening Western Australia's economic base (outlined in the Industry Policy Statement, *Building Future Prosperity*, released in January 2004).

Recommendations

1. Additional resources should be allocated to the Department of Industry and Resources (DoIR) in the 2005-2006 State Budget to support business development and trade in Western Australian health services.
2. The State Government should establish a Ministerial Advisory Forum (for a period of two years) on trade in health services and attaining benefit from the synergies between trade in health services, education and training and tourism.
3. In supporting the development of Western Australian health services trade, the State Government should adopt a whole of government approach by ensuring adequate interface between agencies within government. For example, DoIR should coordinate its efforts to foster health services trade with other State Government agencies such as TourismWA, the Department of Education and Training and the Department of Health, who may share common goals in promoting Western Australian services trade.
4. The Government of Western Australia should actively advocate for a relaxation of national medical visa requirements for inbound patients and supporting family and friends. Specific areas for consideration/examination include medical visa processing times and the appropriateness of health check requirements.

Formation of a Western Australian Industry Organisation

Western Australia's health services sector is fragmented and characterised by small and medium sized enterprises. Consequently, the industry lacks a focal point for providing strategic direction and initiating marketing and promotional activities to boost its profile.

Recommendations

5. As part of the State Government's drive to promote services trade generally, the Western Australian Government (through DoIR) should foster the establishment of a Western Australian Health Services Trade Organisation. This industry organisation would work in conjunction with DoIR and consult with other State Government agencies (e.g. TourismWA, the Department of Education and Training and the Department of Health) to enhance the sector's profile and provide a focal point for focussed marketing and promotional initiatives nationally and internationally.

Specifically, the industry organisation would contribute to:

- developing a business and marketing plan for trade in Western Australian health services;
- planning trade missions;
- hosting international delegations;
- strengthening and encouraging business and trade networks and increased collaboration amongst Western Australian health services organisations; and
- lobbying Federal Government for a review of medical visa conditions.

The Western Australian Health Services Industry Organisation and the Western Australian Government (through DoIR) in collaboration with other State Government agencies) **should also work together to establish the information needs for successful health services trade and develop strategies and initiatives according to priorities.**

Recommendations

6. In order to raise the sector's profile, the State Government (through DoIR) and in conjunction with the Western Australian Health Services Industry Organisation, should establish procedures for reviewing and updating *The Western Australian Health Industry Directory of Services and Products*.

Regular updates of the Directory (e.g. annually) would enable the State Government and the Industry Organisation to:

- maintain a comprehensive Western Australian Health Services Capability Statement; and
- monitor and match Western Australia's health services capability to emerging export opportunities.

Commitment to Exporting

Export success in any market critically depends on owners' and managers' commitment to exporting, along with their awareness and understanding of international business opportunities and practices. Although prospective exporters can access a myriad of information on international markets, much of the information available from State and Commonwealth agencies is not targeted at the health services sector.

Additionally, if public sector organisations (particularly the Department of Health) are to participate in export activities they must have a clear mandate to do so.

Although improving revenue generation through commercial activities is recommended in the Health Reform Committee's recently published report *A Healthy Future for Western Australians*¹, there still appears to be a perception within the Department of Health that it does not have a clear mandate to engage in international health ventures. As a result, although there is potential for successful trade in Western Australian public health services, institutional and statutory constraints appear to be limiting the Department of Health's ability to respond to opportunities.

Recommendation

7. The State Government should provide the Department of Health with a clear mandate to explore opportunities in the trade of public services without compromising the delivery of health services to Western Australians. In addition, the Department of Health should establish a procedural framework to engage in trade in public sector health services.

Identifying Emerging Export Opportunities

Even if health service providers are committed to exporting, they are, in many instances, not fully appraised of the potential value of emerging trade opportunities both nationally and internationally. Telehealth is one area which does not appear to be fully appreciated.

According to the Commission on Macroeconomics and Health², future prospects for telehealth and the integration of information technology with health care services looks promising. Specifically, areas where it sees potential for expansion of telehealth exports include: tele-assisted services related to home care for the elderly and rehabilitation services; professional education services and online health information services. UNCTAD³ estimates that the global market for online health information services was worth US\$21 billion in 2000 and places an estimate of almost US\$4 billion on the market for continuing professional education.

Recommendation

8. The State Government should commission a study to provide a systematic assessment of opportunities and barriers (including issues in various jurisdictions) to move forward in the area of telehealth.

Collaboration and Support

Lack of collaboration and support can lead to lost export opportunities when local firms and institutions do not have sufficient resources at hand to service market opportunities as they emerge. In many instances, this problem could be overcome if institutions were prepared to collaborate with other domestic organisations.

¹ Recommendation 81 of the Western Australian Department of Health's Reform Committee report, *A Healthy Future for Western Australians*, suggests that the "The Department of Health should pursue revenue raising initiatives, which will increase the State health system's per capita 'own-source' revenue to the national average by 2006/07. This will include setting revenue targets for Area Health Services."

² Commission on Macroeconomics and Health – Paper WG 4:5.

³ UNCTAD/WHO (1998).

Similarly, firms and organisations need access to networks and resources to successfully identify and capitalise on emerging export opportunities. Experience shows that this type of support is often provided through industry clusters. Encouraging Western Australian health services clusters would promote export activity by encouraging collaboration with other domestic organisation and institutions, and by facilitating contact with overseas organisations, branding, organising showcase events.

Recommendations

9. The State Government (through DoIR) in collaboration with the Western Australian Health Services Industry Organisation, should encourage the State's higher educational institutions and health service providers to explore opportunities for collaborating in the provision of health education and training and other health-related services.
10. The Western Australian Health Services Industry Organisation (in conjunction with both public and private sector organisations) encourage the development of Western Australian health services clusters.

Publications of TIAC 1988-2005

Publication Title	Date
Support for West Australian Software Industry	July 1988
New Challenges & Opportunities	July 1988
Technology Parks	July 1988
Intelligent Buildings: What role for the WA Government?	Sept 1988
US State Government Policies Designed to Encourage the Commercialisation of New Ideas: Some Recommendations for WA	Sept 1988
WA Software Industry (Second Report)	Oct 1988
An Industrial Science Policy for Western Australia: Some Seed Ideas	Oct 1988
Towards a West Australian Science Policy for the 1990's	Nov 1988
Inquiry into Venture Capital in Western Australia	March 1989
The Case for a New Branch of Manufacturing to Provide <u>Smart</u> Equipment for the Mining Industry	March 1990
The Export Debate	May 1990
Tomorrow's People in Science & Technology	March 1991
Bentley Technology Precinct: An Exploratory Study	Sept 1992
The Western Australian Technology School of the Future: A Feasibility Study	Oct 1992
Capturing Opportunities in Asia with Western Australian Science & Technology	Nov 1992
Telecommuting 2000: Making the Future Work for Western Australia	Dec 1992
Telework 2000: Making the Future Work for Western Australia	July 1993
R&D and the State's Economic Development: What is the best fit?	April 1994
Medical Research Infrastructure Funding in Western Australia	April 1995
Towards an Information Infrastructure Policy for Western Australia – the Business Aspect	Feb 1996
Financing Options for Regional Infrastructure in Western Australia	Nov 1996
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