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The role of science parks in accelerating knowledge economy growth – contrasts between emerging and more developed economies



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Innovation Campus - The transformation of a city

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Innovation Campus - The Transformation of a City.

Executive Summary:

The decision to establish the Innovation Campus as a 'creative campus community' within the city of Wollongong was a bold step and was only taken after much consultation with local stakeholders. The Innovation Campus is arguably the most significant economic development project the city has ever undertaken. The task of gathering and nurturing support is constant. Details of the master planning process are explored and the leadership role taken by the University.

The Innovation Campus project has been instrumental in changing local attitudes and actions and has resulted in numerous additional benefits such as:

- The definition of the value proposition for Wollongong (and the Innovation Campus).
- A sense of community cohesion, self belief and aspiration.
- The establishment of a Wollongong Stock Exchange
- Vast improvements in Communications & Utilities infrastructure planning.
- The harmonising of various benefits packages & marketing materials - the emergence of Advantage Wollongong.
- A plan to reverse the trend of thousands of knowledge workers commuting to Sydney each day.

Keywords:

regional economic development, community stock exchange, creative campus community, social innovation, environmental sustainability, collaboration

How Wollongong City has responded and evolved through the creation of the Innovation Campus.

With IASP 2008 is being held in the southern hemisphere (South Africa) this year it is appropriate to examine case studies that have some contextual relevance to the host nation. The Innovation Campus (iC) is Australia's newest Science and Technology Park (STP) and is proudly led by the University Wollongong, in NSW Australia. There are some important physical characteristics such as similar climatic, soil and vegetation conditions and vast solitary coastal fringes that Australia and Southern Africa have in common that have inevitably led both nations to face similar challenges and consider similar opportunities for the future. These southern hemisphere continents (and the South American continent should also be included) have physical and historic forces at play that make them significantly different and therefore they might not respond to those plans which have been applied with such success in the northern hemisphere.

Wollongong, NSW, Australia, is home to the Innovation Campus (iC)¹ of the University of Wollongong. Wollongong, (pop. 175,000) is located 80 km south of the southern fringes of Sydney and is home to over 90 different nationalities, a vibrant international community. Whilst physical separation from Sydney, aided by a stunning Royal National Park, is insignificant by today's standards, the difference in the pace of economic development between the two cities is indeed significant.

Over the last 120 years of white settled history Wollongong's economy has moved from agriculture and mining, to advanced and heavy manufacturing and more recently, on to an emerging knowledge economy. Less than 20 years ago the local steel works, employed 24,000 workers, it now employs just 4,000 but has continued to grow its output and is a world class steel producer and exporter, in fact, the largest integrated steelworks in the southern hemisphere. The University of Wollongong² is still a relatively small university by world standards (with less than 18,000 students on the main campus) but it has a global outlook and an entrepreneurial spirit. It has twice been awarded Australia's University of the Year and in 2006, it was awarded the UK 'Times Higher Education Supplement' - Commonwealth University of the Year (for its community engagement activities). The University of Wollongong has developed a reputation for 'punching well above its weight' and has used this reputation to make a difference to the local economy.

In early 2000 the University's decision to establish the iC as a 'creative campus community' was a bold step and the iC is arguably the most significant economic development project ever undertaken in the city. The (iC) is the newest STP in Australia and has features which may well make it unique, for example, it has stunning 800m surfing beach frontage and is also home to a major local indoor tourist attraction- the Wollongong Science Centre and Planetarium³ which has a specific mission to interpret for children the Science and Technology that surrounds them.

The name Wollongong has its origins in the language of the indigenous people who once populated this area as hunters and gatherers, it means 'between the mountain and the sea'. Wollongong lies on a thin strip of land (approx. 2-3 kms wide) between a steep escarpment and

¹ For more details please go to the website www.innovationcampus.com.au

² For more details please go to the website www.uow.edu.au

³ For more details please go to the website www.sciencecentre.uow.edu.au

the ocean which places very real physical constraints on the development of whole region, including the main campus of the University.

For some 15 years commercial labs & research related SMEs had been actively encouraged to collocate on the main campus of the University and when the more successful of these wanted to grow the University turned its attention to investigating alternatives to the main campus. An opportunity arose to acquire a site, adjacent to the beach and an existing university residential facility, some 1 km from the main campus. After much political shuffling the University acquired this (21 hectares) site to which it added the adjacent 12 hectares it already and this was the start of the iC.

The University established a community stakeholder reference (CSR) group as part of a detailed master planning process for the site to ensure all major community groups were represented including, local government, business, industry, labour unions & sporting groups etc. The CSR group met throughout the master planning process (18 months) to ensure the University had a community sounding board for its vision but more importantly to ensure it had a series of well placed ambassadors for the project. Indeed the CSR members have continued to be strong advocates in the community and have 'ownership' of the iC vision. The community consultation process was exhaustive, with over 100 community meetings and presentations. There is still a hunger within the community to know first hand what is going on at the iC and how they can help, so the presentations continue. In summary, the people of Wollongong have caught the iC vision but it was a slow process and the supportive local media and peak bodies have been instrumental to this success.

An important early question in the master planning process was 'What will the Innovation Campus (iC) really stand for?' and in search for the answer there was much research, discussion and debate to determine what were acceptable activities and attributes?

It soon became apparent that the more traditional Science and Technology Park (STP) model was not a good fit because the scale of research and the deal flow of investment ready IP was just not there to focus solely on scientific and technological innovation. Although the iC is marketed as having opportunities in six keys research areas (all strengths of the University), these being: ICT, Futures Materials, Pharmaceuticals, Engineering and Energy; and Digital Media, there were other factors that required consideration, such as, local business growth patterns, skills availability and what businesses were being attracted to the region.

At the national level Australian R&D spending has been in freefall for the last decade, 1996-2006. So much of our innovation effort has been directed at generating patentable product but without the industry size and structure or the investment environment to effectively realise its potential value. The Federal and State Governments and peak business bodies have all funded research into what should have been happening and there have been a plethora of reports on innovation and commercialisation⁴ in our country. At the time of writing the new Labor government has

⁴ Australian Government (2001) Backing Australia's Ability - An Innovation Action Plan for the Future, Australian Government, Canberra
Australian Government (2004) Backing Australia's Ability - Our Future through Innovation and Science, Australian Government, Canberra
Business Council of Australia (2006), New Concepts in Innovation: The Keys to a growing Australia, BCA, Melbourne.

commissioned a National Innovation Policy green paper (major review) which will be released in July 2008. It is however already very clear that the new Federal government wants Universities and others involved, including STPs, to look at broadening their approaches to innovation and look carefully at where strengths and opportunities lie. This is a direction consistent with that already chosen for the iC.

The iC stands for relevance and needs to be aligned with the services industry sector that dominates our workforce and education system. Like all modern post industrial societies, nearly 80% of the current Australian workforce is engaged in the services sector and some 70% of Australia's GDP is services based⁵. Soft innovation, those constant improvements in services, processes, responsiveness and functional and experimental design will all have a key role to play in the future of iC. Services Science, according to Hillary Clinton's Innovation Agenda⁶, aims "to produce boundary spanning research that draws on IT, business disciplines and design". This will open broad new areas to explore and expands opportunities for engagement with potential tenants (I much prefer, participants) that might have been rejected if had more traditional STP entry criteria been chosen.

Those engaged in the area of 'Social Innovation' are yet another group that will be actively encouraged as participants on the iC. These are people and groups involved in the search for innovative ways to alleviate problems that have broad community impacts but often without commercial reward, such things as poverty, health, housing, climate change challenges. Such people are encouraged to join the 'creative campus community' on the iC. An example of one such group that operates locally in Wollongong is Community Sector Banking⁷ for more details regarding their activities, refer to their website.

The iC also stands for environmental responsibility and good corporate citizenship. At the last two IASP conferences there were many references to the importance of the soft infrastructure required for the development a successful STP. One of the things very central to the thinking in the master planning stages of the iC was the environmental impact of the buildings and the campus. For example, environmental ratings targets⁸ were established for buildings, and environmentally sensitive design features were incorporated into design guidelines for all future landscaping and site design. These features were imbedded into the iC to be attractive to modern corporations, agencies and businesses that increasingly need to fulfil their corporate governance requirements for triple bottom line reporting and prepare for what it appears may well be the basis of our future tax systems⁹. Reporting against greenhouse gas emission, waste reduction targets, energy & water efficiency targets and carbon footprints etc are. A recent good example of the impact of such issues is clearly demonstrated in the 4 star minimum rating applied to buildings occupied by Australian Commonwealth Government agencies, which has led in many cases to relocation to new environmentally sensitive facilities. The planning for the iC has integrated things like rainwater collection and underground storage, grey water separation and on site treatment of grey water for recycling within buildings, detention of all site run-off water

⁵ For more details please go to the website www.campusreview.com.au Vol 18 No. 4 Jan. 2008. p 4 New Services Science - Stuart Cunningham

⁶ For more details please go to the website www.hillaryclinton.com/news/release/view/?id=3656

⁷ For more details please go to the website www.csbanking.com.au

⁸ For more details please go to the website www.melbourne.vic.gov.au/rsr/PDFs/Planning/GreenStarandABGRFactSheet.pdf

⁹ For more details please go to the website www.ceem.unsw.edu.au/content/documents/GhShortCourse-tax.pdf

for reuse on site, the use of double glazing to allow more efficient air conditioning etc, things that will boost efficiency ratings and make the iC an increasingly attractive location.

The iC stands for collaboration and connectedness. The physical design of the iC was driven by the need to encourage human interaction and connectedness. As a nation Australia has a huge way to go in the area of Collaboration, in a 2003 Australian Bureau of Statistics (ABS) Survey¹⁰ found that only 27% of innovating businesses were involved in any form of collaboration or alliance. Only 6.5% of innovating businesses had collaborative links with universities, government or research institutions.

A recent Federally funded (DIIRD) report into Knowledge Intensive SMEs¹¹ found that, among other things, that direct traditional methods of government (policy) assistance to SMEs like tax breaks and subsidies to individual firms have varied success rates but a more productive and sustainable policy route would be to create market environments attractive to SMEs more generally which will have a longer term pay off. A recent article in the Economist¹² - under the title of "the fading lustre of clusters" reinforces the point that structural changes aimed at deregulation and freeing up the market place is likely to facilitate a more desirable and sustainable outcome that injections of tax payers money directly into SMEs. This enabling role of government to improve the innovative capacity of their country by nurturing the interactive environment and improve the innovation ecosystem is definitely supported by the iC.

The iC stands for employment opportunities and business growth within the local region. At the very core of the iC vision is the economic development of the city and region. The creation of new sustainable employment was central to this view and provides a constant focus for activity.

During the implementation stages of the iC project the iC team took inspiration from an STP which confirmed that they were on the right track. While money can achieve many things and an ideal physical location can be a great advantage to the development of a STP but what is really inspiring is an STP that has been successful in a less than ideal location and without huge resources or big anchor tenants to prop it up. In Saskatoon, Saskatchewan, a remote area of regional Canada, Innovation Place¹³, is a fine example of what a STP can do to assist growing regional businesses and one that inspired the iC team.

The implementation of the iC master plan has lead to many activities that have involved the collaboration with the city and its' agencies around a raft of issues which needed to be resolved. The iC project has been instrumental in changing local attitudes, actions and infrastructure planning and has resulted in numerous additional benefits for the community. Some of these are listed below

¹⁰ Australian Bureau of Statistics (2006), Innovation in Australian Business, 2003, ABS Canberra.

¹¹ Australian Bureau of Statistics (2006), Innovation in Australian Business, 2003, ABS Canberra.

¹² Department of Innovation, Industry and Regional Development - Discussion Paper- Jan. 2007. Today's Knowledge Intensive SME: Where, Why and How?

¹³ The Economist, Print edition -Oct 11 2007, INNOVATION 'The fading lustre of clusters'.

Value Proposition

The city now has a sharpened image with regard to “Who we are and what do we have to offer in terms of business, education, tourism and lifestyle?” This process started with a Wollongong Image Campaign¹⁴ led by local government that targeted local people as much as it did external perceptions & image problems. The city had to get locals thinking differently about themselves and their potential before they could work external perceptions. Whilst still a work in progress this campaign has had tremendous success in lifting aspiration and self belief and the image of the city nationally and internationally. The role the city can now play in supporting the attraction and retention of talented people who wish to come to Wollongong to work on the iC is substantially enhanced because of the change in city’s culture and attitude.

Advantage Wollongong

Growing out of the Wollongong Image Campaign was the creation of a new peak economic body to be known as “Advantage Wollongong”¹⁵.

This is due to be launched in July 2008 and will play an important co-ordination role in bringing together various representative organisations, both from the private sector and various government and quasi government agencies to ensure the region will “Speak with One Voice” when lobbying Government on major issues or pitching for new opportunities. Advantage Wollongong clearly has a role to advocate and co-ordinate the key issues for future economic development of our city and the region, including issues such as investment attraction and the wider infrastructure needs that are pivotal to our future employment growth.

As an example, demonstrating the need for such a peak body, the iC project exposed enormous gaps in planning coordination & provision in relation to infrastructure generally and in particular communications where prior to iC there was little knowledge of what the city had available and no vision for what it needed. The same can be said for electricity provision and public transport. In all these areas the University would traditionally solve its own problems but the iC required broader thinking and community wide solutions. The results of such thinking speak for themselves, there are now 3 fibre connections to the iC site plus dedicated access to a research fibre network at 8Gb/s with redundant links which also has community access provision. Dual electric power supplies with reliable underground feeds to the iC site via a new Zone Substation that has also relieved many inadequacies in the city’s electrical grid. A dedicated bus service to the iC site is the beginning of a coordinated public transport system within the city - including linked bus & rail timetables and paid parking in the city. Strong leadership within the community had been missing on this front for many years.

Local Economic Research Capability

Research underpinning and measuring much of what is happening in the city is the role of IRIS, Illawarra Regional information Service¹⁶, a foundation participant of the Innovation Campus. IRIS

¹⁴ For more details please go to the website www.wollongong.nsw.gov.au

¹⁵ For more details please go to the website www.wollongong.nsw.gov.au/MediaReleases/New%20Enterprise%20HAnds%20Wollongong%20The%20Advantage.pdf

¹⁶ For more details please go to the website www.iris.org.au

provides excellent regular business intelligence via surveys and industry benchmarking studies. Recent work undertaken related to the iC and the attraction and retention of skilled IT workers was a salary survey across local employers for various IT professionals and benchmarking this data with other nation surveys. Findings from this study helped win a major multinational IT firm to establish a development centre in the city and eventually on to the site iC when the building is complete. IRIS will enable Wollongong to measure itself against international benchmarking exercises like the KPMG International Business Competitive Alternatives Survey¹⁷ and use this information to support attraction campaigns.

Reversing the brain drain - changing the attitude of commuters.

The effort of attracting large employers to the region who need not only (graduate) entry level staff but also experienced staff brought into focus the 22,000 skilled Wollongong commuters that daily face peak hour traffic & public transport to Sydney each day. Research by local employment agencies and IRIS confirmed commuters are not aware of the range of career opportunities available to them locally. Many residents still believe Sydney jobs are better than local ones. Local recruitment firms are now running campaigns aimed at turning around the culture of the commuter with some early success. The appeal is “come home for work, spend more time with your family each day and enjoy the benefits of where you live”.

Wollongong Stock Exchange (NSXWE)

The innovation campus project brought into sharp focus the lack of sophistication of the local business environment in Wollongong and with this in mind and with an eye on what others had managed to achieve a partnership between Wollongong City Council and the Illawarra Business Chamber saw the creation of Wollongong Exchange¹⁸ as a sub-market of the National Stock Exchange - NSX¹⁹ to facilitate the public listing of companies based in Wollongong and the surrounding regions.

For local SMEs, the NSX Wollongong Exchange offers solutions to problems that many growing companies face, including: funding succession planning; enabling maintenance of control; accessing capital (particularly when additional debt is inappropriate and venture capital too difficult) and placing a transparent market value on a business. The local exchange also creates a central forum for local businesses to be introduced to local investors, and is a highly effective method of raising local capital.

The National Stock Exchange is a fully operational and fully regulated main board stock exchange. It is focused on listing SMEs as there is a great need for growth companies to have a capital market where they can raise further capital. NSX operates Australia’s two premier alternative stock exchanges. The NSX Corporate Exchange specialises in the listing of SMEs and the NSX Alternative Exchange²⁰ has attracted the listing of community based organisations such as community banks. Both of these exchanges are able to support the listing of regional enterprises.

¹⁷ For more details please go to the website www.competitivealternatives.com

¹⁸ For more details please go to the website www.wollongongexchange.com.au

¹⁹ For more details please go to the website www.nsx.com.au

²⁰ For more details please go to the website www.bsx.com.au

In summary there have been very few downsides to a creating a modern STP in Wollongong city. The development of Wollongong's Innovation Campus is still a work in progress but one that has put a great effort into laying a foundation for prosperous economic development for many years to come. The Wollongong community members show great pride and satisfaction when they look upon and talk about what they have achieved with 'their' Science Park - the Innovation Campus.