

Queensland - Smart State, Positioning Queensland: An International Perspective

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Abstract

Positioning the Queensland Smart State Initiative requires a close appreciation of key international perspectives that are developing in this arena. In particular, the paradigm shift that has occurred from information economy to information society to knowledge society, sends powerful signals. Moreover, there is a developing consensus on what the ingredients of a knowledge society should be. Queensland now has a clear list of policy choices to make and some housekeeping to undertake.

Introduction

The World Summit on the Information Society (WSIS) Geneva 2003 - Tunis 2005 will provide a consolidation of the amazing international trends in information and communication technology which have been occurring over the past two decades and also provides an holistic picture of just what an information society looks like. In doing so it will also provide a checklist for those national, state, or local communities who aspire to join, or more appropriately, log-on to the club. By launching the 'Smart State' initiative, Queensland has already applied for membership.

Of course we are already well aware of the broad outline of an Information Economy. Pundits have been speaking for a long time of the 21st century being the third industrial revolution in which information will be the most prized commodity and catalyst for economic growth and rising standards of living. Many had forecast a new divide emerging between the information rich and the information poor. Already there is much data available to confirm that these trends have taken place. In the words of the International Telecommunication Union (ITU), the lead agency for the forthcoming World Summit:

The global information society is evolving at breakneck speed. The accelerating convergence between telecommunications, broadcasting, multimedia and information and communication technologies (ICT) is drawing new products and services, as well as ways of conducting business and commerce. At the same time, commercial, social and professional opportunities are exploding as new markets open to competition and foreign investment and participation. The modern world is undergoing a fundamental transformation as the industrial society that marked the 20th century rapidly gives way to the information society of the 21st century. This dynamic process promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment. We are indeed in the midst of a revolution, perhaps the greatest that humanity has experienced (ITU 2002: 2).

It all sounds pretty impressive and so do the macro-economic indicators which accompany the rhetoric including growth in GDP, investment, terms of trade, take-up rates, etc., and since innovation is the crucial factor in this revolution, the technology drives entrepreneurial behaviour in search of greater profitability, market share, and comparative advantage. As is well known, many countries have embarked on deliberate strategies to become information economies, in response to these trends, the opportunities they perceive, and the threats of being left behind. The number of Australian political and industry missions beating a path to the countries and cities which have achieved this transition, e.g. Ireland, Finland, Netherlands, Singapore, Glasgow and, of course Silicon Valley itself, is testimony to this phenomenon.

However, it is not all about hardware and software and a frantic nerd-driven race for success. A broader picture is emerging which seeks to place the technology in a social perspective, extending the conceptual base and addressing in a more holistic way the implications of this wave of change. The mere fact that the coming World Summit is titled Information 'Society' rather than 'Economy' provides a clue. For there are many who now want to see this revolution take place within an ethical framework where the benefits are more widespread than the business sector, and the whole of society can profit from the innovation. This is true between nations and within nations and it is not surprising that a key theme to be addressed at the WSIS will be the digital divide, and how to engage in capacity building for societies which might be left far behind. Otherwise the 21st century will become known as the era where the divide between the 'have' and 'have-nots' becomes the divide between the 'know' and 'know-nets' or in other words, the information rich and the information poor. Like its twin partner - globalisation - the information economy is seen to have both an upside and a downside.

The key force seeking to broaden the concept is an array of international actors who prefer to talk of a **'knowledge society'** rather than an **'information society'**. This approach is best characterised by UNESCO, that is a key UN partner for the conduct of the World Summit:

In short, information is not enough. Even information for all is not enough. If the potential of ICTs and scientific technological progress is to be fully harnessed for development through human empowerment and economic growth world wide, the information society has to be shaped in such a way that it evolves into knowledge societies that fully respect the huge diversity of cultures and identities and the universality, indivisibility and interdependence of human rights (UNESCO 2002a: 4).

If it is 'Knowledge Societies' which is the goal rather than 'Information Societies', how are they to be created? According to UNESCO, the growth of networks and ICT applications will not in itself provide the foundations for knowledge societies. Information replication and dissemination may be cheap and fast but knowledge has intrinsically complex cognitive elements and its dissemination is far more intricate and costly. Knowledge societies that are capable of applying information and knowledge to the generation of new knowledge in an interactive process are built up through long-term institutional, social, and political mediations. Hence knowledge societies are not just other dimensions of the market economy, they inevitably induce the need for a clear vision of social goals and for fundamental policy choices, including the enhancement of equitable access to education and knowledge.

The Information/Knowledge dichotomy also evokes a strong response from educators:

Should we not stop confusing "information" and "knowledge"? Is the oversupply of information not condemning knowledge, which requires control over information through knowledge and critical reflection, hence through education? (UNESCO 2001a: 16).

Thus the paradigm has broadened, in the minds of many, from 'information' to 'knowledge'. Some, however, still stick to the economic formulation and speak of a **knowledge economy**, which is held to contain at least four components:

- the information and communications technology and the Internet;
- intellectual property which includes not only patents and copyrights, but more broadly brand-names, trademarks, advertising, financial and consulting services, financial exchanges, health care (medical knowledge) and education;
- electronic libraries and databases including new media, video entertainment, and broadcasting;
- biotechnology, traditional libraries and databases, and Pharmaceuticals.

Those who prefer to speak of a **knowledge society**, naturally enough pursue a broader social/political/policy choice framework, which would guide or even surround the knowledge economy drive. Thus, for example, in keeping with the United Nations Millennium Declaration and goals, UNESCO is approaching the forthcoming world summit with four main objectives: agreeing on common principles for the construction of knowledge societies; promoting the use of ICTs for capacity-building, empowerment, governance and social participation; strengthening capacities for scientific research, information sharing and cultural creations, performances and exchanges; enhancing learning opportunities through access to diversified contents and delivery systems.

It is worth recalling that there is a range of universal standard setting and ethical frameworks coming into place to shape the emerging knowledge society. The various copyright conventions are already well known; bioethics and the human genome are now addressed by several instruments; intellectual property is addressed by the standard setting instruments overseen by the World Intellectual Property Organisation (WIPO) and, in collaboration with WIPO, a UNESCO Draft Recommendation is being formulated on the promotion and use of Multilingualism and Universal Access to Cyberspace; another is in place for the preservation of digital heritage. Clearly there are those who believe that the development of cyberculture must be coupled with the invention of cyberethics. All players in the field will have to learn the new rules.

How To Do It

If you want to be a knowledge society, be part of the network of knowledge societies, contribute to or exploit the knowledge society, how best to go about it? From the experience of developed but also particularly developing countries' recent efforts, the range of public policy ingredients which are being used is now clear. It includes:

- taxation incentives of various kinds;
- provision of economic and social infrastructure;
- high quality telecommunications and broadcasting networks;
- import duty exemptions;
- export incentives;
- business regulatory frameworks which accommodate globalisation;
- intellectual property regimes;
- high quality education and training systems;
- skilled labour;
- tailored loans, including venture capital.

The aim of all these measures is to produce a friendly investment climate and to enhance the endogenous skills base. Here lies Queensland's starting point.

This checklist is, of course, very well known to all in the industry; investors, suppliers and every form of cyber carpetbagger known to humankind. No doubt there are significantly more carrots and sticks in this market of the future that have not yet been revealed.

What is less well known is the emerging agreement on what it takes for a community, even a state, and possibly even a nation, to become a 'Learning Region' which is a key spin-off from the Knowledge Society. The concept of Learning Region is now well established throughout the world. The models vary from country to country and place to place but the essential common ingredients are well captured in the recent work of the Organisation for Economic Cooperation and Development (OECD). The essence is the recognition that the traditional reliance on natural, physical and human capital has to be supplemented with intellectual and social capital oriented towards the generation, exchange and application of knowledge.

Innovation is the key in the new competitive environment and this means firms and individuals must be able quickly to access relevant knowledge. The OECD has produced ten policy principles for creating learning cities and regions and they are worth reproducing in full because they are becoming a benchmark for many state and civic authorities around the world, including Australian State governments (OECD 2001: 120).

OECD LEARNING REGION PRINCIPLES

Inputs to the Learning Process.

- Ensure that high-quality and well-resourced educational provision is in place, in which effective individual learning throughout people's lives can be delivered.
- Co-ordinate carefully the supply of skilled and knowledgeable individuals through education and training and the demand for them within the regional economy, so that the full benefits of individual learning may be reaped through its effects on organisational learning.
- Establish appropriate framework conditions for the improvement of organisational learning, both within firms and between firms and other organisations in networks of interaction, and demonstrate to firms the benefits of these forms of learning.
- Facilitate effective organisational learning not simply for a pre-selected set of conventionally defined 'high-tech' sectors, but across all of the industries and sectors within the regional economy that have the potential to develop high levels of innovative capacity.
- Identify very carefully the extent to which the resources available to the region (existing industries, educational provision, research facilities, positive social capital and so forth) constitute an impediment to economic development ('lock-in') or may usefully contribute in developing innovative strategies for the future.
- Respond positively to emergent economic and social conditions, especially where this involves the 'unlearning' of inappropriate practices and bodies of knowledge (including policy makers' own) left over from the regional institutions of previous eras.

Mechanisms of the Learning Region.

- Pay close attention to mechanisms for co-ordination policies across what have generally been separate departmental responsibilities (for industrial development, R&D, science and technology, education and training and so forth) and between different levels of governance (regional, national and supra-national).
- Develop strategies to foster appropriate forms of social capital as a key mechanism in promoting more effective organisational learning and innovation.
- Evaluate continuously the relationship between participation in individual learning, innovation and wider labour market changes, especially with respect to social exclusion of groups within the regional population.-
- Ensure that regional strategies for learning and innovation are accorded legitimacy by the population of the region to be transformed.

Positioning Queensland

The launch of the 'Queensland Smart State' initiative occurred at a time when all the global talk was of an information economy, not an information society or knowledge society, or even knowledge economy. Hence its perceived emphasis was on technology and it was very much welcomed by larger firms and research institutions, particularly in fields of biotechnology. Indeed a number of significant new initiatives and investments resulted. Others saw the policy as high on rhetoric and technobabble, geared to the top end of town, neglecting the state's traditional industry base by favouring the 'new economy' and neglecting the 'old economy'. Moreover, it was seen as not aimed at distributing the benefits throughout the community and ignoring the true foundations of any move to a 'smart' state, viz. the education and training system which received only a passing reference in the document and very little supplementary funding. Putting 'Queensland Smart State' on car number plates was not very smart and bred a lot of cynicism, especially in the media, as to whether this policy was all front and no substance, as has been common in Queensland's long history of pursuing industrial development by governments of all persuasions.

Meanwhile Queensland, like most of the other Australian states, certainly began to incorporate information and communication technologies into its own service delivery and there quickly developed a respectable infrastructure network throughout most parts of the vast, highly decentralised state. Significant changes have occurred in government-client relationships and enhanced services to regions previously deprived of them. But also, as is the case elsewhere, the motivation has often come in for criticism - the pursuit of cost-cutting measures to reduce the number of public servants engaged in service delivery has been suspected.

Queensland also suffers from the main international disease spawned by the information revolution, viz. policy-makers who believe that the mere provision of computers and software and access to appropriate bandwidth will, of itself, create an information or knowledge society. Witness the succession of Ministers of Education of all political colours throughout Australia who believe the task is completed when the computers have been installed in the schools! The most dangerous virus of the information society is not in the software; it is the policy-makers looking for quick-fix rhetorical solutions.

Where should Queensland endeavour to position itself - in the technocratic world of the information economy or the broader, more holistic, knowledge society and its corollary the learning community? Is it just about investment, science and technology, information infrastructure hardware and software with employment opportunities in directly related areas? Or should it be more community wide, deeper in its roots and with more widespread benefits and opportunities both tangible and intangible?

Whatever the choice it has to be acknowledged that the strategy is not simple for Queensland to accomplish. As the number three state in a federation there is not a lot of policy levers at its disposal. Most of the macro-economic power resides with the national government and there is fierce competition from other states, particularly Victoria, that Queensland has been predicted to overtake in terms of

population before the middle of this century. (Witness the battle over the Synchrotron that Victoria appeared to have won by a total funding commitment.)

There is also a little bit of national baggage to overcome including continuing vacillation over the nation's telecommunications industry, media ownership, taxation regimes, industry regulation, and trade zones. Also Australian policy-makers have failed to realise the importance of intellectual property to business innovation, growth, market share and profitability, with very few government incentives aimed in this direction. Research parameters are in a constant state of flux with not enough attention to the encouragement of basic research, the gene pool for innovation and knowledge. This applies as well to universities who really receive only token encouragement for their research efforts and very few measures to encourage development of intellectual property patents, etc. so common in the United States. The recent report prepared for the OECD-inspired conference on 'Victoria as a Learning Region' (ironically a conference that was meant to be staged by the Queensland government) puts it quite succinctly:

The Australian economy has performed well over the past decade, with sustained economic growth and consistent increases in multifactor productivity. The evidence of the impact of global change upon the Australian economy is strong with a fall in manufacturing employment and changes in employment and industry patterns. Australia faces a persistent problem in its balance of payments deficit, and an increasing national debt. It is also a relatively weak exporter, although there have been recent improvements in value added exports.

Australia's educational base is weak and participation levels are moderate, but improving. Levels of enterprise investment in training are poor, although levels of adult participation in education are strong. Australia is one of the few countries outside of northern Europe that has maintained and recently increased its levels of apprenticeship training. Overall levels of government investment in education are below the OECD average, and have fallen in recent years.

Levels of Research and Development (R&D) investment are weak, mainly because of poor levels of industry investment, although they have recently improved. Innovative capacity and output also appear to be weak, with low levels of patent registration. Australia has a high use of Information and Communication Technology (ICT), although its ICT manufacturing levels are weak. Levels of venture capital are weak, although there are high levels of entrepreneurial activity.

While differences between high and low income groups and regional income disparities have grown, there has been a relatively common trend of increased income levels over the past decade. What evidence can be gathered suggests strong levels of social capital, especially compared with other English speaking nations (OECD 2002: 9-10).

Then, there is no shortage of advice from gurus as to Australia's future direction. In his speech to the National Press Club in May 2001 Australia's Chief Scientist laid out his vision of a plan (Batterham 2001). Interestingly a key point of his focus

was on significant R&D investment to grow knowledge-based industries and achieve better results in terms of commercial application and product development and marketing to ensure Australia's long-term competitiveness in the global market place. Converting existing scientific excellence into high-usage, high-value business, and a reinvigorated approach to science teaching and learning were also high on his agenda, particularly to address the brain drain. He saw it all as a collective effort featuring creative partnerships between academics, educators, and private enterprise.

The CEO of the National Office for the Information Economy (NOIE) had also addressed the Press Club earlier, in April 2000, with an upbeat admonishment to Australia to join the competitive race (Rimmer 2000). He saw Australia's advantages as political and social stability, an open culture, a generally innovative people who are relatively skilled, and having the industrial and services infrastructure to underpin development. The disadvantages included the need to specialise due to the lack of scale and depth in our markets, the psychological and actual distance from key global centres of economic activity, and the lack of a good track record in commercialisation of innovation. His checklist of required innovation drivers includes:

- access to high level skills and strong research infrastructure;
- clustering of industry and research capabilities;
- effective entrepreneurship and commercialisation infrastructure;
- effective capital markets and availability of venture capital;
- the right regulatory and taxation environment;
- international market access and high overseas profile;
- Intellectual Property Rights;
- reversing the brain drain and the low rate of firm formation.

Then to cap it all off there is the range of incentives announced by the government in their 'Backing Australia's Ability' program as a response to the Innovation Statement released in January 2001, and still working their way through the economy. The targets are to keep existing industries world competitive, develop a new spirit of innovation and creativity with commercial activity that follows and to maintain critical mass by encouraging clusters in centres of excellence in ICT and biotechnology, in major research facilities and co-operative research centres.

So the international and national shopping lists are fairly clear and it should only take the bureaucrats of George Street, Brisbane a rainy afternoon to sift through them to identify those that Queensland might best pursue. In the meantime there is some more basic housekeeping that needs to be attended to before any more 'Smart State' hype and hard sell.

Queensland's business community is perplexed and confused over the melange of government agencies - Premier's Department, Treasury, State Development, Office of Innovation and Information, etc. - which are dabbling in industrial development including this arena. The government agencies often seem at loggerheads or at least appear unco-ordinated, and hence do not provide a whole of government approach with any accompanying certainty. The confusion that has reigned over public/private partnerships for the provision of infrastructure has sent a bad signal, a sign of a government uncertain of its future direction and modalities. So too has

the secrecy surrounding incentives given to particular new industries. Also, there does not seem to be any overview of the totality of the government's research encouragement through all of its agencies.

Small business feels left out of the initiatives which are seen as pitched to the big end of town with few policy initiatives targeting the sector that employs over 95 per cent of the current workforce. The same is true, though to a lesser extent, for the mining and rural industries, forestry and tourism, which have been the backbone of the economy until now, and resent being labelled as part of the 'old economy'.

Despite the fact that education, health, law, and industry development are clear state constitutional functions, not a lot has been done to enhance quality geared to the knowledge economy in these domains, including Queensland's undoubted capacity to export services especially to the Asia-Pacific region.

For a knowledge economy/society, education and training assume particular importance. The quality of the Queensland school system is indeterminate and will not be assured until the P-12 curriculum is soundly based on knowledge rather than process, far more external assessment is introduced at various points in the P-12 spectrum especially year 12, the outdated and discredited internal moderation system is abolished and true performance/accountability measures are made available to the community. The extra year of schooling, long overdue, should be implemented immediately without further trials. The school and vocational education systems need to be much more integrated with the sharing of infrastructure and equipment, and the VET system needs to have its infrastructure rationalised and then receive a boost to its recurrent funding. The creation of school/VET/university precincts in knowledge clusters is overdue. Much smoother formalised pathways of lifelong learning need to be created through articulation and accreditation to universities and new centres of technology. The grossly neglected adult education sector is in dire need of a boost to encourage lifelong learning and skills formation.

The education and training system as a whole needs to be more closely linked with the state's pursuit of industrial development overseas and domestically. Every package for the attraction of investment should contain a strong suite of education and training initiatives involving universities, vocational education providers (TAPE and private) and schools. The run-down vocational counselling system needs to be rebuilt from the ground up. With a current international reputation for high quality distance education, Queensland is already well positioned in this domain but here, as elsewhere, the comparative advantage lies not in the hardware or software but in linking pedagogy to the mode of delivery. Perhaps most vital of all, the teacher education system is in need of a substantial uplift, both pre-service and in-service, to overcome the neglect of three generations of lost opportunity in teaching, when standards slipped so significantly and teachers themselves lost their knowledge base.

Teaching of ICT is an obvious focus but just as important for a knowledge society is teaching of languages, multiculturalism, and intercultural understanding in particular. In essence, the goal should be to educate global citizens. Mutual respect and understanding are just as important in a global village as in a local one.

From an international perspective the key piece of advice to Queensland for the development of a knowledge society is to adopt a strategy that is more multi-lateral. Like other states, Queensland has been too obsessed with bi-lateral linkages with particular regions and sub-regions of the world, and then has approached relations with them on a sector by sector rather than an holistic basis. Participating in multi-lateral forums facilitates greater and faster international understanding and capabilities, usually in a more altruistic environment, and it invariably leads on to more permanent and lasting bi-lateral relationships and partnerships. A good starting point would be for Queensland to secure an invitation to the forthcoming World Summit On The Information Society and take as many of the family along as possible.

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