

Knowledge Frontier – Discussion Paper

Opportunities and implications as Australia capitalizes on being a leading
knowledge intensive society



Society for Knowledge Economics

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Foreword

I want to express my gratitude for the efforts of those who have contributed to the work of the Westpac Innovation Unit, and helped in the preparation of this Discussion Paper, part of Westpac's ongoing 'Frontiers' work.

This paper on the Knowledge Frontier is one report of seven reports resulting from the Frontiers Project undertaken by the Westpac Innovation Unit in early 2007. All of the Frontiers projects are designed to explore emerging trends as a basis for developing new ideas and solutions to business. This paper identifies and explores future trends and value pools in the Knowledge Frontier between now and 2015. It is intended as a catalyst for further thinking and analysis – a sort of futurist 'conversation starter'. As such, it deliberately poses questions and posits scenarios, rather than providing prescriptive and finite conclusions.

We are pleased to be able to make this Discussion Paper publicly available through our partnership with the *Society for Knowledge Economics* (SKE). We chose to work with the *SKE* in preparing this report as part of Westpac's contribution to the broad national dialogue to generate ideas and actions for sustainable economic and social prosperity. I especially would like to thank Sarah Hatcher, Executive Director, and Christina Boedker, Director and Research Advisor (UNSW), from the Society for Knowledge Economics for facilitating this Discussion Paper, and Mark Bezzina, Managing Director, StanCert, for researching and synthesizing the outcomes of our workshops and leading the write-up of this document.

Five additional Frontiers were explored during the Westpac Frontiers Project, namely; the Environment Frontier (thanks to Bruce McKenzie, Managing Director, Systems Development Institute); the E-Channels, Mobility Frontier, and Trust Frontiers (thanks to Bruce McCabe, Managing Director, S2 Intelligence); and the Strategic Sourcing Frontier.

I believe the issues identified in this Discussion Paper are examples of emerging trends in the Australian and global knowledge economies likely to shape and influence the Australian business environment in the years to come. We look forward to further exploration of the business implications and 'value pools' resulting from the Knowledge Frontier to the Bank via our ongoing collaborative work with the *Society for Knowledge*

Economics. We hope that the reader, similarly, finds the material a useful catalyst to fruitful exploration.

Sincerely,

Bruce Hills,

Head of Organisational Innovation
Westpac Banking Corporation

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About this document

This discussion paper has been developed to create a dialogue focused on identifying and exploiting the opportunities for business and the community as Australia capitalizes on being a leading knowledge intensive society.

The discussion paper is based on a review and synthesis of existing literature associated with predicting the business environment until 2015 with an emphasis on knowledge and its centrality to driving business value.

The discussion paper introduces some thought provoking and at times controversial ideas about the implications and opportunities of a knowledge intensive society. It is intended that this discussion paper and other supporting material will be used as the basis for engagement with government, business and other interested parties. The goal of this engagement is to provide a more comprehensive understanding of the potential implications and opportunities for Australian businesses arising from an increasingly knowledge intensive society.

Background

Knowledge is ubiquitous and has always generated wealth whether it was through the agrarian, industrial or information age. Recently it was reported by government that 78%ⁱ of Australia's GDP comes from services and that services improve the competitiveness of Australian businesses in areas as diverse as heavy manufacturing and strategic market advice for farmers. The traditional separation between manufacturing and services is a false dichotomy as 40%ⁱⁱ of the people employed in manufacturing engage in knowledge intensive service activities.

Economic power and wealth creation in this evolving knowledge based economy is most likely to depend on being able to secure the services of the best and brightest individuals, no matter where they are located. Utilise their attention, knowledge and networks through fluid and often temporary organisational structures. These structures often leverage collaborative technologies to generate innovative and IP protected knowledge based products and services. Such products and services could aim to target and capitalise on the enormous market size and growth potential of emerging powerhouse economies, such as India and China. In some ways, this is a new knowledge intensive value chain.

Australia's future prosperity can be enhanced by strategically tapping into high value opportunity pools associated with the key elements underlined above. This discussion paper will address each of these opportunities in turn.

Securing the Best and Brightest in a Highly Competitive Labour Market

Drivers

The ageing of the Australian population coupled with an already tight labour market, especially for the more skilled occupations, can have significant implications for business. Without sufficient skilled workers, businesses may have difficulty maintaining their current levels of output, let alone expanding output to keep up with the consumption demands of the Australian, and also export, markets.

Australia faces a potential shortfall of at least 195,000 workers in five years' time as a result of population ageingⁱⁱⁱ ^{iv}.

Other forces affecting labour markets include: international competition for professional expertise particularly from China and India^v; investors looking for new investment vehicles and talent^{vi}; continuing growth in services and knowledge intensive industries^{vii} ^{viii} rising education requirements for many jobs^{ix}; and reduced constraints to international trade and labour markets^x.

Value pools

We may see the emergence of new forms of labour markets that enable investors to invest directly in high income earning potential individuals such as CEO's, marketers, managers, scientists, engineers and financial experts.

These new forms of labour markets may operate in a similar way as equity markets such as the ASX or we may see the emergence of private investors, managers and smart agents similar to the art and entertainment industry.

This market would involve investment under contract in individuals' education, networks and personal development. For this investment, investors would gain a share of the income generated by the individual.

Consideration should be given to the development of innovative products and services to enable the investment in individuals both nationally and internationally.

Dimensions

According to the ATO^{xi} during the 2003-2004 tax year there were 87,760 individuals (top 1% of earners) earning in excess of \$187,000 representing a total value of 34,578 A\$bn. This figure does not take into account the implications of trusts and other tax and income minimising activities.

A recent article in BRW identifies that Australia's top 200 managers have a combined wealth of 46 A\$bn^{xii}.

Attention as a Valuable Resource

Drivers

Herbert Simon^{xiii} suggests that:

"...in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it"

Attention has always been an important resource for marketers and TV ratings agencies but now it is also becoming increasingly important for consumers, workers and organisations. In the future, knowledge intensive organisations may purchase units of workers' attention rather than time.

At the same time, people are facing: increasing pressure due to the speed of communications; frequent interruptions due to new, more direct forms of communication^{xiv}; exponential data and information growth^{xv}; demanding complexity^{xvi}; and competing demands for attention, such as work-life balance^{xvii xviii}.

Value pools

Applications and management methods to quantify and optimise attention and filter out distractions may become the essential tools of the knowledge worker and organisations seeking to maximise investment in knowledge workers. Such applications may find their way into the consumer market.

Such a situation may lead to economic exchanges in attention^{xix}. An example of this is marketers paying for a highly targeted and customised pitch to clients. If this is the case, there may be an opportunity for trusted and secure institution to organise such exchanges.

Businesses could also invest in technologies designed to optimise attention management to improve efficiency within their own businesses.

Additionally, if greater value is placed on attention there will be a focus on personal efficiency. Organisations that can help to make personal finance and administration easier and more efficient for individuals and families could use this as a point of differentiation to improve customer retention and growth rates.

Dimensions

One small manifestation of interruption is Spam. It is predicted^{xx} that the market for email Spam filters alone will grow to 1.74 US\$bn by 2008. There is a real need for an integrated system of filtering dealing with stripping advertising from websites, stopping unsolicited calls (mobile and land line), and TV and radio commercials etc.

The greatest effect of filtering may initially be felt by advertisers. According to Forrester Research^{xxi} online marketing and advertising will grow to 8 percent of total advertising spending in 2010. Search engine marketing will be worth 11.6 US\$bn, while display advertising will reach 8US\$bn by that year.

Enabling and Supporting Fluid Forms of Organisation

Drivers

There are many forces driving new, more fluid and networked forms of organisational structure such as: ICT and increased connectivity^{xxii}; a growing focus on the key resource of organisations, being people, their knowledge and networks^{xxiii}; the emergence of the franchise model and similar decentralised systems^{xxiv}; demographic – changes in the age profile of the workforce and their work preferences^{xxv xxvi}; virtual organisations in a virtual world^{xxvii}; recognition and management of organisational paradoxes and challenges^{xxviii}; a trend towards outsourcing, service commoditisation and modularisation^{xxix}; and environmental concerns^{xxx}.

Value pools

There is an opportunity to invest in infrastructure and technologies that enable atomised workers and organic forms of organisation.

Business could seek investment opportunities in areas such as: financing arrangements for free agent knowledge workers (eg setting up a home office); collaborative applications; office and associated facilities; communications tools; accounting and payment mechanisms; aggregated sourcing and purchasing power etc.

Dimensions

According to ABS^{xxxii}, in November 2005, there were 9,401,400 employed people at work in their main job, an increase of 9.5% since June 2000. Of these, 24% did at least some work at their own home compared with 20% in June 2000. There were 724,500 people who worked only or mainly at home in their main or second job (7.7% of all employed people at work).

According to IDC^{xxxiii}, worldwide integrated collaborative environments (ICEs) revenue grew to 1.9 US\$bn in 2004, up 12.8% from the prior year. Worldwide revenue generated by sales of integrated collaborative environments (ICEs, aka groupware) grew by 12.3% to reach 2.1 US\$bn in 2005.

Banking on IP Protection

Drivers

Dale Spender^{xxxiii} points out:

“The major source of wealth in the information-making economy, is intellectual property (IP). Just ask Bill Gates - the world's richest man, whose only asset is his information, his IP (as licenses). But in the 21st century, the whole world has to trade in IP - and this is why the new wealth is EVERYBODY'S BUSINESS”

This point is reinforced by DFAT^{xxxiv}.

According to ABS^{xxxv}, formal methods of intellectual property protection, such as copyright, trademarks and patents, are used by 21% of innovating businesses, while informal methods such as secrecy are used by 37% of innovating businesses. More than half of innovating businesses (55%) have no formal or informal protection of their intellectual property.

Other drivers include: the high cost and time to secure IP^{xxxvi}; the lack of harmonization of international IP laws and processes; and the red tape associated with IP protection. Even if organisations register IP, often they do not have the skill or resources to protect it against unauthorised use, piracy and the counterfeiting.

Value pools

Banks have traditionally: protected; managed access; enhanced; and leveraged monetary savings to generate wealth.

In many ways, IP needs a similar sort of service. IP needs to be protected. Access needs to be carefully managed by a trusted source (especially if it is secrete). People and organisations need help in identifying and funding effective commercialisation strategies. IP quite often is the basis for new innovative businesses when coupled with the right talent, network and financial support.

Another opportunity is trading in IP rights and developing financial products and services to enable this.

Dimensions

There were 1240 patents lodged by Australians and 8868 patents lodged by non-residents with IP Australia in 2006^{xxxvii}. However, as shown in the Drivers section, the majority of IP does not get registered or protected effectively.

The value of Australia's IP is estimated to be around 30 A\$bn^{xxxiv xxxviii}.

Engaging with Emerging Powerhouse Economies

Drivers

According to DFAT^{xxxix xl xli} in 2006:

- India had a GDP of 854.5 US\$bn and a real growth rate of 8.3% which has been consistent since 2003. It has a population of 1.094 bn in 2005.
- China had a GDP of 2554.2 US\$bn and a real GDP growth rate of 10% which has been consistent since 2003. In 2005 it had a population of 1.307.

By 2015^{xlii} India and China are expected to have a GDP of 1411 US\$bn and 4754 US\$bn respectively. In less than 40 years, Brazil, Russia, India and China, the so called BRICs economies together could be larger than the G6 economies (US, Japan, Germany, France, Italy, UK) in US dollar terms. By 2025, they could account for over half the size of the G6. Currently they are worth less than 15%. By 2025, the annual increase in US dollar spending from the BRICs could be twice that of the G6, and four times higher by 2050^{xlii}. India is rapidly transforming itself from an economy based on agricultural production to a leading knowledge and innovation economy^{xliii}.

Value pools

Higher growth in China and India will lead to higher returns and increased demand for capital. The weight of the BRICs in investment portfolios is likely to rise sharply. Capital flows are likely to move further in their favour, also prompting major currency realignments.

There could be an opportunity to take Australian products to China and India in partnership with local organisations. Such products could include business and educational services.

Another opportunity would be for financial institutions to develop products that allow Australians to invest in India and China.

Finally, there is a real need for infrastructure in India and China, Australian business could collaborate with infrastructure providers to gain a share of this market.

Dimensions

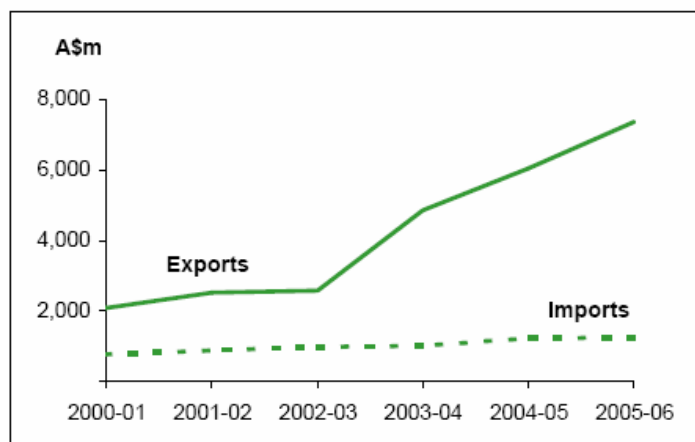
In 2005/2006^{xli}, Australia exported 7.387A\$bn in goods and services to India. Of this 1.415A\$bn was related to trade in services. We are India's 14th largest export destination and they are our 9th largest export destination. Similarly, as the world's seventh-largest

economy, China is a significant market for Australia. Growth in Australian exports to China has accelerated, averaging 19 per cent annually for the past five years. China is our third-largest trading partner, with two-way trade valued at \$31 A\$bn in 2004. Australian services exports to China have more than trebled over the last decade, reaching almost 1.3 A\$bn in 2004, driven by growth in education, tourism and transport services^{xl}. We are China's 25th largest export destination and they are our 5th largest export destination^{xxxix}. (See also Charts below)

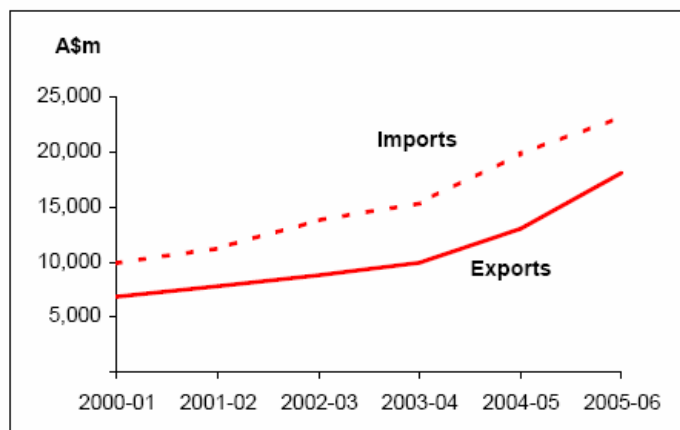
Both countries currently have combined middle class of between 300 and 600 million depending on accounting methods.

The charts overleaf from DFAT^{xxxix xli} show the level of growth in Australia's trade with India and China. If these trends continue, Australia has great opportunities to leverage the future anticipated growth rates of these economies. As early as 2009, the annual increase in US dollar spending from the BRICs could be greater than that from the G6 and more than twice as much in dollar terms as it is now. By 2025, the annual increase in US dollar spending from the BRICs could be twice that of the G6, and four times higher by 2050^{xlii}.

Australia's merchandise trade with India



Australia's merchandise trade with China



Conclusions and next steps

This preliminary discussion paper identifies a number of interesting opportunities for business arising from a shift to a more knowledge intensive society. As mentioned in the introductory comments, much further work is required to gain a better appreciation of the potential opportunities in this exciting frontier. This may be the subject of future SKE collaborative forums and research projects.

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Endnotes and references

- i The Hon Bob Baldwin, MP, Parliamentary Secretary for Industry, Tourism and Resources, Media Release, 22 March 2007, titled OECD Report - Knowledge Intensive Services and Innovation
- ii OECD Science, Technology and Industry Scoreboard 2005 - Towards a knowledge-based economy
- iii Australian Department of Employment and Workplace Relations, Workforce Tomorrow - Adapting to a more diverse Australian labour market, 2005.
- iv According to AIG in the period between 2006-2016 the vocational education and training sector will be required to supply 2.47 million qualified people; Of this total, 1.73 million people, or 70%, will be required at the Certificate III, Diploma and Advanced Diploma levels which are the trade and post-trade levels; and Based on current supply and factoring in new entrants and skilled migration, there will be a projected shortfall of 240,000 people with vocational education and training qualifications.
- v Both India and China have experienced growth in their services sectors. We need to consider the implications of this from a labour scarcity perspective for Australia. According to the Economist (Dec 14th 2005) the supply of talent may be the biggest constraint on the Indian industry's growth. On the latest projections, the number of people working in IT and business-process exports in India will increase from about 700,000 now to 2.3m by 2010. But on today's estimates only 1.05m suitably qualified people will graduate from college between now and then, so there will be a shortfall of nearly 500,000, with business-processing the worst affected. Consulting firm McKinsey believes the education system can be fixed in time to plug the gap. A bigger worry, is India's creaking urban infrastructure. IT firms in Bangalore, for example, are in revolt against the local government for its neglect of basic amenities. Yet India's IT and business-process industries will need about 14m square metres (150m square feet) of office space by 2010: "a new Manhattan".

vi With the super pool growing all the time there will be excess funds to invest. This will put pressure on industry to come up with new assets and markets; it will put extreme pressure on existing assets such as equity markets to perform.

vii ABS - 6105.0 - Australian Labour Market Statistics - Changes in Where People Work Over Time, Oct 2006 identified that structural changes to the Australian economy over recent decades are reflected in changes in the composition of employment by industry. In 1985-86, one-third (33%) of all employed people were employed in goods producing industries, but this had dropped to one-quarter (25%) in 2005-06 (with the remaining 75% of employed people working in service industries).

viii According to the WTO – International trade statistics 2006 World merchandise exports rose by 13 per cent to \$10.2 trillion in 2005. Commercial services exports expanded by 10 per cent and amounted to \$2.4 trillion in 2005. The trade in merchandise includes among other things fuels and resources which both had by far the largest growth rates (41% and 26% respectively). On average since 2000 both merchandise and services have had a 10% growth rate. (Service industries are defined as Property and business services; Accommodation, cafes and restaurants; Cultural and recreational services; Personal and other services; Health and community services; Retail trade; Education; Wholesale trade; Government administration and defence; Finance and insurance; Transport and storage; and Communication services.

ix ABS - 4102.0 - Australian Social Trends, 2005 identified that in 2001, just over half (51%) of 15-64 year olds held a non-school qualification - almost 6.6 million Australians. Of these, more than a third (2.3 million people) held more than one non-school qualification. Many of these multiple qualification holders (65%) had two non-school qualifications, and 810,000 (35%) had three or more. While the proportion of people with non-school qualifications who had more than one such qualification was similar in 1997 and 2001, the number of people with two or more non-school qualifications increased by over 449,000 people. This report also showed that at the time of the 1971 census, 3% of people aged 20-64 years held a higher education qualification. By 2001, this had increased to 16%.

x Examples of reduced regulation include: the reduction of tariff and non-tariff barriers on trade in both goods and services; the floating of currencies and deregulation of financial markets more generally; the reduction of barriers to foreign direct investment and other international capital flows, and of barriers to technology transfers; and the deregulation of product markets in many countries, particularly in terms of the reduction in the power of national monopolies in areas such as telecommunications, air transport and the finance and insurance industries.

xi ATO Taxation statistics for 2003-04, Table 9, Personal tax

xii BRW, Flagship edition, March 29-May 2 2007, Executive Rich – Australia's 200 Wealthiest Managers

xiii Simon, H. A. (1971), "Designing Organizations for an Information-Rich World", in Martin Greenberger, Computers, Communication, and the Public Interest, Baltimore, MD: The Johns Hopkins Press, ISBN 0-8018-1135-X.

xiv Now more than ever people are contactable. They have telephones, faxes, mobile phones, email, wireless computers & PDA's, blogs, IRC, SMS RSS and the list goes on. This erodes the focus and vies for attention. Increased stress associated with interruption overload and can reduce IQ and productivity. Increasingly people and organisations will be looking for assistance and integrated tools to streamline and filter their communications. There is a growing body of research to support this view. When Basex, a New York-based IT research company, conducted a study on the effects of interruptions on 1,000 office workers, it found that they spent an average of 2.1 hours a day dealing with interruptions (including the time taken to "recover" afterwards). In the UK, a study by Glenn Wilson, a psychiatrist at the University of London, examined how volunteers carried out tasks, first in a quiet environment and then in one where they were subjected to a barrage of calls and e-mails. In the second scenario the volunteers' effective IQs were reduced by 10 points; for comparison, in similar studies that compare regular cannabis users with a control group the drop is usually five points (Source: Financial Times - Warning: interruption overload, Rhymer Rigby, August 23 2006. See also NewScientist.com news service, 'Info-mania' dents IQ more than marijuana, April 2005.

xv According to IDC the amount of digital information created in 2006 was 161 exabytes (161 billion gigabytes). That is three million times the information in all the books ever written. It is estimated that between 2006 and 2010 the information added annually to the digital universe will increase more than six fold to 988 exabytes. See IDC, The Expanding the expanding digital universe (Sponsored by EMC).

xvi Cities are becoming more complex, due to rapid advances in transport, communication technology, globalisation, security, environmental concerns, widening inequalities and targeted policy decisions such as regulation. Additionally human activities are becoming increasingly complex in response to new applications and technology. Dealing with this technology its integration and maintaining its correct operation can soak up significant attention and time. Also in a society where people must have the latest gadget or consumer product the struggle to come to terms with the new acquisitions can be immense.

xvii Currently people are struggling to maintain a work life balance. This trend is particularly true for upcoming generations such a “Y” (McCrimdle ‘New generations at work’ McCrimdle Research Generation Y, see: www.mccrimdle.com.au).

xviii The Australian newspaper article Why working on family matters, 10 March 2007, contained a summary of a report from Relationships Forum of Australia that provided evidence for the connection between working hours and family breakdown in Australia. The same article also made the point that the proportion of families with children where both parents work in Australia rose from 42 per cent in 1981 to 60 percent in 2005. There is a correlation between changed work patterns during the past 25 years or more and increased separation, divorce and mental health problems. In the household income and labour dynamics in Australia survey undertaken by the Australian Bureau of Statistics, 63 per cent of parents working more than 45 hours a week said their job meant they missed out on some of the rewarding aspects of parenthood and 37 per cent said their family time was less enjoyable and more pressured.

xix Some writers have speculated that "attention transactions" will replace financial transactions as the focus of our economic system. This translate to property rights in

attention may in the future. See: Franck, G. (December 7, 1999), "The Economy of Attention", Telepolis; Goldhaber, M. H. (1997), "The Attention Economy and the Net", First Monday 2(4); Udell, J. (October 19, 2005). Attention economics. Retrieved on November 27, 2005; T. H. & J. C. Beck and Davenport (2001), The Attention Economy: Understanding the New Currency of Business, Harvard Business School Press, ISBN 1-57851-441-X.

xx Domino News, Market for antispam software red-hot at:

http://searchdomino.techtarget.com/originalContent/0,289142,sid4_gci957537,00.html

xxi Forrester Report (2004) referred to at:

http://news.com.com/Online+advertising+on+upswing/2100-1024_3-5693617.html.

xxii There has been a huge investment in collaborative technologies by vendors related to team working environments such as: electronic communication tools that send messages, files, data, or documents between people and hence facilitate the sharing of information; and electronic conferencing tools that facilitate the sharing of information in a more interactive way than has traditionally been the case. This element is also driven by access to the internet, speed of processors and low cost PC's and peripherals.

xxiii As we increasingly acknowledge the importance of people in the workforce we may increasingly centre organisations and their management around people rather than other things like building, production lines and facilities to ensure the greatest possible growth, customer service, innovation, efficiency and business development. It is already the case that in most organisations the greatest investment is in people.

xxiv The franchise model has emerged as a new form of business organisation and has been wildly successful in some cases. This provides a good example of an alternate to the traditional command and control model.

xxv As the Australian workforce ages we will need to be able to access the rich knowledge from recently retired workers. This could be done through innovative organisational designs.

xxvi It is also important to think about other demographic issues such as the preferences of new generations entering the workforce that may have different motivators from employees today and in the past. For example fathers are increasingly using flexible working arrangements to help care for their children. In 2002, 30% of fathers used such arrangements, up from 24% in 1993 (4102.0 - Australian Social Trends, 2006).

xxvii It is no longer necessary to have a physical presence as increasingly consumers buying virtual products (including entertainment) from a virtual marketplace.

xxviii For example how do organisations deal with: competition and collaboration or partnerships; loose and tight; certainty and ambiguity; complexity and simplicity; risk and innovation; focus and flexibility; long and short term; secretiveness and openness; depth and breadth; planning and doing; centralisation and decentralisation; etc

xxix Organisations need to become better at managing service delivery outside their traditional organisational boundaries and across multiple aspects of business. They need to decide what to outsource and what to keep. As organisations become better at outsourcing we may see them outsourcing more at a project level

xxx Sustainability will increase as a major issue in the social conscience of the community and business, this coupled with work life balance may result in people working remotely from the traditional work place, additionally service based work lends itself to such arrangements. We are already seeing the emergence of the trend where people work from home. No doubt this will have a profound impact on the homes of the future, how we organise and manage work and the concept of head office.

xxxi ABS 6275.0 - Locations of Work, Australia, Nov 2005. For men, who worked only or mainly at home, the most common occupation groups in their job at home were Managers and administrators (36%), Professionals (31%) and Associate professionals (14%). The most common occupation groups for women, in their job at home, were Advanced clerical and service workers (30%), Professionals (21%) and Managers and administrators (16%).

xxxii IDC Worldwide Integrated Collaborative Environments 2004 Forecast and 2005 Vendor Share and Worldwide Integrated Collaborative Environments 2006– 2010 Forecast and 2005 Vendor Share

xxxiii http://dalespender.com.au/?new_wealth – Dale is an author and commentator on the knowledge economy.

xxxiv DFAT, Australia-China FTA Conference in Shenzhen, 28-29 June. See http://www.dfat.gov.au/geo/china/fta/060628_shenzhen_heath.html - The appropriate protection of intellectual property (IP) rights is integral to the development of innovative cultures and knowledge-based economies. IP rights create and sustain exclusivity in the marketplace. They are recognised as crucial commercial assets and play an important role in supporting technological innovation and progress. They are also a vital instrument in promoting international trade.

xxxv ABS 8158.0 - Innovation in Australian Business, 2005

xxxvi Intellectual Property Research Institute of Australia (IPRIA), Factors Affecting the Use of Intellectual Property (IP) Protection by Small and Medium Enterprises (SMES) in Australia , April 2005 . This report found that there are a number of factors that inhibit the use of IP protection. Survey respondents were asked to rank the importance of nine of those factors. The three most important factors were cost-related: cost of enforcement, cost of application and limited managerial resources available to SMEs (another cost factor). Notably, lack of awareness of the IP system was the least important factor.

xxxvii IP Australia, Patent activity by Australian States 29/03/2007

xxxviii There is another school of thought that IP should be freely available such as GNU General Public License which is a widely-used free software license, originally written by Richard Stallman for the GNU project. The latest version of the license, version 2, was released in 1991. The GNU Lesser General Public License (LGPL) is a modified version of the GPL, intended for some software libraries.

xxxix DFAT Country Fact Sheet for China 2006 at:
<http://www.dfat.gov.au/geo/fs/chin.pdf>

xl DFAT FTA Potential Benefits – Overview

<http://www.dfat.gov.au/geo/china/fta/facts/overview.html>

xli DFAT Country Fact Sheet for India 2006 at:

<http://www.dfat.gov.au/geo/fs/inia.pdf>

xlii Wilson D. and Purushothaman R. (2003), “Dreaming With BRICs: The Path to 2050”, Goldman Sachs, Global Economics, Paper No: 99, 1st October 2003.

xliii International shifts in skills and capabilities are affecting countries in the western world and posing significant challenges to how Australia and other developed countries will compete on international markets and sustain their economic growth and prosperity in the decades to come. Economists talk about three levels of national capability and competency underpinning economic production and output: Agricultural; Manufacturing (IP replication); Knowledge and innovation (IP invention). India with 1.2bn people and China with 1.3bn people are rapidly transforming themselves from agricultural based to manufacturing economies, and even starting to enter the knowledge and innovation domain where leadership is sustained by the creative and analytical skills of a nation’s people, intellectual property development and the invention (not replication) of new products and services. Consider for example that US Wall Street firms are now ‘outsourcing’ sophisticated financial analysis work to Indian workers (note merely manufacturing work). Over the next decades, we may see a transformation in the structure of international trades whereby China and India precede the western economies to the extent that they become the ‘superior’ powerhouses in the international landscape.