CRITIQUING AUSTRALIA'S KNOWLEDGE STRATEGY: HOW CAN WE BETTER POSITION OURSELVES IN A GLOBAL COMMUNITY?

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ABSTRACT
This paper will provide critical analysis of Australia' knowledge strategy, conducted from the perspective that driving a national knowledge strategy is the predominant responsibility of government for reasons of impartiality. As such critique will be focused upon the actions undertaken by the Australian government to position the nation as a Knowledge-based Economy (KBE) competitively within the global community. It will be argued that to qualify for the title of "knowledge nation" the country needs to perform well across a composite range of factors. Examination of composite strategies will be conducted within a model of Knowledge Development, categorising the government's knowledge sourcing, abstraction, conversion, diffusion and refinement strategies. The paper will conclude with recommendations for improving Australia's position within the global knowledge economy and consequently within the global information community.

KEY WORDS: Knowledge Management, Knowledge Strategy, Knowledge Development, Knowledge Based Economy.

1. DRIVERS OF THE GLOBAL KNOWLEDGE ECONOMY

Global economic activity has been undergoing fundamental transformation with the emergence of a Global Knowledge Economy (GKE) (Sheehan, 1999), an economic structure driven primarily by *globalisation* and *increasing knowledge intensity* of economic activity (Houghton, 2002). These primary driving forces are enabled by a complex web of underlying developments; *globalisation* in itself, driven by market/industry deregulation at both a national and international level as well as by increased accessibility to these markets facilitated through ongoing development in information and communication technologies (ICT) (Houghton, 2002). An *increasing* level of *knowledge intensity* is directly driven by the heightened emergence of customer centric, knowledge intensive service industries like financing, consulting and accountancy (Debowski, 2006) and the exponential pace of Information Technology (IT) development (Sheehan, 1999). The unprecedented acceleration of knowledge production, including its storage and diffusion is the direct result of scientific and technological advances (David & Foray, 2002).

These developments not only provide Australian organisations with increased opportunity to access international markets, but consequently also expose them to competition from the same markets (Debowski, 2006). The global market continues to produce a highly IT proficient customer base with expectations of rapid response to information and product queries, access to current on-line product information and online transactions. These expectations, combined with

a geographically spread customer base force Australian businesses to adopt rapid responses to compete with global competitors who utilise significant electronic infrastructure to integrate themselves with their customer base, corporate partners, suppliers and manufacturers (Thompson, Strickland & Gamble, 2005).

Strategic response to this environment has seen the emergence of knowledge-based, technology driven enterprises whose primary value is contained within their non-physical intangible assets, specifically focusing upon resource investment and development of Intellectual Capital (IC) to support innovative practices (Li, Pike & Haniffa, 2006). Knowledge stocks at the individual level as Human Capital (eg. employee competence, knowledge and experience held by individuals within the firm), at the group level as Relational Capital (eg. knowledge captured within internal staff interrelationships, external relationships with suppliers/manufacturers, brand image, reputation), and at the organisational level as Structural Capital (eg. assets, infrastructure including that which supports knowledge capture (eg. databases, manuals) (Miller & Whiting, 2005, Afiouni, 2007).

Individual organisational economic success directly contributes to national economic success in terms of both productivity and growth, referred to as Gross Domestic Product (GDP). However, variations in national productivity and growth rates are no longer linked to a nation's availability of natural resources, but rather to the quality of human capital, their knowledge creation capacity and ability to grow and share intangible capital (David & Foray, 2002).

Consequently, an organisation's capacity to compete in this global environment is largely dependent upon government driven strategy and support, primarily through national investment in knowledge creation and diffusion. This effectively translates to necessary focus upon co-ordinated and planned investment in training, education, Research and Development (R&D) and information and communication infrastructure (David & Foray, 2002) at industry, academic and governmental levels.

2. EARLY CONCERNS RELATING TO AUSTRALIA'S KNOWLEDGE PERFORMANCE

Concerns regarding Australia's performance within the GKE in comparison with advanced economies (eg. America, Europe, East Asia) were raised in 2001, when the Chifley Research Centre, the Australian Labour Party's official policy development institute commissioned a report into this area. The report examined Australia's performance in three areas that define national knowledge economic capacity ─ education, R&D and investment in ICT drawing upon research analysis conducted by the Organisation for Economic Co-operation and Development (OECD) (Considine, et.al., 2001). Their examination of Australia's investment in Human Capital, specifically, investment in education and work force development, revealed significant deficits. They label "*Australia's poor knowledge economy performance*" as a consequence of the following ─ Australia's focus upon investment in fixed assets (describing Australia as an "*old economy*");

Australia's reduced funding of public education being well below OECD averages, forcing the rise of private funding; secondary school retention levels lower than OECD averages and low retention of adolescents in vocational education programs; rapid growth in higher education uptake limited to a narrow band of fields (eg. business studies, computing) supported primarily by private rather than public funds, with a decline in the role of engineering, science and research degrees.

Report by the Chifley Research Centre also revealed that whilst there had been an increased investment of GDP in R&D between the years of 1984 to 1995, this investment declined significantly in subsequent years and compared poorly against investments made by other OECD countries. "*While a sample of comparable OECD countries increased their R&D expenditure by 4.2% between 1995 and 1998, and US expenditure increased by 5.0%, Australian R&D expenditure fell by 15.4%*" (Considine, et. al., 2001). The report highlighted that the contribution of Australia's information industries made to the economy ranked last amongst OECD countries, as a direct consequence of the decline in manufacturing of communications and information equipment. Whilst knowledge intensive goods export rates increased compared with imports, this performance reversed in later years because of the failure to invest in knowledge-based industries (eg. telecommunications, computing equipment, software, services) directly contributing to the nation's negative trade balance and growth in foreign debt.

Whilst these early examinations are alarming, it could be argued that the true primary indicator of a knowledge nation is its ability to recognise these deficits and engage in an ongoing sufficient level of corrective and developmental actions. The following questions therefore are pertinent — can Australia take this lesson and learn from it; and has Australia's performance since the Chifley report changed sufficiently to merit the description of "*Knowledge Nation*" or "*Clever Country*"?

3. MAPPING A MEASUREMENT FRAMEWORK

Debowski (2006) outlines a model of Knowledge Development encompassing five phases — knowledge **sourcing** (bringing together informed knowledge sources); knowledge **abstraction** (framing insights gained from the sourcing process); knowledge **conversion** (translating ideas/principles into specific outcomes); knowledge **diffusion** (the spreading of codified/embodied knowledge); and knowledge **development/refinement** (ensuring knowledge sustains currency and usefulness). Whilst Debowski applies this model to an organisational setting, it can be applied equally well to a national setting, taking a lead from Wood (2003).

Pivotal to Wood's examination of Australia's knowledge performance is his identification of proposed measures within composite areas. We are using Debowski's framework to sequence and categorise the measures Wood (2003)

presents into a broader measurement map. This map is then utilised to examine more recent data in the evaluation of Australia's current level of performance.

Since examination of national knowledge networks forms a crucial element of performance analysis (Wood, 2003), such an analysis represents Australia's capacity for knowledge **sourcing**. Wood highlights the measurement of networks among universities and those between suppliers and private sector users to be useful indicators. Other indicators could include international staff/student exchange agreements, international joint ventures and strategic research alliances and collaborative research centres. A further indicator of Australia's knowledge sourcing could be the level of governmental funding support of university research centres or research initiatives that cross both industry and tertiary institutions.

One area within Debowski's (2006) framework which Wood (2003) does not identify as a key component of performance analysis is measurement of the nation's knowledge **abstraction** strategies. The most ideal national strategy in this area would involve OECD type activities, where governmental knowledge strategies receive ongoing examination and gap identification, with subsequent insights utilised to develop the breadth, depth and level of integration of sub-strategies into a broad national knowledge approach.

Wood (2003) highlights the importance of measuring knowledge inputs and outputs and the development of and application of composite indices to achieve this purpose. Wood criticises available indices, specifically the composite Information Society Index (which measures four types of infrastructure ─ computer, information, internet and social) for offering only superficial examination and for lack of emphasis upon human capital measurements. Ideally, a knowledge nation would engage in the use of composite indices; compare its results internationally; engage in setting comparable outcome targets that address areas of deficit consequent to gap examination that extends beyond surface level; and development of strategies to address underlying performance issues. Such an analysis at a national level is an examination of Australia's capacity to engage in knowledge **conversion.**

Extending Considine et. al.'s (2001) examination of Australia's knowledge **diffusion** strategies, Wood argues that an effective national strategy would incorporate the technical tools that assist with both embodied (individual tacit knowledge) and disembodied knowledge diffusion as well as strategies that support the development and retention of the nation's human capital (Wood, 2003). Wood draws upon the OECD definition of human capital being "*the knowledge, skills and competencies and other attributes embodied in individuals that are relevant to economic activity*" (Industry Analysis Branch, cited by Wood, 2003), extending Considine et. al.'s examination to analysis of skilled person's migration patterns. Globalisation has led to the increased mobility of the "white-collar" labour force. Consequently, integral to the economic success of a country is the ability to retain skilled workers, "*restricting the brain drain in the information technology sector is integral to the growth and development of a*

knowledge economy" (Wood, 2003). Essential to attracting and retaining a skilled workforce is the need to offer internationally competitive conditions including comparable salaries and incentives. However more than this, it is about developing a nation's current workforce and examining the challenges contained within the current and future workforce.

Wood identifies a range of technical infrastructure indicators to measure the ability to **diffuse** knowledge. Possible measures include the takeup of communication and information technologies (eg. internet) and the takeup of computer-based technologies (eg. personal computers) (Wood, 2003).

Another area within Debowski's (2006) framework which Wood (2003) does not identify as a key component of performance analysis is measurement of the nation's knowledge **development/refinement** strategies. The ideal national strategy in this area would involve ongoing engagement and refinement of the nation's knowledge abstraction strategies to ensure knowledge sustains its currency and usefulness.

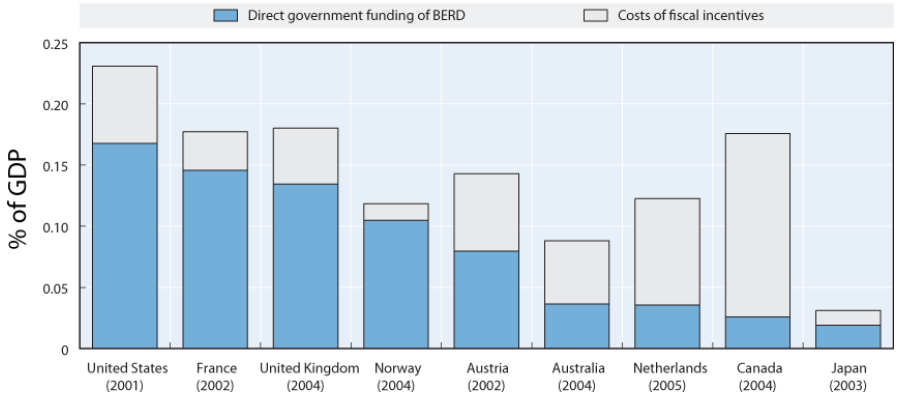
4. CRITIQUING THE SUCCESS OF AUSTRALIA'S KNOWLEDGE STRATEGY

4.1. Examining the success of Australia's knowledge sourcing strategies

Australian government's responses to the concerns raised by Considine et. al. (2001) are encapsulated in the report named "*Australia's Strategic Framework for the Information Economy 2004 – 2006*" (ASFIE 2004-2006). Developing Australia's innovation system as a platform for productivity growth and industry transformation has been identified as a priority, with maintaining a globally competitive business environment for innovation as a critical strategy**.** These knowledge **sourcing strategies** received favourable analysis from the OECD in their 2006 Science, Technology and Industry Outlook. However, close examination of the statistical information provided indicates that Australia's efforts have yet to place the nation in an internationally competitive position. The OECD provides international comparison of R&D expenditure as a percentage of GDP. Whilst offering statistical information as current as 2004 for many OECD member countries, information pertaining to Australia in many cases is only as recent as 2002. This absence leads one to question the success of the above listed strategies and consequently whether it may be intentional. One area in which the OECD appears to have more recent national data is in its international comparison of tax incentives and direct funding provision to support business R&D activities.

Whilst the whole amounts pertaining to Australian R&D investment can appear impressive, this investment restated in terms of % of GDP and in direct international comparison reveals a different picture (see Figure 1). For example, in 2004 Australia's investment represents less than 0.05% of its GDP, significantly behind other OECD member countries.

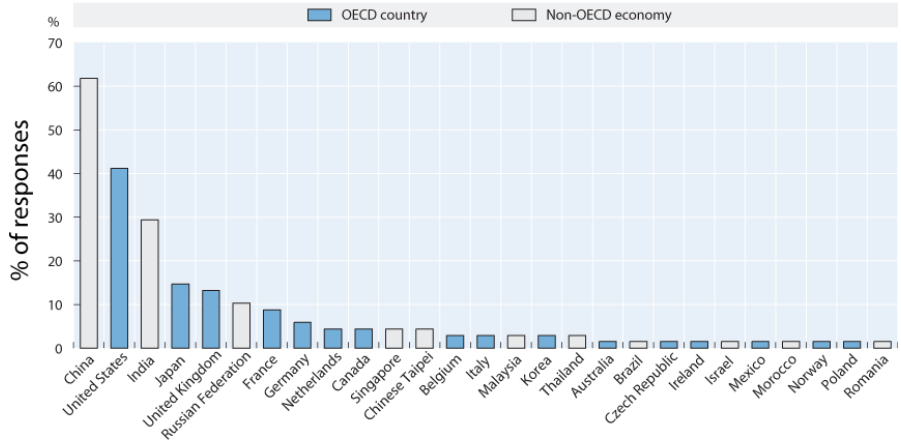
Figure 1: Direct Government funding of business R&D and tax incentives for R&D as a % of Gross Domestic Product.



Source: OECD, based on national estimates, some of which may be preliminary.
StatLink: http://dx.doi.org/10.1787/108314226461

The OECD Science Technology and Industry Outlook 2006 asserted that multinational corporations underpin global R&D investment, noting that foreign affiliate investment in Australian R&D efforts exceeded 40%, comparable with Hungary, Ireland, Czech Republic and the UK (see Figure 2). Interestingly, a 2005 survey of the largest R&D investors, show Australia as one of the least attractive options for foreign R&D investment. (UNCTAD, 2006 as cited by OECD, 2006)

Figure 2: Most Attractive Foreign R&D locations as a % of survey respondents.



Source: UNCTAD (2005).
StatLink: http://dx.doi.org/10.1787/410825310285
(UNCTAD, 2006 as cited by OECD, 2006)

4.2. Examining the success of Australia's knowledge abstraction strategies

Knowledge development requires strategic approach (Debowski, 2006) to attract and satisfy customers, compete, grow and achieve desired objectives within the context of the vision and values of an organisation (Thompson, et. al., 2005). Consequently, a national knowledge strategy requires a series of responsive strategies (reactive, but preferably pro-active) and initiatives that competitively position Australia within a global knowledge community/economy by setting and striving toward objectives and outcomes comparable to direct competitors, with objectives framed by a vision representative of national values.

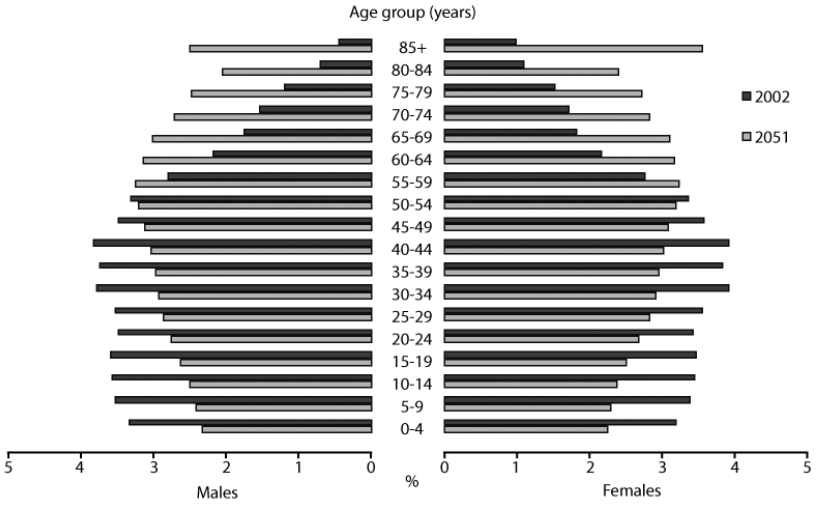
The Australian government's ability to engage in knowledge **abstraction**, to recognise and respond to self-identified deficits and those highlighted by other sources and to insightfully respond to these is partly demonstrated in the paper ASFIE 2004-2006, based upon "*Australia's vision for the information economy where government, business and society are all connected*." This document attempts to strategically address the deficits identified by the OECD and the Chifley report. Its practical level of success will become apparent when the success of Australia's knowledge diffusion strategies are discussed later in this document.

4.3. Examining the success of Australia's knowledge conversion strategies

Not only does the ASFIE 2004-2006 paper demonstrate a level of knowledge abstraction, the document partly demonstrates the government's capacity for knowledge **conversion**. Whilst the document focuses upon the development of strategies in response to identified national knowledge management deficits, the document fails to specify the quantitative measures and outcomes used to determine the success of proposed initiatives. Acknowledging this limitation, let us broaden our examination.

Australia's population is ageing, with the proportion of people aged over 65 anticipated to increase from 13% to 27% between 2002 and 2051, accompanied by an anticipated decrease in Australia's working population (those aged 15-64) as percentage of the total population (anticipated decrease of 67% to 59% between 2002 and 2051) (Australian Bureau of Statistics, 2004), represented in Figure 3.

Figure 3: Population Projections by Age Group 2002 to 2051



Source: *Population Projections, Australia* (catalogue no. 3222.0), Australian Bureau of Statistics.

(Extracted from *Labour Market Indicators of an Ageing Labour Force in Australia*, Australian Bureau of Statistics, 2004).

Figure 3 raises economic and labour force concerns. For Australia to experience both economic and knowledge sustainability, strategies to increase labour force participation and productivity of an ageing population are required. The government's national strategy for an ageing Australia as outlined by Senator Bishop's speech (Bishop, 1999) also demonstrates the government's knowledge abstraction abilities, whilst the initiatives cited by Taylor (2003) in Table 1 provide further, though not comprehensive evidence of the government's knowledge conversion abilities.

Table 1: Public Policies Affecting Older Workers – Selected Countries
(Adapted from Taylor, 2003)
(Legend: Aus=Australia; UK=United Kingdom; USA=United States of America; A=Austria; Fi=Finland; G=Germany; F=France)

	Country						
Initiative	Aus	UK	USA	A	Fi	G	F
Strategic policy approach to the employment and retirement of older workers.	✓	✓		✓	✓		
Programs of research and development on the issue of age and employment.		✓			✓	✓	
Pension and social security reforms aimed at removing incentives to early retirement and encouraging later retirement.	✓	✓		✓	✓	✓	✓
Gradual retirement schemes.				✓	✓	✓	✓
Age discrimination legislation, protection against dismissal.	✓	✓	✓	✓	✓		✓
Proscription of age bars in recruitment advertisements, and/or abolition of mandatory retirement.							
Awareness raising campaigns among business and the general public.	✓	✓			✓	✓	
Employment and training programmes targeting older workers.	✓	✓		✓	✓	✓	✓
Support to employers (eg. advice and guidance, training, employment placements)	✓	✓	✓		✓		

Table 1 indicates that Australia compares favourably with other key countries in policy development. Whilst the practicality of these initiatives is demonstrable support for the government's ability to engage in knowledge conversion, these initiatives have not yet translated into outcome data that places Australia

competitively. Whilst Australia experienced a small increase in the labour force participation rates of people aged 15-64 of 74% in 1990 to 76% in 2005, this is attributable to an increase of women in the workforce (Australian Bureau of Statistics, n.d.). Australia's rate of persons aged 55-56 participating in the workforce remains well below other key OECD countries (Australian Bureau of Statistics, n.d).

4.4. Examining the success of Australia's knowledge diffusion strategies

The ASFIE 2004-2006 report also outlines strategies that can be categorised under knowledge **diffusion**, including strategies that support development of technical information infrastructure and the nation's human capital. The government's priority in the diffusion strategies for technical infrastructure was aimed at attaining the objective of ensuring that all Australians have capabilities, networks and tools to participate in the benefits of the information economy. The first strategy towards this end was to develop the networks and capabilities needed by people living in regional communities, indigenous Australians, older Australians, people with disabilities and others facing economic or social barriers to participation in the information economy. Strengthening collaboration and capabilities in Small and Medium Enterprises (SMEs), NGOs, and key sectors to facilitate their participation in the information economy was the second strategy. The third diffusion strategy was to promote investment in broadband infrastructure, content, capabilities and networks in regional areas and in key industry sectors.

To provide examination of the success of these strategies the government released the "*Information Economy Index 2006"* paper. This document compares Australia's on-line performance against nine other countries utilising *Composite Index Rankings* in areas including consumer technology use, internet access and intensity of use, adoption of broadband, e-business and e-government. Table 2 provides country performance rankings against the 20 indicators of the index

Table 2 shows that Australia presently ranks equal 3rd with Sweden after the US and Canada, representing a significant jump from 6th position in 2003. This result is due to positive score increases on each indicator rather than superior performance on any one indicator. Whilst the index does not provide an evaluative basis for all of the government's initiatives, the evidence demonstrates that these initiatives have enabled increased performance and better competitive positioning of Australia within the global knowledge community.

The success of these strategies is independently supported by Singh and Byrne (2005), whose research revealed that Australian organisations have made significant investments in information and communications technical infrastructure to leverage the benefits of the internet and e-business. Their research found that Australian companies have embraced these tools for conducting business with greater adoption levels seen in manufacturing and service industries.

Australia's success of strategies in the diffusion of knowledge that is disembodied can be indirectly examined through analysis of the number of patents lodged, trademarks established and emergence of technically focused services (Wood, 2003). Patenting and licensing activities undertaken by public, government and university-based research has direct economic and social benefit (OECD, 2006). In the OECD's 2006 analysis, Australia does not rate any mention of comparable performance in these areas.

The ASFIE 2004-2006 also highlights knowledge **diffusion** strategies which focus upon the development of the nation's human capital. The priority was to develop Australia's innovation system as a platform for productivity growth and industry transformation. The strategies focussed on building an innovation culture through improved access to education and skills development and maintaining a globally competitive business environment for innovation.

Evidence of the success of these strategies is contained in measures such as the rate of growth of employment in professional, scientific and technical occupations. On an international comparison (OECD Science, Technology and Industry Outlook, 2006), Australia has performed reasonably well, experiencing approximately 3% employment growth rate in these areas. However, as a proportion of total employment, this figure is less impressive. Whilst Australia has outperformed America and the UK in these areas, Australia did not experience the rate of growth experienced by Hungary, Spain and Ireland.

The success of the government's initiatives related to knowledge diffusion (human capital) is supported by Australia's low unemployment rate of 5% (Department of Employment and Workplace Relations, 2006) and evidenced in annual growth rates in advanced clerical and service workers (13.7%); professionals (9.2%) and managers/administrators (4.4%).

The OECD "*defines nations operating as KBEs as those where knowledge is the main source of wealth, growth and employment, with a strong reliance on information technology*" (OECD, cited by Debowski, 2006). Service industries are heavily knowledge focused. Callioni (2004) asserts that Australia meets the OECD definition of a KBE nation with the bulk of Australian employment being in the services sector at 71% compared with industry 26% and agriculture 3%. In 2005 the proportion of employment within the services sector increased to 75% compared respectively with Canada 75%, France 74%, UK 76% and USA 79% (House of Representatives Standing Committee on Economics, Finance and Public Administration, 2007).

Table 2: Country Rankings of Individual Performances on the Information Economy Index (2006)
(Adapted from *Information Economy Index 2006,* Australian Government Department of Communication, Information Technology and the Arts, 2006). (Legend: US=United States; UK=United Kingdom; C=Canada; F=France; G=Germany; I=Italy; J=Japan; Sp=Spain; S=Sweden; A=Australia; Aust RS Performance=Australia's Raw Score Performance)

	Comparative Rankings Based Upon Raw Scores									Aust RS Performance			
Indicator	US	UK	C	F	G	I	J	Sp	S	A	%2006	%2004	%2003
% of 16 yr olds & over with use of a mobile phone	7	1	9	8	6	1	10	5	1	1	80	72	65
% of households which own/ lease a PC	2	5	1	8	6	7	10	9	3	4	71	65	65
% of households online	2	4	4	10	6	7	8	9	1	3	65	56	54
% of persons with internet access via home PC	1	4	N/A	9	6	7	4	8	1	3	66	59	57
% of 16 yr olds & over with internet access from any location	3	5	4	7	6	8	10	9	1	2	86	84	72
% of 16 yr olds & over with internet access at home or work	2	5	3	9	6	7	N/A	8	1	4	108	109	89
% of 16 yr olds & over with internet access by gender	1	5	3	7	10	8	9	5	4	2	99	96	95
% of 16 yr olds & over with internet access by age group	N/A	4	3	5	8	6	N/A	7	2	1	63	50	81

Broadband home Internet users	5	4	2	1	8	5	N/A	3	9	7	60	21	9
Broadband households as a % of total households	3	4	1	6	10	9	2	7	4	8	31	9	4
Price of broadband access	4	5	8	2	7	9	1	10	6	3	75	62	N/A
Wireless Internet access	4	3	8	5	7	10	1	9	2	5	30	19	19
Average number of Internet sessions & hours online per month.	4	7	N/A	1	6	N/A	5	2	8	2	64	28	25
% of 16yr olds & over purchasing online	1	2	6	7	5	9	N/A	8	3	4	39	33	18
% of Businesses online	3	8	3	7	3	8	1	8	1	6	90	N/A	89
% of Businesses placing orders online	1	3	2	7	4	9	8	10	6	5	45	N/A	N/A
Number of secure servers per million inhabitants	1	4	2	9	6	10	7	8	5	3	59	64	66
E-readiness rankings	1	3	5	7	6	10	8	9	2	4	85	79	82
Penetration of online government services	5	8	N/A	2	9	6	2	2	6	1	39	36	32
E-government rankings	1	3	5	8	6	9	7	10	2	4	87	N/A	N/A
Overall Ranking	1	5	2	8	7	9	6	9	3	3			

4.5. Examining the success of Australia's knowledge development/refinement strategies

The ASFIE 2004 – 2006 report also asserts strategies which can be categorised under knowledge **development/refinement**. These initiatives focus upon regulation of knowledge systems and the refinement of security arrangements to encourage increased commercial use of tools such as e-business.

The adoption of internet technologies by Australian High Technology Small Firms (HTSFs) and the adoption of online certification by Australian retailers were found to be at its infancy (Krishnaswamy, 2000, 2002). Batten and Wasif (n.d) cite a Yellow Pages survey of 1,800 Australian SMEs in 2002 which analysed their experience of and attitude towards e-business. Results indicated that takeup of e-business was being hampered by security concerns. It logically follows then that government IT security strategies were in response to the concerns of SMEs. The increased takeup of e-business in Australia (Singh & Byrne, 2005) and increased takeup of ICT indirectly support the success of government security strategies.

Australian commitment to quality assurance and development of an evaluation system to ensure public research quality, through the Australian Research Quality Framework received favourable analysis from the OECD in their 2006 Science, Technology and Industry Outlook. Australia's approach and emphasis upon identifying key performance indicators, the utilisation of self designed measures and other recognised measures such as the Information Economy Index to assess performance, provide evidence that Australia engages in strategies that can be categorised as knowledge ***development/refinement***.

5. RECOMMENDATIONS FOR RE-POSITIONING AUSTRALIA WITHIN THE GLOBAL KNOWLEDGE COMMUNITY

It is evident that Australia has undergone extensive, critical self examination; developed a long term knowledge vision; engaged in an extensive range of strategies across a complex composite set of areas; attempted to allocate resources in a planned manner, spreading both costs and benefits; whilst also engaging in self-evaluative activities. Whilst Australia has achieved a positive repositioning within the global knowledge community, further work needs to be done.

If the government is to improve the nation's current position, a greater range of knowledge **sourcing** strategies need to be adopted, particularly increased funding for R&D activities that facilitate greater intra and inter-country collaboration. Continued engagement in knowledge **abstraction** is required. The government's engagement in knowledge **conversion** strategies requires further development. Whilst the success of the government's knowledge **diffusion** strategies that support technical infrastructure are to be applauded, greater work is required in the investment of human capital, particularly increased public funding of secondary and tertiary institutions in areas that will support

the development of the nation's service industries. It is anticipated that with the government's commitment to adoption of knowledge **development/refinemen**t activities, Australia is set to achieve greater competitive positioning.

6. CONCLUSION

Whilst Australia perhaps does not yet merit the title of "*knowledge nation*" or "*clever country*", the nation's ability to learn is self-evident. The steady rate of its knowledge growth is an indicator that Australia will continue to strengthen its capabilities as a KBE, strengthen the sustainability of these strategies and as a consequence increase its capacity to not only benefit from the global knowledge community, but be in an enhanced position to contribute to this community.

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