

## ICT AND REGIONAL DEVELOPMENT IN AUSTRALIA

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# **ICT AND REGIONAL DEVELOPMENT IN AUSTRALIA**

## **ABSTRACT**

Traditionally, regional Australia has lagged behind urban regions from the point of view of the provision of infrastructure to facilitate information and communication technology (ICT). This has generally meant that the transformation to the 'new economy' has been much slower as evidenced by a dearth of businesses embracing ICT and so 'missing out' on the benefits and opportunities it affords. This however needs to be tested and this article explores this assertion. It overviews the development within the Hervey Bay region of Australia of information technology infrastructure which has in recent times, spawned the development of community based information technology driven organisations.

A number of initiatives have emerged within this region promoting the acceptance of a 'knowledge-based future'. This article looks at one such initiative - Bay Connect a community based Internet development and training project - and considers its impact on the community. The article also documents the state of play regarding the provision of Internet and broadband digital services infrastructures within the Hervey Bay region.

## **INTRODUCTION**

### **Hervey Bay**

Hervey Bay is located in the Wide Bay Burnett region of Queensland, Australia.

Based on a number of economic and social indicators, the region can be described as disadvantaged (Planning Information Forecasting Unit, 2001). The median weekly income of the region is well below the Queensland state average. The overall unemployment rate for the region is around 16% with about 23% for youth unemployment. The population is aged with 20.7% of the population aged over 65 compared with the Queensland average of 12.4% (Paussa, 2003). Within the region the ratio of welfare payments to personal disposable income is 27.9% (Bray & Mudd, 1998) which is the second highest welfare recipient rate for a region in Australia.

These demographic characteristics are important in understanding the region.

Information from the Australian Bureau of Statistics (2001) indicates the overall level of digital inclusion is increasing, albeit at a decreasing rate, with an increase in the number of households with Internet access. However, this inclusion is not uniform across society. Generally, in Australia access to the Internet and a personal computer is positively correlated to income, employment and location in urban areas. Age tends to have an inverse relationship to ownership of a personal computer.

Comparison of the estimated number of Internet subscribers across statistical division populations for Queensland shows a disparity for the Wide Bay Burnett statistical division within which Hervey Bay is situated. This division has 3.2% of Internet subscribers within Queensland (Australian Bureau of Statistics, 2002) and approximately 6.6% of the estimated state population. While it is true that all rural regions in Queensland, apart from Fitzroy (based on the City of Rockhampton), exhibit somewhat similar patterns, Wide Bay Burnett is particularly undersubscribed

on a per head basis with respect to the Internet (Pease, Wright & Cooper, 2003). This is an issue of particular concern for the Wide Bay Region since it illustrates a paucity of rich information and a lack of 'connectedness' with the outside world. These statistics point to the potential barriers that may inhibit the uptake of the Internet by individuals and small business within regional Australia.

Despite this, the profile of the region is changing as the city and region grows at a rapid rate, bringing with it, rapid in-migration and investment. In a recent report the region was identified as ranking amongst the top 35 cities within Australia, experiencing one of the fastest growth rates in country at around 8.5% per annum (KPMG Business Advisory, 2003).

### **Infrastructure**

Australia is amongst the leaders in the provision of infrastructure facilitating the uptake of e-commerce and the Internet. The National Office for the Information Economy (NOIE) ranked Australia 3rd overall behind the United States of America and Sweden in a benchmarking index which ranked 14 key countries across twenty-three statistical indicators relating to progress in developing the information economy (National Office for the Information Economy [NOIE], 2002).

In this study the United States of America, Scandinavia, Australia, New Zealand and the smaller countries of South East and East Asia are considered to be in a strong position to take advantage of the potential benefits of the emerging global information economy, having the beginnings of the necessary infrastructure and a critical mass of

people actively online. It was noted, that for the majority of countries benchmarked, there is still significant room for improvement, with large sections of their respective populations remaining outside the information economy either having access to the Internet and not using this resource, or not having the opportunity to use the Internet due to lack of access opportunities (NOIE, 2002).

The data presented in the NOIE report shows that Australians tended to be 'early adopters' of information economy enabling technologies such as the Internet, computers, and mobile telephones, and increasingly use the Internet for a wide range of activities associated with their day-to-day lives. Australians have been quick to adopt earlier generations of communications technology such as faxes and analogue mobile phones. Like most developed nations, Australia was slow to start with broadband digital services, but is now beginning to climb the broadband adoption curve for second generation services.

In December 2001, Australia was ranked 18<sup>th</sup> in broadband penetration out of 30 OECD countries (Organisation for Economic Co-operation and Development, 2002). Growth in the uptake of broadband technologies in Australia has continued at a significant rate with the majority of the increase being attributed to the availability of Digital Subscriber Line (DSL) and Asymmetric Digital Subscriber Line (ADSL) and a growing consumer awareness of broadband services (Australian Competition and Consumer Commission, 2002; NOIE, 2003). Australia's CDMA network is the second largest in the world after that of China (P. Symington, personal interview, May 15, 2003). Still the digital divide in Australia is very real and is manifest in generally differing Internet behaviours in urban and regional areas.

The rate of adoption in Australia of information economy enabling technologies has slowed down relative to other countries which have encouraged the innovative use of ICT technologies. In a report published by The Economist Intelligence Unit (*The 2004 e-Readiness Ranking*, 2004) in conjunction with IBM, early leaders like the USA and Australia have experienced a stagnation of e-commerce growth. The report ranks the world's 60 largest economies and measures a collection of factors which quantify a country's "e-readiness" i.e. a measure of its e-business environment. Australia's position in terms of e-commerce readiness has declined from 3<sup>rd</sup> in the world in 2001 to 9<sup>th</sup> in 2003 and 11<sup>th</sup> in 2004. With national governments driving the development, countries such as Singapore, Norway and Denmark have eagerly adopted the Internet. The relative position of a country in terms of e-commerce uptake and e-readiness is important in that it indicates its ability to take advantage of the potential benefits of the emerging global information economy.

The Australian Commonwealth Government has implemented a number of strategic initiatives designed to provide a suitable national environment for the development and use of ICT by business (NOIE, 2003). These initiatives include the:

- National Communications Fund (\$50m) which targets the education and health sectors by providing funding for broadband infrastructure and applications;
- Advanced Networks Fund (\$36m) to support research and development of advanced network technologies; and
- Networking the Nation (\$464m) to bridge the gap between urban and regional Australia.

In light of the rise of e-commerce in countries such as Denmark and Singapore, it would appear that an integrated and innovative government strategy to encourage the same growth is needed in Australia.

Telstra, via its business unit Telstra Country Wide, has embarked upon a program of infrastructure improvement in regional Australia, including the Hervey Bay/Maryborough region. In the financial year 2002/3, Telstra Country Wide injected \$187m into improving access to the telecommunication network in regional Australia, \$4m of which was earmarked for the Wide Bay/Gladstone region within which Hervey Bay is situated (P. Symington, personal interview, May 15, 2003).

From the above it would seem the provision of general infrastructure is not, on the face of it, a major impediment to the uptake of the Internet for individuals or e-commerce amongst business, at least within the Hervey Bay region. The issue of equity and access evident in Hervey Bay seems to arise from a cost perspective. The affordability of personal computers and connection to appropriate infrastructure is prohibitive for some, given their socio-economic position.

This issue of affordability in regional Australia was identified by the Eastens Regional Telecommunication Inquiry (Department of Communications, Information Technology and the Arts, 2002, p. 228) as a major concern and recommended that:

The Government should establish an incentive scheme for the provision of higher bandwidth services to regional, rural and remote areas, to enable all Australians to

have access to services at prices comparable to those prevailing in metropolitan areas.

The inquiry considered that access to higher bandwidth services was ‘vital for the economic and social development of regional, rural and remote Australia’

(Department of Communications, Information Technology and the Arts, 2002, p. 205).

A number of initiatives have been adopted in the Hervey Bay region to address the impediment of accessibility by increasing access to Internet ready computers as well as encouraging the discussion of issues and the provision of assistance regarding access and e-commerce problems individuals and small business proprietors might have. One such initiative is Bay Connect.

### **Bay Connect**

Bay Connect was established in 1998 following work carried out by the Hervey Bay City Council and the community which identified the need to overcome the existence of an ‘information poor’ (Langtry, 1998) sector in the community through the facilitation of access to the Internet. A grant was won under the auspices of the Networking the Nation scheme to realise the four year project. Additional funding was also provided by the local council and a community body, Community Solutions Hervey Bay Association Inc., set up in Bay Connect’s planning stages to address social fragmentation and isolation issues that existed in the area.



Networking the Nation was established during a time of political disenchantment and regional economic decline with the hope that new forms of ICT would assist in developing community capacity within rural communities. Community capacity can be used by its members to improve their material well being, for example, by providing important social services (Pigg, 2001).

Bay Connect was initially set up as a service allowing free public access. The project provided free training, free access to email and Internet access to holders of health care and pensioner concession cards (Wright, 2001). In 2000, a user pays system was introduced. The model adopted by Bay Connect offers support to the community to encourage access to, and use of, ICT and the Internet.

The concept of Bay Connect has flourished to such an extent that assistance has been given to other local government councils (Maryborough, Tiaro, Gympie and Bundaberg) in the Wide Bay Burnett region to make successful funding applications to implement a similar model within their respective regions. In the final round of Networking the Nation in 2002, additional funding was granted to Bay Connect to establish an adaptive training room to further increase access to the Internet within the community. The training project that Bay Connect offers still continues to support a range of clients from the community. It is estimated that over 1838 people have passed through the training program since its inception in 1998 (McKeehan, personal interview, May 29, 2003).

## **Education's Role**

The observed slowness of uptake of ecommerce in regional and rural areas of Australia, and the Wide Bay region specifically, may relate to a lack of information on the part of individual small and medium enterprises (SMEs) that would enable them to make well informed planning decisions. Parker and Swatman (1996) in investigating the slow uptake of electronic data interchange (EDI), noted that education was a major causative factor of the slow uptake rate of EDI and found that more specifically tailored training courses involving simulation were necessary and more effective than general seminar-based approaches, which tended not to apply to a particular business or demonstrate how the technology would assist in solving the problems of business.

This is in keeping with the Small Enterprise Telecommunications Centre (SETEL) findings which indicated that, for Australian SMEs at least, there was a lack of realisation of the value and benefits of e-commerce. SETEL contends that the focus needs to be based on four elements; simplification, demystification, leadership (by Government, industry, educators) and promotion of the value proposition to SMEs. In communicating the virtues of e-commerce, the focus needs to be placed on benefits to the business rather than benefits of technology per se (Brown, 2002, p.18).

The role of education institutions in the communication of these benefits is an interesting one and further research into their role in promoting and encouraging the uptake of e-commerce, as well as appropriate means by which to educate users and potential users, needs to be carried out.

## **IMPLICATIONS FOR THE HERVEY BAY REGION**

### **Small and Medium Enterprises (SMEs)**

There are a number of SMEs who are embracing e-commerce in their businesses in the Wide Bay region. However, a number of these businesses are not fully utilising the functionalities that e-commerce offers (Pease & Rowe, 2003, 2004). Reasons cited in discussions with proprietors would indicate this was due to lack of awareness and knowledge, lack of know-how, scepticism about security and a fear of the 'unknown' or a fear of technology itself.

A lack of planning or even acknowledgement that potentially e-commerce might assist in the operation of their business is an overarching obstacle.

### **The Community**

A community can be described as a group of people with a shared interest, purpose or goal who get to know each other better overtime (Kim, 2000). The web facilitates the building of a community and essentially may act as a community itself as it provides a gathering place. Bay Connect has been a vehicle which has helped to build the community in simple ways.

Research was undertaken in 2001 (Wright) to investigate Bay Connect's client use of the Internet. Amongst other things, the research showed that new users as a result of the Bay Connect project experienced a change in their media use patterns. Exposure

to the Internet has had some impact on the way they sought out information and the means by which they communicated.

The Bay Connect experience has increased awareness and utilisation of this form of communication amongst its members. Bay Connect clients had a greater propensity to purchase computers and used the Internet independently of the Bay Connect service. Over 90% of respondents indicated that they would access and use the Internet if it was available to them.

Bay Connect is a key component in community capacity building through the integration of ICT opportunities with other forms of community development. Individuals, and groups, have been able to support each other or to access greater levels of information thereby increasing their social capital through stronger networks, offering more opportunities for economic and social participation.

## **CONCLUSION**

Internet-mediated communication is becoming important as a major means of communication within Australian society. Despite this, there are many issues of equity that need to be considered, notwithstanding the efforts of bodies such as Telstra Country Wide to install infrastructure which in part addresses the information divide between urban and regional communities.

The challenge for Australian communities, particularly those in regional areas, is to increase access and promote awareness of the Internet as a means of communicating,

and to provide cost effective and non-threatening training in the use of these technologies.

Longitudinal studies of the on-going effectiveness and role of the Bay Connect model and its rollout throughout other regions needs to be carried out, especially as the Networking the Nation project funding draws to its end. Evolution of the model must occur, especially if it is in the future to become more self-sufficient.

The objective of Bay Connect is to overcome the barriers that potentially limit the positive and democratising benefits the Internet affords to the community. The achievement of this objective can only be observed over time.

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## **TERMS AND DEFINITIONS**



**Bandwidth** – measures the amount of data that can be transferred in a fixed amount of time using a specified communications channel/pathway in a computer network. The term is often used as a synonym for data transfer rate.

**Broadband digital services** – allow very high data transmission rates and are the most popular and widely used kinds of digital services. These services include DSL, ADSL and cable modem services.

**CDMA (code division multiple access)** – one of several protocols used in 2G (second generation) and 3G (third generation) wireless communications. It allows numerous signals to occupy a single transmission channel optimising the use of available bandwidth.

**Community-based information technology**– the provision of training and information technology services to local communities to meet their communications needs.

**Community capacity building** – investment in people, institutions and practices that will, together, enable communities to achieve their goals.

**Community informatics** – relates to the use of ICT and associated facilities in conjunction with the development and delivery of programmes to aid community development - economically, culturally and socially.

**Digital divide** – the gap that is said to exist between people and communities who can access and make effective use of information and communication tools, such as the Internet, telephone, and computers, and those who cannot. This division not only occurs between rich and poor, but across many other population segments, for example, urban versus rural.

**DSL (digital subscriber line) and ADSL (asymmetric digital subscriber line)** – technologies that provides high bandwidth digital data flows over existing ordinary copper telephone lines to homes and small businesses.

**Knowledge-based future** – essentially reflects the new economy whereby knowledge sharing and knowledge management are critical to organisations success and the achievement of a sustainable competitive advantage. Knowledge sharing is also important for the community as a whole.

**New economy** – describes aspects or sectors of an economy that are producing, or using, innovative or new technologies. It therefore also captures the impact of these changes. The Internet and associated technologies typifies the essence of the new economy.