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Nurturing small firms in the knowledge-based economy: program and challanges

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Structured Abstract

This paper aims at providing some insights into how the knowledge-based economy trend has been embraced by Australia's Queensland State Government, through its signature policy known as the Smart State Strategy. Through significant investments in building new research institutes, upgrading the skills of locals to attracting and retaining knowledge workers and providing support to businesses, the Smart State Strategy has helped position Queensland as an important player in the global knowledge-based

economy. A key initiative of the Smart State Strategy involves providing support to small and medium-sized enterprises (SMEs), which are now widely recognised as playing a vital role in economic activities in most countries. Despite their economic significance, SMEs are often poorly understood by policy makers and as a result some government-led programs and initiatives designed to nurture and support them may not achieve their intended goals. Using past literature a conceptual framework is developed for understanding the key challenges being faced by SMEs in participating in the current knowledge-based economy. This framework is then applied to the Smart State Strategy to assess its initiatives for supporting the small business sector. The paper argues that the Smart State Strategy has achieved some success in relation to its implementation, however, in terms of nurturing and supporting new and existing small businesses, barriers do exist that may holdup the progress of these policy initiatives.

Purpose - The purpose of this paper is to provide an overview of and insights into how Australia's Queensland State Government's has embraced the knowledge-based economy through its signature policy known as the Smart State Strategy. Specifically, the paper assesses the services/programs being provided to the small business sector under the Smart State Strategy.

Design / Methodology / Approach - A conceptual framework detailing the key challenges being faced by small and medium-sized enterprises is developed using past literature. This is then applied to the Queensland Government's Smart State Strategy to assess its initiatives for supporting the small business sector. The Smart State Strategy is briefly explained, highlighting some achievements to date and the challenges that policy makers may face in providing adequate support to the small business sector.

Originality / Value - This paper would be beneficial to all stakeholders involved in providing support to the small business sector as well as those interested in understanding how the small business sector operates given the changing world economy.

Practical Implications - Provides policy makers with an understanding of the development path taken by small businesses and the specific problems they face at each stage of the growth cycle. This is important for designing appropriate support programs to enhance the small business sector.

Keywords - small and medium-sized enterprises, small business sector, policy initiatives, knowledge-based economy

Paper type – Academic Research Paper

1 Introduction

In most advanced and in some developing nations it has become widely acknowledged that the success and prosperity of economies and firms largely depends on the acquisition and use of knowledge in all its forms. Wealth creation is no longer determined by availability of land, labour and capital but by how well knowledge is acquired, distributed and used in economic processes. For countries to benefit from this trend they ought to re-orient themselves as 'knowledge-based economies'. Although a small but significant amount of research has been done on the concept of the knowledge-based economy, the concept is still difficult to pin-point because there is not one universally accepted definition. In recent years, research has focused on understanding the drivers and features of the knowledge-based economy (Gera, Lee-Sing, & Newton, 2001) and what countries and regions should do or are doing to succeed in this new global economy (OECD, 2005). Numerous studies have highlighted some policy initiatives and

programs designed to help improve the competitiveness of countries/regions and cities in the new economy. While these studies have helped shed light on this emerging phenomenon, there seems to be little attention paid to understanding how the growth and development of small and medium-sized enterprises (SMEs) is being affected by the shift towards the knowledge-based economy. SMEs form the vast majority of private sector entities in most countries including Australia and play a central role in the economy. This paper attempts to address this gap by analysing some of Australia's Queensland State Government-led knowledge-based initiatives/programs designed to support SMEs. The objectives are as follows:

- Briefly discuss the concept of the knowledge-based economy and Queensland's Smart State Strategy
- Provide a conceptual framework for understanding the challenges faced by small firms in the current knowledge-based economy using past literature
- Analyse the Smart State Strategy using the conceptual framework and provide suggestions for designing effective programs for the small business sector.

2 The Knowledge-Based Economy Trend and the Smart State Strategy

For the past two decades, there has been an increasing interest amongst governments in both the advanced and developing nations to incorporate knowledge into economic processes as it is being recognised as playing a critical role in generating wealth. While land, labour and capital have always been the key factors of production, knowledge in all its forms seems to be taking centre stage in economic processes in today's current global economy. Economies and firms are increasingly depending on the acquisition of knowledge to remain competitive in the changing global economic environment (Gera et al., 2001). The terms 'knowledge-based economy', 'new economy', knowledge-driven economy', 'new networked economy are often used interchangeably to refer to this global phenomenon that has been embraced in most parts of the world. According to the Organisation for Economic Co-operation and Development (OECD), a knowledge-based economy is 'an economy in which the production, distribution and use of knowledge is the main driver of growth, wealth creation and employment across all industries' (OECD, 1996).

Australia like other OECD nations has been captivated by the knowledge-based economy trend. Its well developed knowledge infrastructure, comprehensive educational system, and an open and democratic political system (Langdale & Thorburn, 2004), coupled with the commitment by the Federal and State Governments to transform the economy into a knowledge-based one, make Australia an important player in the global economy. At the State level, Australia's Queensland Government appears to stand out in terms of how it has embraced the concept of the knowledge-based economy (DEEDI, 2008). In 1988 the Queensland Government launched the Smart State Strategy as part of the broader vision of transforming Queensland into a knowledge-based economy. Its vision is: '*To develop a state where knowledge, creativity, and innovation drive economic growth to improve prosperity and quality of life for all Queenslanders'(*DEEDI*,* 2008*)*. The Smart State Strategy aims at:

- creating new industries such as nanotechnology, biotechnology, ICT and creative industries
- expanding Queensland's export performance
- reforming the education system

- building on Queensland's R&D capacity

With significant investments of $3.6 billion into various projects and initiatives, the Smart State Strategy has achieved some success since its inception:

- Business investment in R&D increased from $437 million to $1.6 billion between 1998 and 2006-07
- Increase in knowledge-based exports from $1.8 billion in 1988-1999 to $6.1 billion in 2008-09
- Approximately 59, 000 new knowledge-based jobs have been created in the science, technology, engineering and health sectors
- Growth in Queensland's biotechnology industry – currently has 90 companies, 66 research organisations, and a workforce of 7630 people.
- Investment of $4.4 million into the creative industry which now has 26,000 businesses across the state
- Increase in the number of businesses in the ICT industry to 5,740 with total sales increasing from $10.1 billion in 1999-2000 to $29 billion in 2006-07

Source: (DEEDI, 2008)

The purpose of this paper is not to evaluate the entire Smart State Strategy but rather to discuss some of its programs and initiatives specifically designed to support the small business sector as will be demonstrated in the following section.

3 The Small Business Sector in the Knowledge-based economy

Over the years small businesses have dominated the Australian economy in terms of the number of businesses, share of employment and GDP (Landstrom, 2005). According to the Australian Bureau of Statistics (ABS) there were just over 1.9 million SMEs operating in Australia as of June 2007 (ABS, 2008b), making them the vast majority (96%) of private sector entities in the country, employing 47% of the non-agricultural workforce. Small firms in Australia commonly operate in industries such as construction (20%), professional, scientific and technical services (11%) and agriculture, forestry and fishing (11%) (ABS, 2008a). In the last 20 years the Australian small business sector has remained steady and official data indicates that the majority of firms remain in business longer than 5 years. The distribution of SME operators generally matches the population distribution across the states with New South Wales (31.7%), Victoria (24.4%) and Queensland (21.5%) accounting for the largest proportion of the population (ABS, 2008a). In 2007, Queensland (3.7%) and Western Australia (4.7%) registered the highest net growth in the number of businesses as well as the highest business entry rates (19.0% and 19.3%) respectively (ABS, 2008b).

The shift from an industrial and natural resources-based economy to a knowledge-based economy has given rise to different ways of thinking amongst policy-makers and businesses. To maintain a competitive edge in the changing global environment, businesses will have to think and operate innovatively, particularly the small business operators if they are to play a role in the knowledge-based economy (Paige, 2002). Historically, small businesses in most countries including Australia have often been ignored in policy circles because attention was mainly devoted to large enterprises which were largely perceived as being more central to economic activities (Curran & Blackburn, 2001). However, in recent years policy-makers as well as economists and management theorists have recognised the essential role that small businesses play in job creation,

technological innovation and in the overall health of the economy (Khan & Manopichetwattana, 1989). Despite this recognition, it is argued that most policy-makers typically have a poor understanding of how the small business sector operates. This lack of understanding may impede the effectiveness of policies targeted at fostering their development and growth.

The Queensland Government has demonstrated that it recognises that the small business sector can be an important player in transforming Queensland into a knowledge-based economy as evidenced by some of the support programs and initiatives it has introduced under its Smart State Strategy as shown below:

Table 1. Smart state strategy programs/initiatives to support small businesses

Initiative	Purpose
The Australian Institute for Commercialisation (AIC) established in 2002 by the Queensland Government	• to provide innovation and commercialisation advice, skills development and linkages to small and medium-sized firms (DEEDI, 2007)
TeQstart Pty Ltd	• provides financial support to technology start-up companies (DEEDI, 2007)
The i.lab Technology Incubator, established in 2000	• to accelerate the growth of high technology start-up businesses by linking member companies to venture capital financing, export and other business networks to assist with the commercialisation of innovative products and services (DEEDI, 2007)
The Queensland Industry Development Scheme	• aims at assisting knowledge-intensive small to medium-sized businesses to maximise their growth (DEEDI, 2007)

Through policies, governments can have considerable influence on the level of business activity in the economy because they can create either a constraining or conducive environment for businesses to operate in. While policy makers have a key role to play in creating an enabling environment where businesses, particularly early-stage and small businesses can develop and grow, some policy initiatives can actually work against the success of these firms. Clydesdale (2010) argues that when governments intervene to assist entrepreneurs, they often do a poor job which sometimes contributes to the failure rates of new businesses, excessive market entry and over investment. For policies aimed at nurturing small businesses to be effective, policy makers need to have a deeper understanding of how small businesses operate, what development path they take and what the triggers and barriers are to their success. A number of factors have been

identified in the research literature as being the reasons why small businesses may face difficulties in succeeding in today's knowledge-based economy.

Using the Five Stages of Small Business Growth Model by Churchill and Lewis (1983) as well as reviews from a broad body of literature (Leonidou, 2004; Madrid-Guijarro, Garcia, & Van Auken, 2009; Smallbone, 1990), the key problems affecting small businesses can be condensed into four major categories: *resource constraints, technical expertise, commercialisation and internationalisation*. Churchill and Lewis (1983) suggest that small businesses go through a sequence of five stages of development, namely, *existence*, *survival*, *success*, *take-off* and *resource maturity* with each stage presenting a unique set of challenges which require different solutions. The model was adopted for this study because it clearly demonstrates the development path that small firms take and highlights the key issues/concerns found at each stage as shown below:

Table 2. A conceptual framework for understanding key challenges facing small firms in the knowledge-based economy

SME stage of development	**Key issues/concerns**	**Implications for SME support programs**
Existence	• Customer base and product delivery	• Provide more training in developing new products and markets • Provide more start-up capital to encourage early stage businesses
Survival	• Cash flow	• Increase access to risk capital to finance growth • Provision of financial management skills training
Success	• Growth decisions	• Provide entrepreneurial and business skills training • Provide incentives to encourage successful entrepreneurs
Take-Off	• Financing growth	• Provide financial assistance to support growth • Encourage competition among financial institutions
Resource maturity	• Maintaining control of financial gains, flexibility and entrepreneurial spirit	• Encourage networking, regional and international linkages • Provide more information on international trends

4 Assessing the Smart State Strategy's support for small businesses

4.1 Early start-ups: existence and survival stages

According to Churchill and Lewis (Churchill & Lewis, 1983) small firms operating at the *existence* stage of the development cycle typically have fewer resources for their start-up, do not have a sufficient customer base and are unsure about the product their delivering to their customers. As firms progress to the *survival* stage, their concerns are mainly about generating enough cash flow to stay afloat. Under the Smart State Strategy are programs such as the i.lab incubator, Innovation Centre Sunshine Coast, Gold Coast Innovation Centre and Creative Enterprise Australia to assist early stage ventures by providing skills development, mentoring, networking opportunities, office space etc. These programs have assisted 236 client companies, created over 1000 high-tech jobs and have attracted $107 million investments into these companies.

4.2 Established small firms: success, take-off and resource maturity stages

When firms get to the *success* stage, their concerns shift to decisions about expanding the business or continuing operations at the same level. At the *take-off* stage their focus changes to how they can grow rapidly and finance that growth while those at the resource *maturity* stage are mostly burdened with issues of maintaining control, flexibility and the entrepreneurial spirit (Churchill & Lewis, 1983). The Innovation Centre Sunshine Coast, an of the initiatives of the Smart State Strategy, currently housing 30 businesses has what is called the *business accelerator* package to assist established firms by providing them with an array of services such as serviced office spaces, access to high speed internet, consulting support, investment readiness and networking for growth businesses (Graham, 2010).

Based on the Queensland Smart State Strategy Reports, it appears that some impressive results have been achieved both in relation to how this vision has been implemented and in the outcomes of its programs and initiatives. However, the following potential barriers exist that may hold up the programs from moving forward:

- *Knowledge industry sector is wide*: Small firms operate in virtually all sectors of the economy, therefore deliberate efforts to provide assistance to only high-tech businesses or smart businesses will limit the potential of the knowledge industry sector. When the concept of the knowledge industry was first introduced by Machlup (1962), the major sectors identified were education, information services, information technology, mass media and research and development. Nowadays other creative and cultural industries such as advertising, design, crafts, real estate, insurance, arts, media, business services, publishing etc are also being included. In light of this, policy makers are then faced with the challenge of identifying which sectors to target for assistance, what the specific needs are for the small firms in these sectors and in designing appropriate programs to them.
- *Access to knowledge workers*: Small firms are generally disadvantaged when it comes to accessing knowledge workers, that is, workers who "have high degrees of expertise, education, or experience, and the primary purpose of their jobs involves the creation, distribution or application of knowledge' (Davenport, 2005). Knowledge workers spark innovation and growth in the organisation, invent new products and services, design marketing products and create

strategies (Davenport, 2005). Such workers tend to cluster around specific regions that can support and nurture their creativity; therefore proximity to knowledge assets is important. For small firms located in peripheral regions, the pressure is even more intense as these areas typically have difficulty in retaining knowledge workers. The issue for support programs is how to ensure that small firms regardless of their location can benefit from a pool of talented individuals.

- *Access to risk capital:* One of the problems that small firms in the knowledge-intensive sector face, particularly the high-tech businesses is limited access to risk capital. Most financial institutions are reluctant to fund their ventures (Colombo & Delmastro, 2002) given their risky nature (Oakey, 1995; Storey, 1994). While public support programs are making efforts in providing financial assistance to small firms in the high-tech sector, alternative funding sources such as angel investors and venture capitalists are insufficient in most places.

The challenge for public support programs is ensuring that funding is available to various small firms given their changing needs as move from one development stage to another.

- *Technical expertise:* the increased importance of knowledge in today's global economy puts firms under pressure to acquire new knowledge, particularly small firms if they are to have a competitive edge. Managers of small businesses typically have limited training in technical and managerial skills which can hinder them from thinking innovatively and strategically and can also prevent them from competing effectively in a global technology-based knowledge economy. Public support programs have the challenge of providing appropriate training that can help small firms compete favourably.
- *Internationalisation:* vast opportunities exist for small businesses in the international arena, given the changing nature of the global economy. However, small firms may face both internal barriers (*resource constraints*, *organisational capabilities* and *approach to exporting*) and external barriers (*tariff barriers*, *different customer habits*, and *foreign rules*,) which may hinder them from exploiting these opportunities (Leonidou, 2004). How can policy makers ensure that the right information on international trends and markets is provided to small businesses to help them compete favourably in the international arena?

5 Summary and future research

Australia's Queensland State Government has arguably been successful in the implementation of its signature policy (the Smart State Strategy) to transform the economy into a knowledge-based economy. The commitment from both the Queensland State and Local Governments coupled with Queensland's endowment advantages have undoubtedly contributed to the success of the Smart State Strategy. Although notable investments have been injected into various projects ranging from linking research to industry to supporting small businesses achieve their economic potential, there is more that can be done to nurture the development of a knowledge-based economy, particularly in the area of providing appropriate assistance to small firms. Small firms have always been and will continue to be an important element of the Australian economy. Although many studies have been done on small businesses in the knowledge-intensive sectors, there is more that needs to be uncovered in relation to the issues that affect their growth and development. This paper is the first step towards highlighting some of the general

issues that may hinder the success of government-led programs designed to assist small businesses participate fully in the current knowledge-based economy and realise their innovative and growth potential. Further research in this area will provide a deeper understanding of how programs and initiatives can be shaped to enhance their impact on the small business sector. Issues that need to be considered for future research are:

- The impact of government-assisted programs on the decision to establish new firms. Has the Smart State Strategy encouraged individuals to start new firms? Where are these new start-ups mostly located in Queensland? This is important for planning future programs.
- The differences between small firms in knowledge-intensive sectors and those in other sectors. Do they face similar challenges? Do they take a similar development path?
- Differences between small firms in peripheral regions and those in urban centres. Do they receive the same public sector support? If so how do they rate in terms of support?
- The specific contributions that small firms in the creative industries are making to the economy in terms of job creation, innovation and creativity.
- Knowledge sharing amongst small firms. Are small firms really co-operating and collaborating with one another?

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