

**A Primer on Economic Growth,  
Productivity and Shared Prosperity  
Policies & Initiatives**

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# 1 OVERVIEW

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The purpose of this primer is to provide a short introduction to the fundamental importance of sustainable economic growth for increasing the shared prosperity of Australians; to discuss the factors that underpin the main drivers of economic growth—increased productivity and international competitiveness; and to propose a set of interdependent policies that will stimulate these factors and drivers in a positive and sustainable way.

Economic growth is essential not only for Australia to continue to raise the material living standards of the community, but also to generate the resources needed to address social and environmental issues and appropriate structural adjustment programmes in a way that contributes to shared prosperity. This is particularly important in the face of disruptive change caused by globalisation and rapid technological change.

Relatively small increases in economic growth can make a large difference to a society's standard of living over the long run.

## Productivity drives long-term economic growth

Modern developments in economic growth theory have identified sustained improvement in productivity as the main factor in determining long-run economic advance.

Productivity growth stems from a complex interaction of factors that include research and development, innovation, entrepreneurship, development of human capital through education and training, organisational change, industry restructuring and resource reallocation, and economies of scale and scope.

The legal system, suitable government policies, and political and economic institutions are also vital ingredients for achieving productivity and economic growth because they shape the economic environment in which firms produce and transact, including the incentives for internationally competitive behaviour.

The factors that influence a sustained increase in productivity do not operate in isolation. For example:

- incentives provided by competition or contestability are often necessary to bring about beneficial changes in organisations and management practices, or adoption and development of new technologies
- openness to trade and investment can stimulate access to new technologies and management expertise, and provide benefits of scale and scope through access to global value chains and new or expanded markets
- quality education and training is essential for knowledge building, growth of human capital, and structural adjustment
- suitable policies and institutions are needed to ensure direction and stability for the investments in human and physical capital; and the research, development and innovation required for sustained growth.

## Suitable policies can stimulate productivity and economic growth

Policies to improve productivity and economic growth should be simultaneously directed at three areas:

- market incentives should be fostered to provide persistent rewards and penalties to spur entrepreneurial activity and efficient performance
- market flexibility should be improved so that markets are better able to respond to market incentives
- the capability of the community should be strengthened so that it can respond positively to external stimuli; develop and apply new technologies; and produce goods and services relevant to emerging market opportunities.

The scope of relevant policies is wide and includes removing unnecessary regulation, developing a global outlook and entrepreneurial culture, restricting government services to essential core areas, and stimulating the development of physical infrastructure and knowledge-based capital to support economic development.

It is vital that policies be directed to all three areas—incentives, flexibility, and capability—at the same time. This is because policies that enhance the operation, depth, scope, and capability of markets will most effectively promote sustained increases in productivity and economic growth. If this is not done, policies are likely to be much less effective, or even counter-productive. For example, improving the operation of markets without also strengthening capability is likely to lead to a failure to effectively exploit the resulting opportunities because potential market participants will not have the necessary knowledge, skills or infrastructure to succeed. Similarly, boosting capability without improving the operation of markets will lead to misuse (or even waste) of resources because the knowledge, skills and infrastructure generated cannot be effectively used.

Economic history has shown that an economy which provides incentives through competitive pressures and openness to trade and investment, and favours production and investment in capital, skills and technology will prosper compared to one which lacks the infrastructure to support the development of capability and in which incentives are dampened by high taxes, unnecessarily restrictive regulation and other market impediments.

### Suggested initiatives and actions

Simultaneously liberalising markets, building appropriate capabilities, and engendering opportunities would yield major economic benefits including a stronger fiscal and monetary position, improved productivity in the public and private sectors, higher private sector growth and development, and increased employment opportunities.

The proposed initiatives discussed in this primer broadly cover the following areas:

- further liberalising markets for labour, products and services
- removing barriers to legitimate business activity
- broadening the application of competition policy and economic regulation to further stimulate the incentives provided by competition and contestability
- improving the productivity, effectiveness, and efficiency of the public sector
- increasing the productivity of providing physical infrastructure by improving the selection, operation, and delivery of projects
- encouraging the development of a support framework for business development, largely led and sustained by industry, which stimulates innovation and entrepreneurship, provision of venture capital, technology transfer and diffusion, and internationalisation of business activities.

Support capabilities would include mechanisms and programmes that generate more detailed information about the process of business development in Australia; build general education and awareness about the importance of economic development; and increase cross-sectoral interaction, co-ordination, and collaboration to bring knowledge-based capital to businesses and develop the policies and programmes needed for economic growth and shared prosperity.

### The role of government

The private sector is the engine of economic growth. However, the government plays a central role in shaping the conditions for private sector success in framework areas such as planning, taxation and regulation, competition policy, education and training, trade and investment, Commonwealth–State relations, and the provision of core public services and infrastructure.

An approach to economic development policy that is consistent with this view is for governments to strengthen the operation of markets while at the same time help bring about mechanisms for the generation of ideas, opportunities, and supporting capabilities.

The government would sow the seeds for the necessary support infrastructure, organisations, and programs, and guide their development, but not provide them directly. The goal would be to increase the capability of the private sector to provide the systems and support necessary to sustain economic development through measures compatible with an internationally competitive economic framework shaped by government policy. This approach is neither direct economic intervention by the government nor complete *laissez-faire* capitalism. Rather it is a ‘market facilitation’ approach aimed at using both public and private resources in the most efficient and effective way possible to achieve economic growth and shared prosperity.

Subject to overall government policy, and the provision of certain core services and infrastructure by the government, the private sector should lead in providing programs, infrastructure elements and services for the following important reasons:

- private sector organisations are in the best position to respond to market signals and incentives, and growth opportunities
- business leaders often have the skills and ability to assemble the resources needed to undertake large, complex problems with multiple constituencies and sustain them through election cycles
- economic infrastructure and services provided by the private sector are more likely to be relevant to the on-going and changing needs of businesses and industry
- the activity of providing economic infrastructure and services itself provides a major source of opportunities for businesses, and associated organisations and institutions
- it is more likely that relevant economic development initiatives and programs will be sustained if led and managed by those with a commitment to, and an inherent interest in, successful business and economic outcomes. Those that are no longer relevant due to changed circumstances will cease to operate through the process of ‘creative destruction’.
- economic infrastructure and services would be provided in the most economically efficient way, and at minimal financial commitment and risk to the community through its government.

Australia's market-opening and national competition reforms since the 1980s have removed many entrenched inefficiencies from the economy and provided ongoing incentives for productivity improvement.

At present, the Commonwealth Government is considering or introducing further reforms aimed at increasing the sustainability of major expenditure programmes, rationalising and consolidating assistance programmes, making greater use of market mechanisms and technology in the provision of government services, increasing the efficiency of public administration, and extending the ambit of competition policy. In addition, the preparation of several policy ('white') papers is expected to lead to major reforms in areas such as operation of the Federation, Australia's tax system, development of Northern Australia, and increased competitiveness and productivity of the agricultural and energy sectors.

However, much recent research and expert commentary points to the need for a renewed emphasis on microeconomic policy reform geared to the new realities of international business if Australia is to further improve its global competitive position, and not see the erosion of gains already made.

A commitment to innovative policies for economic growth and diversification would lead to a major competitive advantage for the country as a favourable environment for investment and business activity.

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## 2 THE IMPORTANCE OF ECONOMIC GROWTH

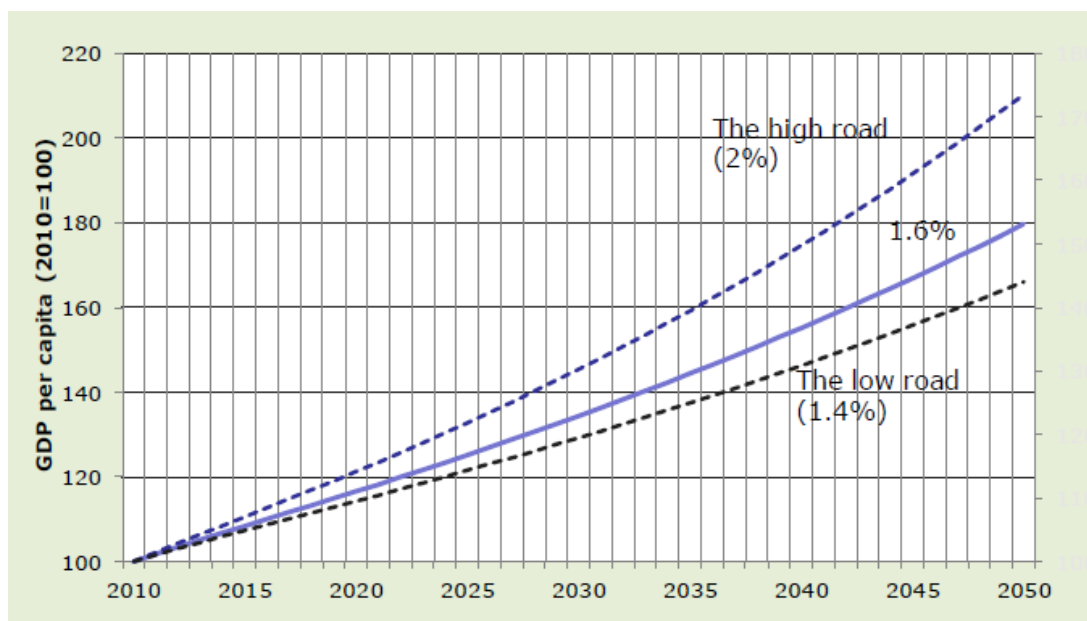
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The ultimate objective of public policy in modern economies is to improve the wellbeing of the community in economic, social and environmental terms. Many examples drawn from economic history show the central importance of economic growth in raising standards of living, both material and non-material (e.g. Acemoglu and Robinson 2012; Bhagwati and Panagariya 2014).

The level and distribution of per capita income and living standards vary greatly across the world's economies. In general, per capita incomes of the poorest countries (for example Nigeria, Uganda, Ethiopia, Zimbabwe) are less than 5% of those of the richest countries (such as the US, UK, Singapore, and Australia) (Jones and Vollrath 2013).

Figure 1 shows the compounding effect over time of per capita output growth rates. Over the 40-year period shown, at a real growth rate of 1.4% per annum, real per capita GDP will grow by 74% by year 40. A relatively small difference in growth rate of 0.6% per annum, to 2% per annum, results in real per capita growth of 121% by year 40. That is, if economic policy can raise the annual growth rate by just 0.6% per annum, per capita GDP can be raised by about 27% after 40 years. After 100 years, the difference is about 80%.

**Figure 1: Compounding Effect of Different Economic Growth Rates**



Source: Banks, 2012

Given the importance of economic growth in raising living standards, major questions therefore concern what are the major determinants of economic growth, and what policies can be employed to promote them.

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### 3 THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND PRODUCTIVITY

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Productivity is a measure of the efficiency of production—that is, a ratio of production output to what is required to produce it (inputs of capital, labour, land, energy, materials, etc.).

Economic growth can be increased by increasing the factors an economy employs and the efficiency with which they are employed.

The economic literature has identified productivity growth as a major determinant of economic advance.

Formal analysis of productivity and growth started with ‘neoclassical growth theory’ in the 1950s (e.g. Solow 1956; Swan 1956); and has been developed further since the 1980s through ‘new growth theory’ (e.g. Romer 1988 and 1994; Lucas 1988 and 2002; Barro and Sala-i-Martin 2003).

Neoclassical (or exogenous) growth theory relates inputs of labour and capital to output, and attributes sustained economic growth to exogenous technological development (that is, determined by factors outside of production activities).

Without technological progress, capital accumulation experiences diminishing returns. However, with technological progress, improvements in technology continually offset these diminishing returns. Labour productivity grows directly because of the improvements in technology, and indirectly because of the additional capital accumulation these improvements make possible. The neoclassical model interprets the technological change that drives output growth as ‘total’ or ‘multifactor’ productivity.

Empirically, productivity is the most significant factor determining growth; however, the neoclassical model does not provide an adequate theoretical explanation of what causes productivity growth. For this reason, productivity is often called the ‘residual’ or ‘unknown’ factor in exogenous growth theory.

New (or endogenous) growth theory is an attempt to fill this gap in knowledge by treating productivity growth as endogenous (that is, determined as part of production activities). Instead of assuming that growth occurs because of automatic and un-modelled (exogenous) improvements in technology, this theory focuses on understanding the economic forces underlying technological progress.

Another approach is evolutionary growth theory which sees competition as an evolutionary process which emphasises the importance of economic change—and not economic equilibrium—in bringing about growth and development through a process of ‘creative destruction’. This approach attempts to reflect the essence of the modern capitalist system which is identified by continuous structural and disruptive change and the associated differential growth rates of different activities. In this view, innovation plays a central role as a primary source of the differential behaviour of firms. Markets then act as co-ordinating mechanisms which resolve those different behaviours through a dynamic process of selection into patterns of economic change which result in rising standards of living (e.g. see Metcalfe 1998; Metcalfe and Foster 2010).

Accumulation of knowledge is identified as the main factor driving sustained growth. Investment in new ideas and developing the skills of people raises the knowledge base that



assists the invention, development, application and spread of technologies, and thus increases productivity and growth. New growth theories thus emphasise investments in education and training, and research and development as explanations of productivity growth.

An important aspect of economic growth arising from productivity improvements is its enduring nature. Additional items of capital or additional hours of labour can temporarily generate additional output, but are transient in the sense that the additional capital is subject to physical decay and the extra hours worked are soon used up.

In contrast, the discovery and application of a new useful technology, or a better organisational structure, contains knowledge that typically endures. This is the case even though the technology or organisational structure eventually becomes obsolete, because new technologies or organisational structures are usually developed on the established base. Knowledge and knowhow do not normally disappear over time.

Research by the OECD has identified what it terms knowledge-based capital (KBC) as a primary factor in stimulating productivity and economic growth (OECD 2013).

KBC stems from business investment in non-physical assets such as research and development, data, software, patents, new organisational processes, and firm-specific skills and designs.

KBC can foster growth because, unlike physical capital, the initial cost incurred in developing certain types of knowledge is not re-incurred when that knowledge is used again. This can lead to increasing returns to scale in production.

Investments in KBC can also create knowledge which spills over into other parts of the economy, spurring further growth.

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## 4 WHAT IS PRODUCTIVITY?

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Productivity is a measure of the rate at which outputs of goods and services are produced per unit of input (labour, capital, raw materials, etc.). It is calculated as the ratio of the quantity of outputs produced to some measure of the quantity of inputs used.

Productivity measures are used at the level of firms, industries and entire economies.

Depending on context, productivity can be interpreted as minimising the use of inputs (for example, reflecting efficient production processes that minimise waste), or maximising output (for example, reflecting the use of resources in the production of goods and services that add the most value).

Productivity is usually seen as a ‘supply-side’ measure, capturing technical production relationships between inputs and outputs. However, implicitly, it is also about the production of goods and services that are desired, valued and in demand.

Evidence of productivity growth usually means that better ways have been found to create more output from given inputs. For example, the introduction of new technologies means that inputs can be used in ways that generate a greater quantity of outputs, or new, higher-value products.

At a broad level, productivity measures are often used to indicate the capacity of a nation to harness its human and physical resources to generate economic growth.

Since 2013, the Productivity Commission has published an annual analysis of Australia’s productivity performance which reports on the latest ABS productivity statistics and the findings of the Commission’s most recent research into productivity issues (Productivity Commission 2013, 2014, 2015).

### Measures of productivity

Productivity = outputs divided by inputs, which implies that productivity growth = output growth less input growth.

Productivity can be expressed as a physical measure (for example, number of cars produced per employee), a monetary measure (for example, thousands of dollars of output per hour worked), or an index (for example, output per unit of labour, where a base of 100 is set in 2005-06, say).

In principle, inputs can be broadly defined to include people’s time and skills, land, raw materials, machinery and equipment, energy, and so on. However, inputs are most commonly defined in terms of:

- labour (number of employees or hours of work)
- capital (in the physical sense of buildings, machinery and equipment, etc).

### Labour productivity

Labour productivity is the ratio of real output to the input of labour. Where possible, hours worked, rather than the numbers of employees, is used as the measure of labour input because, with an increase in part-time employment, hours worked provides the more accurate measure of labour input.

Labour productivity needs to be interpreted carefully if used as a measure of efficiency because it reflects more than just the efficiency or productivity of workers. Labour

productivity is the ratio of output to labour input; and output is influenced by many factors that are outside the influence of workers—including the nature and amount of capital equipment that is available, the introduction of new technologies, and management practices.

### Multifactor productivity

Multifactor productivity, or total factor productivity (TFP), is the ratio of real output to the combined input of labour and capital.

In principle, multifactor productivity is a better indicator of efficiency because it measures how efficiently and effectively the main factors of production—labour and capital—combine to generate output.

In modern, technologically-advanced economies, labour productivity and multifactor productivity both tend to increase over the long term.

### Why is productivity important?

Productivity growth is a major (but not the only) source of rising living standards and wellbeing. Productivity growth means more value is added in production and this means more income is available to be distributed.

At a firm or industry level, the benefits of productivity growth can be distributed in a number of different ways:

- to the workforce through better wages and conditions
- to shareholders and superannuation funds through increased profits and dividends
- to customers through lower prices
- to the environment through greater environmental protection
- to governments through increases in tax payments (to fund social and environmental programs).

Productivity growth is important to the firm because it means that it can meet its obligations to workers, shareholders, and governments (taxes and regulation), and still remain competitive, or even improve its competitiveness, in the market place.

There are essentially two ways to promote growth in output:

- bring additional inputs into production
- increase productivity.

By itself, adding more inputs will not increase the income earned per unit of input (unless there are increasing returns to scale). On the contrary, it is likely to mean lower average wages and lower rates of profit.

However, as explained by new growth theory, the nature of ideas as an input to production implies that production is characterised by increasing returns to scale, giving rise to sustained productivity growth.

With productivity growth, output and income generated per unit of input increases; and additional resources are also attracted into profitable production.

At the national level, productivity growth raises living standards because more real income improves the community's capacity to purchase goods and services (whether they are necessities or luxuries); enjoy leisure; improve housing, education, and health; and contribute to social and environmental programs.

## Two views on the importance of productivity growth

*Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker. World War II veterans came home to an economy that doubled its productivity over the next 25 years; as a result, they found themselves achieving living standards their parents had never imagined. Vietnam veterans came home to an economy that raised its productivity less than 10 percent in 15 years; as a result, they found themselves living no better - and in many cases worse - than their parents. (Paul Krugman, 1992, *The Age of Diminished Expectations: US Economic Policy in the 1980s*, MIT Press, Cambridge, p. 9).*

*Over long periods of time, small differences in rates of productivity growth compound, like interest in a bank account, and can make an enormous difference to a society's prosperity. Nothing contributes more to reduction of poverty, to increases in leisure, and to the country's ability to finance education, public health, environment and the arts. (Alan Blinder and William Baumol, 1993, *Economics: Principles and Policy*, Harcourt Brace Jovanovich, San Diego, p. 778).*

## The benefits of innovation

Innovation is the process of discovering and commercialising new ideas. Therefore, it comprises the component processes of invention and entrepreneurship.

Since the Industrial Revolution—around 250 years ago—the global economy has grown rapidly due to a series of major advances in technology from steam engines that replaced water mills, to electricity, telephones, automobiles, railways, airplanes, radio and television, computing technology, the internet, etc.

Each new technological development has given rise to new methods for performing existing tasks more efficiently as well as entirely new types of organisations resulting in increased productivity, economic growth, and incomes. In addition, innovations in medical science and practices have led to longer and healthier lives.

## Does productivity growth mean lower employment?

At the firm or industry level, a productivity-enhancing factor, such as the introduction of new technology, can mean that fewer workers are required to meet production needs. This is not always the case, however, as a firm with innovative products can stimulate such strong demand that it needs to put on more workers to raise production to meet the demand.

At the aggregate or economy-wide level, the general evidence is that productivity growth does not mean fewer employment opportunities. Productivity growth stimulates sufficient growth in income and output to generate overall employment growth. For example, employment growth and a reduction in unemployment accompanied Australia's record productivity growth in the 1990s.

## Sources of productivity growth

National productivity growth stems from a complex interaction of factors. Some of the most important immediate factors include technological change, organisational change, industry restructuring and resource reallocation, as well as economies of scale and scope.

Over time, other factors such as research and development and innovative effort, the development of human capital through education, and incentives from stronger competition promote the search for productivity improvements and the ability to achieve them.

Ultimately, many policy, institutional and cultural factors determine a nation's success in improving productivity.

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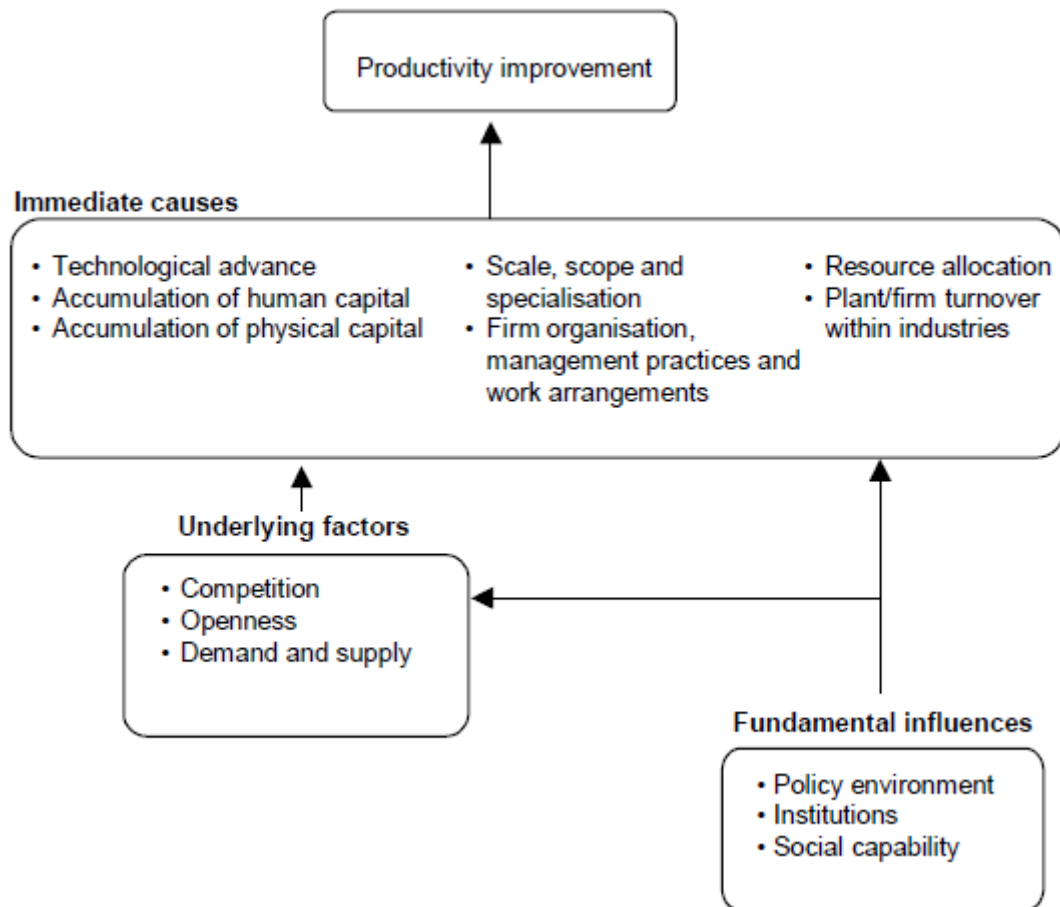
## 5 THE MAJOR FACTORS AFFECTING PRODUCTIVITY

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### A productivity framework

The Productivity Commission has suggested the framework in Figure 2 for considering the major determinants of productivity identified in the economics literature (Productivity Commission 1999).

**Figure 2: A Framework of Major Productivity Determinants**



*Source: Productivity Commission (1999)*

The framework distinguishes between determinants that operate at three different levels: immediate causes, underlying factors, and fundamental influences. Immediate causes may be necessary to bring about substantial productivity improvements, but they may not be sufficient. Changes at the underlying and fundamental levels may also be required to bring about effective change.

### Immediate causes

Immediate causes are determinants that have a direct influence on productivity—they strongly influence the relationships between inputs and outputs in production. For example:

- Technological advance results in better products and production techniques which add value to production, and improve productivity. Technological advance comprises the

interrelated elements of invention of ideas, innovation (bringing ideas to commercial reality), and diffusion (adoption and application of technologies).

- Accumulation of human and physical capital, and research and development act together in the development, application and refinement of new knowledge. Recent research has shown that the ‘knowledge’ dimension of technological advance is a very important contributor to productivity growth.
- Economies of scale and scope, and gains from specialisation improve productivity through techniques of mass production, and learning by doing.
- Firm organisational structure, management practices, and work arrangements can improve productivity by providing the flexibility needed to deal with rapid changes in market conditions through continuous review and improvements to production systems, supply arrangements, inventory management, quality assurance, team-based working arrangements, and so on.
- Removing barriers to better allocation of resources can improve productivity by ensuring that resources are used in ways that contribute most to community wellbeing.
- The turnover of firms as part of the normal operations of the economy can affect average productivity in an industry. The productivity levels of organisations vary according to technologies employed, age of equipment, access to inputs and markets, and so on. Therefore, the average productivity in an industry can be affected as new firms enter and existing firms grow or decline.

In some countries (for example, the US), home-grown invention and innovation is the main source of productivity improvements, while in many other countries (including Australia) technology transfer from overseas is the major source.

### Underlying factors

Underlying factors (competition, openness to foreign trade and investment, and demand and supply conditions) influence the extent to which the immediate causes bring about an improvement in productivity. For example:

- competitive pressures can provide the incentives for firms to improve productivity by:
  - developing or adopting new technologies and innovating to gain advantage in the marketplace
  - rationalising and retiring less productive operations and modernising
  - reorganising and improving management practices and work arrangements
  - developing new markets leading to gains from specialisation, economies of scale and the diversification of risks.
- openness to foreign trade and investment can provide opportunities for improving productivity through access to overseas markets, technologies and management expertise. Apart from the competitive element, openness can also give rise to the following advantages:
  - inward foreign direct investment often brings with it technology (often protected by intellectual property rights), production methods, and human expertise

- imports of final products, intermediate goods (for use in local production processes), and capital equipment can possess embodied technology that would not otherwise be available
  - intra-industry trade leads to specialisation between countries in the production of goods and services for which they are better suited and more productive
  - development of foreign markets through trade and outward foreign investment can provide access to ideas, and can lead to economies of scale through increased sales.
- the strength and pattern of demand and supply conditions for goods and services and factor endowments can affect productivity through the accumulation of human capital, the adoption and development of new technologies and different production methods, opportunities to exploit economies of scale, and the efficient allocation of resources.

### Fundamental influences

Fundamental influences (policy environment, institutions, and social capability) are the deep-seated policy, social and institutional determinants that affect productivity indirectly through the underlying factors or immediate causes discussed above. They establish the general business and economic setting that affects productivity, especially over the long term.

Government policy can increase the emphasis given to economic objectives and the development of productivity-enhancing capabilities (e.g. education, training, science, and innovation). Policy stability can lower the risks of long-term investment decisions by creating a more certain business environment. Good policy can also limit the extent to which resources are diverted away from improving productivity towards lobbying government for favourable policy treatment ('rent seeking').

Institutions are formal and informal rules which determine the costs of coordinating production activities (e.g. organising labour) and conducting business. They influence the incentives facing firms and individuals to raise productivity. Examples of institutions include corporations law; industrial relations arrangements; science, technology, and innovation systems; and education and training systems.

Social capability refers broadly to the economic capabilities of a nation and the orientation of its people toward achieving further reform and development. This concept has been used in historical and comparative studies of nations to cover a community's cultural values (e.g. global outlook, entrepreneurial ethos), ability to cope with change, and technical capability to embrace modern production techniques.

Acemoglu and Robinson 2012 provide numerous examples of how a nation's laws, government policies, and political and economic institutions shape the economic environment in which firms produce and transact, and thus the degree to which they achieve economic and productivity growth. An economy which favours production and investment in capital, skills and technology has been found to prosper compared to one in which incentives are dampened by high taxes, unnecessary regulation and other market impediments, and which lacks supporting infrastructure—both physical and 'soft'.

### Interdependencies among determinants

The factors that influence productivity growth do not operate in isolation. For example, competition or contestability incentives are often necessary to bring about beneficial changes



in organisations and management practices, or adoption and development of new technologies. Openness to trade and investment can stimulate access to new technologies and management expertise. Quality education and training is essential for building knowledge and human capital. Appropriate policy settings and institutions are needed to ensure direction and stability for the investments in human, physical, and financial capital required for sustained economic growth.

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## 6 POLICIES FOR PRODUCTIVITY AND ECONOMIC GROWTH

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Past experience with microeconomic reform in Australia and elsewhere has demonstrated that policy can be very effective in raising productivity and economic growth. Policy initiatives need to be directed not only at the determinants of productivity improvement discussed above—immediate, underlying and fundamental factors—but also must capitalise on their interdependencies.

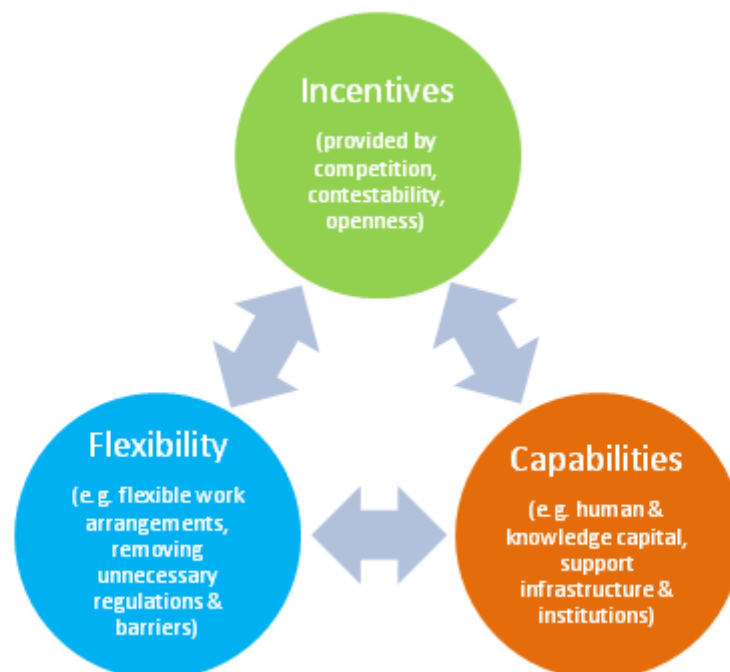
According to the Productivity Commission, policies to improve productivity should be focused on three areas (PC 2009, 2012):

- incentives—the external pressures and disciplines on organisations to perform well
- flexibility—the ability to make necessary changes
- capabilities—the knowledge capital, infrastructure, and institutions needed to devise productivity-enhancing changes and support them effectively.

The PC has characterised the ‘incentives’ area as a ‘driver’ of productivity improvements, and the other two areas as ‘enablers’.

As shown in Figure 3, these three policy dimensions are strongly interdependent, and work together to influence the motivation and ability of organisations to innovate or adopt improvements in processes and products. Therefore, all three need to be addressed jointly in an integrated policy framework that promotes a focus on productivity and innovation by organisations, and diffusion of best practices among them.

**Figure 3: Interdependence of Policy Elements**



Productivity is unlikely to improve if policy advances in one area are offset by lapses in others. For example, incentive policies by themselves may be insufficient to generate desired productivity improvements unless supported by initiatives that engender flexibility and

stimulate a supporting framework of capabilities by relevant networks of firms and institutions. Similarly, policies directed at creating flexibility and building capabilities are unlikely to be successful unless the incentives that motivate competitive market behaviour are also facilitated.

Australia's market-opening and national competition reforms since the 1980s have begun the process of removing many entrenched inefficiencies from the economy and have provided a number of ongoing incentives for productivity improvement.

However, much more could be achieved by further policy reforms in these areas as evidenced by Australia's current international competitiveness ranking of 22 (World Economic Forum 2016).

### Market incentives

There is a substantial body of international evidence demonstrating the crucial role of market competition in encouraging cost reductions and product and process improvements, including through higher rates of innovation and diffusion (OECD 2013; World Economic Forum 2014).

Barriers to international trade and domestic contestability are not the only factors that can weaken competitive incentives to innovate and improve productivity. Industry assistance programmes (subsidies to support production or investment) can have a similar effect by providing firms with a protective buffer against more competitive rivals.

While there can be a case for public subsidies where market signals and incentives are inadequate, this support needs to be transparent and well targeted to ensure that the public benefit exceeds the cost, and public funding does not crowd out private sources.

There are a wide range of instruments that can be applied to create markets which align private incentives for profit with public goals. These tools bring market pressures, processes, and opportunities into areas that traditionally have been controlled by the public sector through prescriptive regulation, monitoring and enforcement of penalties.

These market-based instruments include user-pay fees and charges, resource leasing, differential pricing, tradeable permits and property rights, deregulation, commercialisation of public sector activities, increased contestability of public services, and privatisation into competitive or contestable markets.

Also relevant is the introduction of competition for the market (or field) itself where it is not feasible to create or establish a competitive market in the field. Relevant initiatives include tendering or auction approaches.

### Flexibility

Improving an organisation's flexibility to adapt or respond to changing market circumstances can lead to major gains in productivity and reductions in unnecessary costs.

For example, flexible work arrangements can increase innovation, productivity, and employment. Industrial relations regulation addresses a legitimate concern for workers' basic rights. However, it is also important that organisations can engage effectively with employees to change work arrangements in response to commercial pressures as the economy changes. Flexibility in employment arrangements can generate significant opportunities for both employees and employers.

Removing unnecessary regulation and compliance costs can also bring about improvements in innovation and productivity, and increase employment opportunities, by making organisations more competitive and responsive to market pressures.

Significant cuts to tariffs and other protective mechanisms since 1973 have increased competitive pressures in the Australian economy. However, several complementary changes provided businesses with the flexibility to respond to these pressures and in so doing have increased Australia's international competitiveness. These changes include financial market deregulation including the floating of the exchange rate, the move away from centralised wage fixation to enterprise bargaining, reductions to the top personal marginal tax rate, and the agreements on national competition policy.

## Capabilities

Policies aimed at improving capabilities in education and training, research and innovation, infrastructure, and government services provide the support framework to complement the market-based incentives and flexibility necessary for economic and productivity growth.

Although government policy and institutional factors are important in creating an environment conducive to growth, there is also a broad role for government to facilitate the development of the support capabilities needed.

For example, government can encourage the development of tools, models, and mechanisms for the generation of ideas and opportunities that can be taken up by the non-public sector. Some of these are discussed in more detail below.

## Microeconomic reforms and productivity determinants

Since the 1970s (and particularly the 1980s), Australian microeconomic reform has been directed at the three levels of productivity determinants outlined above.

Specific reforms to influence determinants at the immediate level include tariff and taxation and other changes to affect relative prices and relative rates of return and thereby influence resource allocation and innovation.

Policy reforms directed at underlying factors include opening the economy to trade and investment (relaxing trade and investment barriers) and increasing competition (relaxing trade barriers and strengthening domestic competition policy).

Reforms directed at fundamental influences include changes to institutional arrangements (e.g. workplace bargaining, corporate governance, access to finance) and changes in government policy signals to give greater emphasis to longer-term economic performance and industry self-reliance.

Greater openness and competition and changes in the policy environment have been major drivers of productivity improvements.

Major developments in productivity-related factors since the 1980s have included:

- increases in the adoption of advanced technologies
- greater business involvement in innovation and formal R&D activity
- improvements in human capital in the workforce
- organisational change and adoption of improved management techniques; new work arrangements implemented through enterprise bargaining; reallocation of resources and greater specialisation

- greater openness and competition in the Australian economy
- changes in the policy environment that have reduced expectations about the ability of businesses to rely on government support.

A 2012 report by the McKinsey Global Institute (MGI) defined the period between 1993 and 1999 as the ‘golden age’ of productivity growth when Australia reaped the benefits of the major economic reforms started in the 1980s (McKinsey and Company 2012).

However, MGI argued that since that time over 90% of Australia’s income growth is explained by the surge in capital investment and favourable terms of trade generated by the resources boom, which masked a serious decline in productivity growth.

According to MGI, this poor productivity performance meant that Australia was particularly vulnerable to the uncertainties associated with over reliance on the continuation of the resources boom. Any growth slowdown in China and India, volatility in commodity markets, the normalisation of resources prices when supply catches up with demand (or large falls in prices should over-supply eventuate), could put Australia’s future prosperity at risk.

MGI concluded that it was, therefore, imperative that Australia boosted its productivity by re-committing to strong microeconomic reform while the benefits of the boom were still accruing. A concerted effort by policy makers was needed to streamline regulation, encourage innovation, and promote competitive markets to further strengthen and diversify the Australian economy.

Similar sentiments were echoed at the time by the Reserve Bank of Australia (Connolly & Orsmond 2011), the Productivity Commission (2011; Banks 2012), and the Australian Treasury (Gruen 2011, 2012).

Since that time, many of these concerns have been realised with Australia’s resources boom ending and the Australian dollar and terms of trade declining quite rapidly. As of mid-2015, Australia’s real per capita income has fallen by 1.6% since the terms of trade peaked in the September quarter of 2011 (ABS Cat. No. 5206.0).

Additional important reports—from both public and private sources—have made valuable suggestions on ways forward for the Australian economy. In general, these reports recommend a strong recommitment to a comprehensive microeconomic reform agenda as the basis for strengthening and diversifying Australia’s economy, particularly in light of changing global economic circumstances and rapid technological change<sup>1</sup>.

The Australian Government is also developing a framework for growth and development through the release of a series of policy white papers in areas such as energy, agricultural

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<sup>1</sup> See for example: *Australia’s future tax system* 2009 (‘Henry Report’); *Financial System Inquiry* 2014 (‘Murray Report’); *Towards Responsible Government* 2014 (National Commission of Audit); *Competition Policy Review* 2015 (‘Harper Report’); various Productivity Commission inquiry reports including on public infrastructure, workplace relations, barriers to the export of services, etc; *Action Plan for Enduring Prosperity* 2013, and *Building Australia’s Comparative Advantages* 2014 (Business Council of Australia); *Australia Adjusting: Optimising national prosperity* 2013 (CEDA); *Australia’s Competitiveness: From Lucky Country to Competitive Country* 2013 (CPA Australia); *Compete to Prosper: Improving Australia’s global competitiveness* 2014 (McKinsey Australia).

competitiveness, development of northern Australia, reform of Australia's tax system, and reform of the federation.

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## 7 INITIATIVES AND OPPORTUNITIES FOR PRODUCTIVITY AND ECONOMIC GROWTH

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The simultaneous liberalisation of markets through increased competition and flexibility, building of appropriate capabilities, and engendering opportunities is a powerful economic policy tool for increasing productivity, economic growth, employment and shared prosperity.

The initiatives suggested below, appropriately tailored to the Australian context, would result in major economic and social benefits, including strengthening Australia's fiscal and monetary position; enhancing the productivity of public and private sectors; providing opportunities for private sector growth and development; and generating the resources to more adequately address social and environmental issues.

### Liberalise markets

One important set of initiatives is aimed at promoting further competition, contestability and flexibility in markets for inputs, goods, and services and thus increase the incentives for economic and productivity growth. Examples include:

- further liberalise markets for products and services within Australia, and between Australia and global markets<sup>2</sup>, by removing barriers to legitimate business activity, and unwarranted market-distorting subsidies and industry assistance programmes<sup>3</sup>
- improve the workplace relations framework in Australia by using appropriate incentives and institutional arrangements to further liberalise the labour market for the benefit of employees, employers and the wider community<sup>4</sup>
- widen the application of competition policy and economic regulation in appropriate areas of the Australian economy to increase the incentives provided by competition and contestability<sup>5</sup>.

### Facilitate collaborative development

An important question in providing the appropriate setting for increasing productivity and economic growth is what role should the government and institutional factors play in building relevant support capabilities and fostering the identification and development of business opportunities.

Since the success of the microeconomic reforms of the 1980s, there has been a shift by governments in Australia away from active engagement in economic activity, and the support of specific firms and industries through assistance programmes, towards managing the framework within which others produce and distribute goods and services (Productivity Commission 1999).

Economic development is increasingly seen to result from a combination of top-down and bottom-up processes in which many organisations (public and private) have a role to play (Figure 4).

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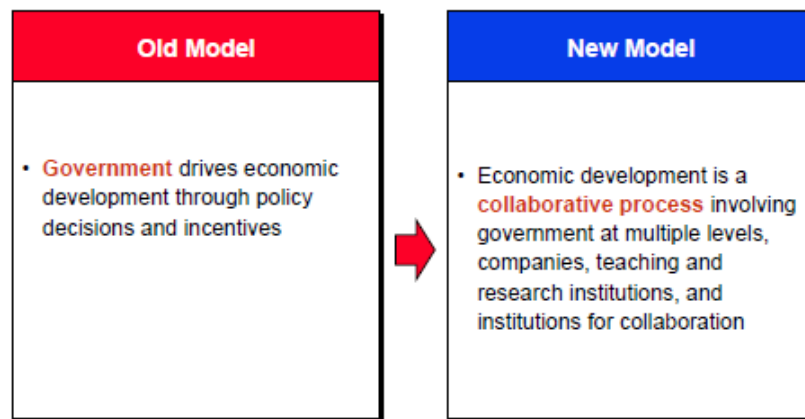
<sup>2</sup> Recently negotiated Free Trade Agreements with South Korea, Japan and China, together with the Trans Pacific Partnership are examples of beneficial moves in this direction. For these and other examples see <http://dfat.gov.au/trade/agreements/pages/trade-agreements.aspx>

<sup>3</sup> See *Towards Responsible Government* (Report of the National Commission of Audit)—section 8, Phase 1.

<sup>4</sup> See Productivity Commission inquiry report on workplace relations (2015).

<sup>5</sup> For example, see the recommendations of the Competition Policy Review ('Harper Review').

**Figure 4: Shifting Responsibilities for Economic Development**



*Source: Porter, 2003*

Many expert commentators argue that more emphasis needs to be placed on economic development policies that focus on ‘new model’ processes because these policies produce more effective and efficient outcomes.

Traditional economic development policies have focused either on trying to improve the general business environment, or the competitiveness of individual firms and workers (Porter 2009). Mills and others have argued that such policies neglect an important middle ground (or ‘meso’ strategy) that seeks to strengthen the institutions, networks and regional economies that support the collective needs of firms (Mills, Reynolds and Reamer 2008).

In reality, commercial activity does not easily reconcile with policies based on idealised economic models, but instead is replete with market problems, information breakdowns, institutional inertia, coordination and communication problems, and poorly aligned incentives.

For these reasons, businesses, left to their own devices, will not necessarily take advantage of development policies broadly aimed at market liberalisation and increased flexibility; policies that help build capability at the ‘local’ level are also required.

An approach to economic development policy that moves further in this direction is for government to act as a facilitator to stimulate the development of instruments and mechanisms for the generation of ideas, opportunities, and supporting capabilities by those with an inherent interest in successful business and economic outcomes.

### **Improve the productivity and efficiency of the public sector**

An efficient and effective public sector can be an important contributor to increased productivity and growth in the economy.

The National Commission of Audit has made a number of important suggestions for repairing Australia’s fiscal position, increasing the efficiency and productivity of the public sector, improving the provision and management of public infrastructure, and reforming Commonwealth–State arrangements (Australian Government 2014).

The Commonwealth Government is progressively responding to the Commission’s recommendations as circumstances permit, including increasing the sustainability of major expenditure programmes, rationalising and consolidating assistance programmes, making greater use of market mechanisms and technology in the provision of government services,



and increasing the efficiency of public administration. The preparation of several policy ('white') papers is expected to lead to major reforms in areas such as operation of the Federation, Australia's tax system, development of Northern Australia, and increased competitiveness and productivity of the agricultural and energy sectors.

### Improve the productivity of infrastructure provision

The effective and efficient supply of both 'hard' infrastructure (physical networks) and 'soft' infrastructure (collaborative networks and institutions) are vital ingredients for economic growth. The following sections briefly discuss some important features of infrastructure provision.

#### Physical infrastructure

The 2012 report by Infrastructure Australia to the Council of Australian Governments (COAG) identified the following key priorities for addressing Australia's long-term physical infrastructure requirements (Infrastructure Australia 2012):

- strategic planning—establish credible long-term infrastructure plans that focus on better use of existing infrastructure as well as new capital investment
- funding and financing—put in place initiatives to increase the pool of funds available to invest in new projects and use more efficient financing mechanisms, particularly in partnership with the private sector
- governance and reform—make infrastructure provision more responsive to market demand by improving existing regulatory arrangements, and by broadening the application of user charging.

These priorities are consistent with a report by the McKinsey Global Institute (MGI) (Dobbs et. al. 2013) which suggests a number of ways to help meet the challenge of providing sufficient infrastructure by improving infrastructure productivity. MGI suggests that more, better-quality infrastructure can be obtained for less by:

- making better choices about which projects to construct—this concerns not only improving the technical quality of project evaluations (adequate scoping studies, transparent cost-benefit analyses, rigorous demand forecasting, full investigation of risks and risk sharing), but also to reducing biases in planning and forecasting which also lead to poor project selection (e.g. see Flyvbjerg 2009). It also refers to selecting a combination of projects which contribute most to solving infrastructure problems at a 'systems' level, rather than on a stand-alone basis. For example, decisions to invest in physical capacity are often made in isolation (e.g. a new freeway from A to B), instead of on a systems basis where other integrated options, such as elimination of bottlenecks combined with improved public transport and demand management, are considered against well-defined selection criteria (e.g. see Ergas 2014)
- streamlining the delivery of projects—this refers to speeding up approval and land acquisition processes; improving early-stage project planning and design; and enhancing construction industry capabilities and practices through increased skills development, and labour market reform
- making the most of existing infrastructure—this involves getting more out of existing capacity, rather than investing in costly new projects. For example, boosting asset utilisation, optimising maintenance planning, and expanding use of demand-management measures can generate large savings.

MGI estimates that, in some cases, using intelligent transportation systems for roads, rail, airports, and ports can double or triple the use of an asset at a fraction of the cost of adding the equivalent physical capacity. Total life-cycle cost of ownership approaches which optimise long-term renewal against short-term maintenance costs can lead to large cost savings. Demand management options have been broadened and made more effective by recent advances in technology. For example congestion pricing paired with intelligent traffic solutions can achieve major benefits (see also Basso and Duvall 2012)

- improving infrastructure institutional and governance arrangements—to deliver the benefits of the above initiatives, MGI suggest that the infrastructure governance and delivery system needs to be upgraded in four ways:
  - close coordination is needed among the authorities responsible for the different types of infrastructure
  - clear separation between political and technical responsibilities is required, with government providing the policy directions and technical experts creating the specific projects and plans to meet overall goals
  - government needs to clearly identify the relative roles, responsibilities, and risks between the public and private sectors, market structures, regulation, pricing and subsidies, ownership, and financing. Government should look beyond project-specific public-private partnerships toward broader public-private cooperation (for example, an active role for the private sector in identifying and scoping projects)
  - strong public-sector capabilities are needed in stakeholder engagement, long-term planning, delivery, and operations.

In view of the importance of physical infrastructure to economic and social development, and as a result of the Australian Government’s search for innovative solutions to its provision:

- the Productivity Commission has inquired into the public provision of infrastructure and reached similar conclusions to those of MGI discussed above. It also found that there was no shortage of private sector financing available for infrastructure projects (Productivity Commission 2014).
- Infrastructure Australia was reformed in 2014 to improve infrastructure project planning, selection and delivery. It is devising a 15-year infrastructure plan which will incorporate revisions every five years.
- A \$4.2 billion Asset Recycling Initiative has been established to provide incentives for State and Territory governments to sell existing assets and reinvest proceeds to fund additional productive infrastructure. This also provides an opportunity for the private sector to invest in existing assets while freeing up capital on State and Territory governments’ balance sheets.
- A \$5 billion Northern Australia Infrastructure Facility (NAIF) has been established as a loan facility to help establish large scale infrastructure and increase the productive capacity of northern Australia. Professional investment expertise will rigorously scrutinise potential investments and private sector involvement will be encouraged.
- As a result of Australia’s G20 presidency, a Global Infrastructure Hub has been established in Sydney to engage with foreign governments, international organisations and the private sector to further stimulate the infrastructure investment environment.

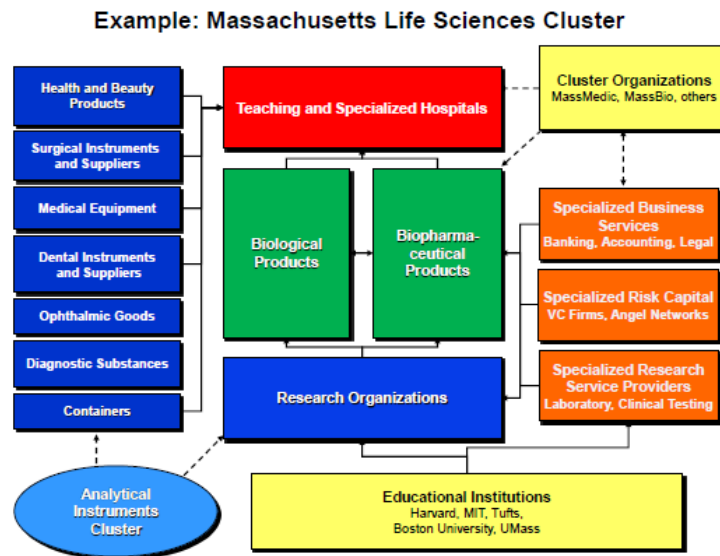
## Clusters

In addition to the usual notion of infrastructure as physical networks for the provision of services in transport, energy, water, communications, etc., there is another aspect to infrastructure provision which is no less important in the development of a modern economy such as Australia's.

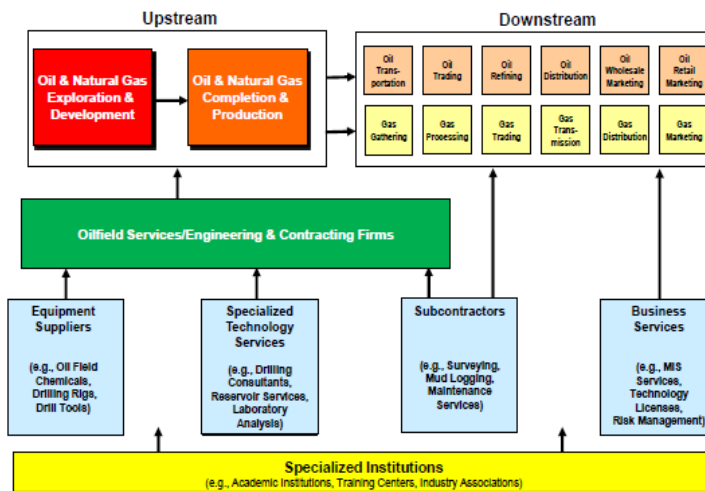
A major feature of modern economies is the formation of major networks of interrelated firms and institutions, or 'clusters'. As defined by Porter, these are geographic concentrations of firms, suppliers, support services, specialised infrastructure, producers of related goods, and specialised institutions (for example, research institutions, education and training programs, and business associations) that arise in particular fields in particular locations (Porter 2007). Industry clusters have also been defined as geographic concentrations of competing, complementary, or interdependent firms and industries that do business with one another, or have common needs for talent, technology and infrastructure (Munnich, et.al. 1999). Cluster members may compete directly or may provide inputs or buy outputs from other members.

There are many successful cluster developments around the world. Examples of three US clusters are shown below in Figure 5.

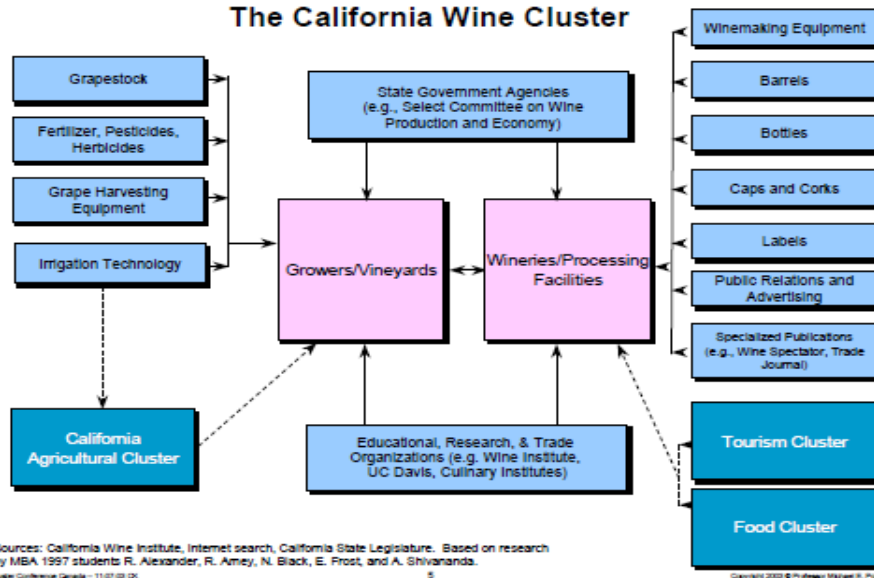
**Figure 5: Examples of Cluster Interrelationships**



### Example: Houston Oil and Gas Cluster



### The California Wine Cluster



Source: Porter, 2003; 2011

Examples of fledgling clusters in Australia include those based on the life sciences and mining technology services and equipment suppliers.

Clusters as economic units differ from sectors (such as agriculture, manufacturing, tourism, or resources), or industries (such as coal mining, sugar production, or hospitality).

The firms and institutions located within a cluster benefit from positive externalities and spillovers from their physical proximity and common purpose. According to Porter, there is growing statistical evidence that regions with strong clusters tend to achieve greater innovation, productivity and economic growth. They transact more efficiently, share technologies and knowledge more readily, operate more flexibly, start new businesses more easily, and perceive and implement innovations more rapidly. They can also more efficiently access pools of specialised skilled employees, specialised infrastructure, and technological knowledge (Delgado, Porter, and Stern 2010a, 2010b).

In any region, there is a mix of traded and local economic activity. Local industries, such as eating establishments and public utilities, usually account for a large part of employment, but

serve mostly the local market and resident population. On the other hand, traded clusters, which produce products and services that compete with those produced by other regions and other countries, are the underlying drivers of prosperity. Traded clusters serve broader markets, and can therefore grow employment and exports well beyond local needs.

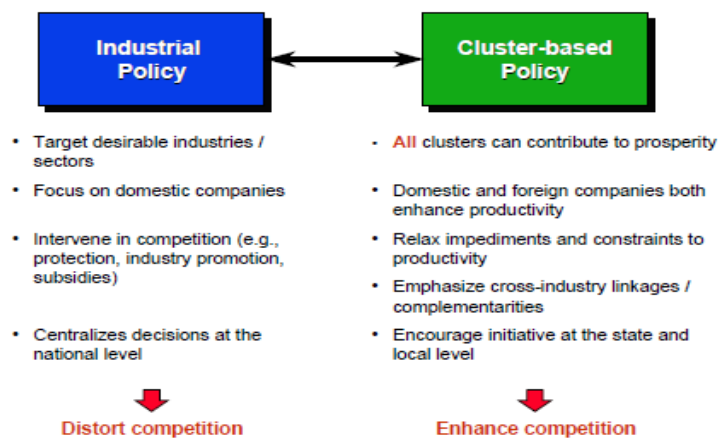
Cluster formation tends to occur spontaneously in response to market forces as new firms form, suppliers develop, infrastructure investments respond to local needs, specialised institutions grow, and established firms sited elsewhere relocate to growing clusters. The question, therefore, arises whether there is a role for public policy in this process, or should clusters be allowed to develop naturally.

Since clusters involve strong positive externalities across firms in a location, the absence of suitable market mechanisms can lead to underinvestment in specialised skills, scientific knowledge, and specialised infrastructure that benefits the entire cluster. There is, therefore, a strong rationale for public policy that brings about the infrastructure support framework (models, mechanisms, and incentives) for capturing these positive external economies while also increasing competition through lowering the barriers to entry for new firms. These policies, appropriately applied, will improve productivity and, through it, economic and employment growth.

The central challenge for policy is to create and maintain a business environment that enables companies located in a cluster relationship to achieve high and sustained productivity growth.

Cluster-based policies should aim to be neutral with respect to industry or type of economic activity. As shown in Figure 6, they are fundamentally different from sectoral or industry policies which attempt to ‘pick winners’ by focusing on particular firms, industries, or economic activities, which usually result in major inefficiencies, moral hazard, and serious economic distortions (Porter 2007).

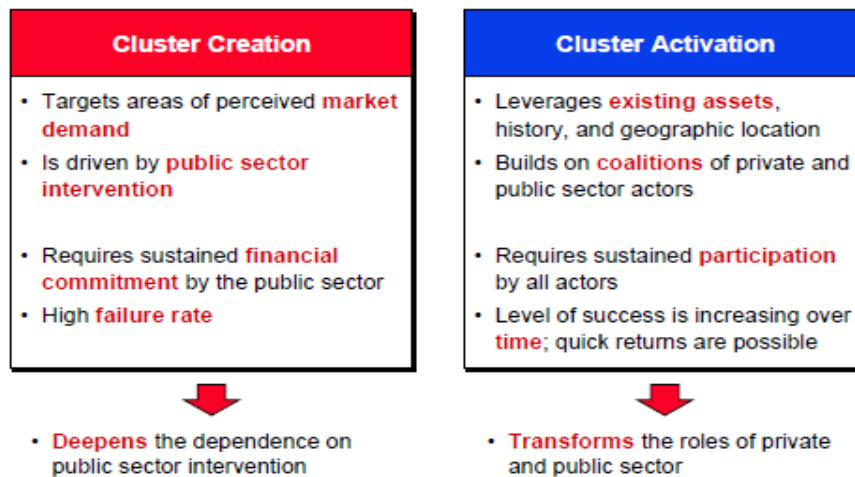
**Figure 6: Cluster Policy versus Industrial Policy**



*Source: Porter, 2003*

For similar reasons, it is also important that policies ‘activate’ clusters by leveraging existing networks of firms and institutions, rather than ‘create’ them from scratch through public sector intervention, as illustrated in Figure 7.

**Figure 7: Different Approaches to Cluster Development**



*Source: Porter, 2003*

Cluster development strategies work to improve the general business environment, provide information on business and economic trends and on specific markets, provide seminars and advice to improve business management, bring about interaction with educational and research organisations, foster business networking and inter-firm collaboration (Enright and Petty 2013).

As discussed in section 5 above, economic policy needs to be directed at the determinants of productivity improvement, and in this way enhance the international competitiveness of Australia's goods and services. The notion of clusters may provide a useful way of thinking about and channelling appropriate policy tools towards some of these productivity enhancing factors.

Cluster development initiatives have become an important means of developing regional economies and groups of small and medium-sized firms around the world. Cluster strategies have been introduced successfully in the USA, Germany, France, Sweden, Singapore, Finland, Denmark, Brazil, the UK, and numerous other countries.

The OECD has reported that policy instruments used to promote clusters generally fall into three categories: to engage actors; to develop collective services; and to support collaborative R&D (OECD 2007). A basic overview of these instruments by category is set out in Table 1.

**Table 1: Instruments promoting regional specialisation and clusters**

Goal	Instruments
<b>Engage actors</b>	
Identify clusters	<ul style="list-style-type: none"> <li>● Conduct mapping studies of clusters (quantitative and qualitative)</li> <li>● Use facilitators and other brokers to identify firms that could work together</li> </ul>
Support networks/ clusters	<ul style="list-style-type: none"> <li>● Host awareness raising events (conferences, cluster education)</li> <li>● Offer financial incentives for firm networking organisations</li> <li>● Sponsor firm networking activities</li> <li>● Benchmark performance</li> <li>● Map cluster relationships</li> </ul>
<b>Collective services and business linkages</b>	
Improve capacity, scale and skills of suppliers (mainly SMEs)	<ul style="list-style-type: none"> <li>● SME business development support</li> <li>● Brokering services and platforms between suppliers and purchasers</li> <li>● Compile general market intelligence</li> <li>● Co-ordinate purchasing</li> <li>● Establish technical standards</li> </ul>
Increase external linkages (FDI and exports)	<ul style="list-style-type: none"> <li>● Labels and marketing of clusters and regions</li> <li>● Assistance to inward investors in the cluster</li> <li>● Market information for international purposes</li> <li>● Partner searches</li> <li>● Supply chain linkage support</li> <li>● Export networks</li> </ul>
Skilled labour force in strategic industries	<ul style="list-style-type: none"> <li>● Collect and disseminate labour market information</li> <li>● Specialised vocational and university training</li> <li>● Support partnerships between groups of firms and educational institutions</li> <li>● Education opportunities to attract promising students to region</li> </ul>
<b>Collaborative R&amp;D and commercialisation</b>	
Increase links between research and firm needs	<ul style="list-style-type: none"> <li>● Support joint projects among firms, universities and research institutions</li> <li>● Co-locate different actors to facilitate interaction (<i>i.e.</i>, science parks, incubators)</li> <li>● University outreach programmes</li> <li>● Technical observatories</li> </ul>
Commercialisation of research	<ul style="list-style-type: none"> <li>● Ensure appropriate intellectual property framework laws</li> <li>● Overcome barriers to public sector incentives in commercialisation</li> <li>● Technology transfer support services</li> </ul>
Access to finance for spinoffs	<ul style="list-style-type: none"> <li>● Advisory services for non-ordinary financial operations</li> <li>● Public guarantee programmes and venture capital</li> <li>● Framework conditions supporting private venture capital</li> </ul>

Source: OECD, 2007

Cluster development, as well as industry policy in general, is now increasingly being linked to policies to create framework conditions designed to remove constraints and boost capabilities for improved productivity and competitiveness.

Although the cluster concept may be a useful way to think about identifying and developing opportunities, the success of cluster initiatives will also depend on the wider microeconomic policy environment of which they are a part. Clusters will only achieve their full potential if they are integrated in broader efforts to upgrade the microeconomic business environment.

Allied to the cluster concept is the idea of stimulating ‘ecosystems’ of start-up enterprises (particularly technology start-ups) where infrastructure support consists of co-working spaces, incubators and accelerators which provide the means for like-minded entrepreneurs

to interact and develop business opportunities supported by services such as mentoring by experienced entrepreneurs and investors, early-stage funding, education and training courses.

The services provided by the Australian Government's Entrepreneurs' Infrastructure Programme (EIP), and its complementary Industry Growth Centres initiative, have similarities to those provided in successful cluster programs developed overseas (e.g. the US Small Business Administration regional cluster initiative, the Canadian business-led network of Centres of Excellence, and the UK's Catapult Centres initiative). However, much more needs to be done in this area to reach the scale necessary to materially affect Australia's growth and development.

Although government framework policy has a role in helping the development of clusters and ecosystems, leadership in providing programmes, infrastructure elements and services is best left to the private sector, not only for reasons of ownership, relevance and sustainability, but also because cluster and ecosystem development provides a major source of opportunities for businesses, organisations, and institutions.

As the Brookings Institution has argued, clustering is a dynamic of the private economy in the presence of public goods. Cluster strategy should be aimed at supporting, connecting, filling gaps, and removing obstacles to private enterprise while ensuring that appropriate public and quasi-public goods and services are made available (Brookings 2010).

Examples of support services and infrastructure for cluster development are listed in the Appendix.

### **Policies and initiatives are mutually reinforcing**

As illustrated in Figures 8 and 9, the policies and initiatives discussed above need to act 'horizontally' across sectors through the determinants of productivity to increase standards of living in a sustainable way.

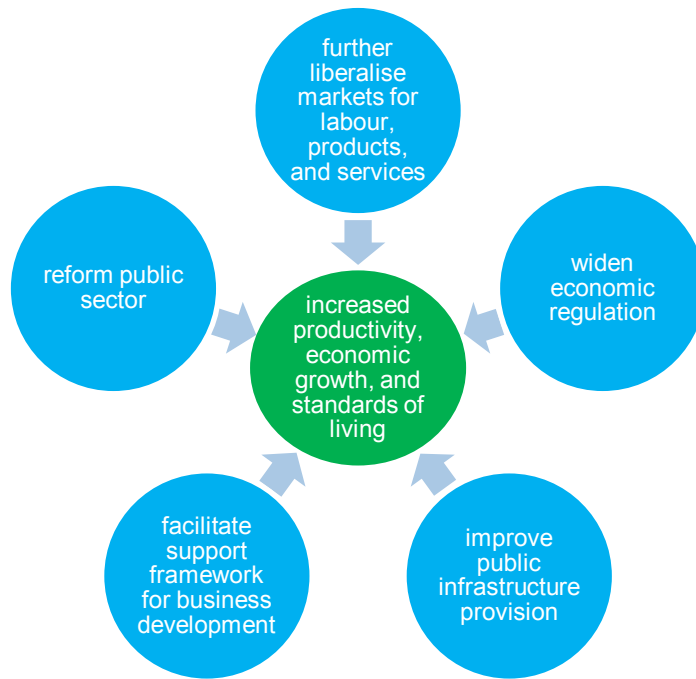
It is vital that policies for competitiveness and growth are integrated for maximum effect.

Initiatives should reinforce one another, not operate in isolation. For example, the removal of barriers and freeing up markets provides incentives for the identification and development of opportunities, while the building of suitable capabilities provides the necessary support framework for exploiting those opportunities. Public sector reform and improvements in providing public infrastructure increases efficiencies and builds capabilities, while simultaneously creating opportunities for private sector growth. Competition policy promotes the efficient use and allocation of resources. Public-private cooperation can provide a support framework for business development by facilitating the interaction, collaboration, and institutional arrangements necessary for sustained competitiveness.

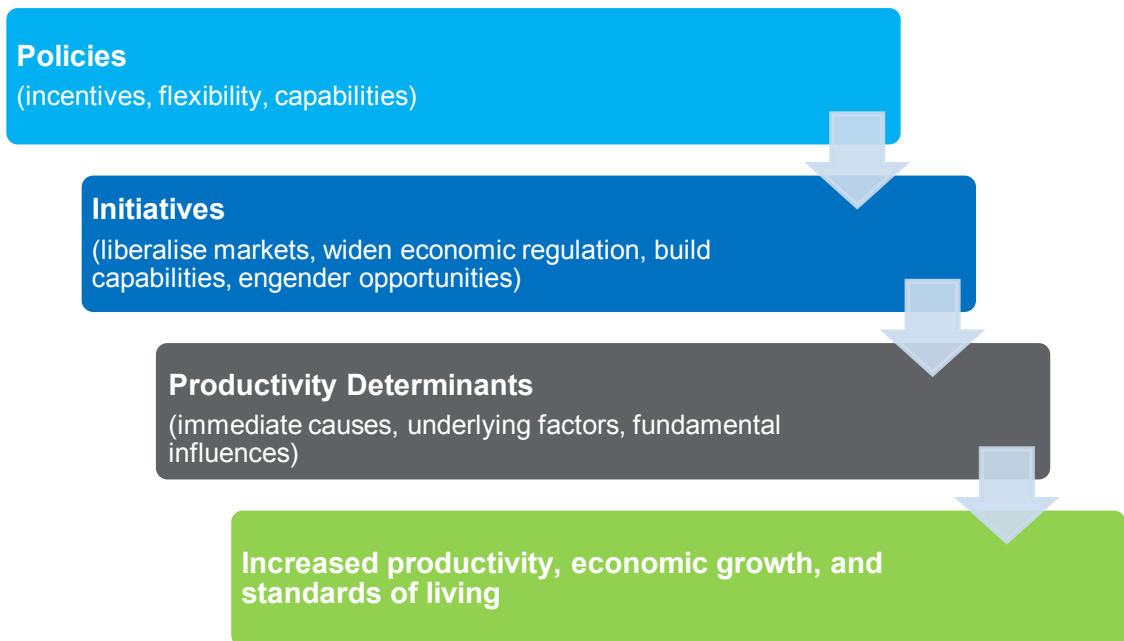
A programme of initiatives which aims to further liberalise markets without also enabling a robust framework of supporting mechanisms and institutions is likely to limit the opportunities for growth. Similarly, a programme which tries to facilitate a support framework without also promoting a business environment based on the incentives provided by competition, contestability, and openness, is unlikely to reach its full potential.



**Figure 8: Mutual Reinforcement of Initiatives**



**Figure 9: Policies and Initiatives Act Through Productivity Determinants to Increase Productivity, Economic Growth, and Standards of Living**



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## 8 ACTIVITIES TO STIMULATE BUSINESS DEVELOPMENT

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Major characteristics of Australia's businesses include the regional distribution of business activities, the high proportion of small to medium enterprises (SMEs), and the low proportion of businesses that engage in collaborative business activities and trade in overseas markets (DIISRTE 2012).

As at June 2011, 95.9% of Australian businesses were small, 3.8% medium, and 0.3% large<sup>6</sup>.

SMEs provide about 70% of private sector industry employment (small 45.7%; medium 24.3%), and contribute about 57% of private sector industry value added (small 33.7%; medium 23.4%) to the Australian economy (DIISRTE 2012).

Most innovation-active businesses in Australia experience barriers to innovation with major issues listed as difficulty accessing relevant capital, skills, knowledge and technology; cost of government regulation and compliance; and cost of introducing and developing innovations (ABS Cat. No. 8165.0).

These statistics suggest several activities where government could work with large and small businesses, organised labour, and universities and research institutions, to help unlock the potential of existing businesses and encourage the emergence of new start-up businesses, particularly for traded goods and services.

Building the capability of businesses at the same time as strengthening the operation of markets would promote sustained productivity and strengthen the economy through growth and diversification.

### A support framework for business development

Operating independently, many SMEs find it difficult to access finance, obtain useful business information and advice, undertake research and development, commercialise new ideas, and carry out marketing (particularly international marketing) activities. As noted when discussing clusters in section 7, acting collectively in these areas, by collaborating, forming alliances and combining capabilities, enables businesses to accomplish objectives that they could not achieve by acting alone.

Therefore, policies and initiatives should encourage the creation of institutions for building partnerships and facilitating collaboration among firms for the identification and development of opportunities through integrated and cooperative activities ('institutes for collaboration'). Outreach, extension, brokering and sustained mentoring should be key features of support for SME business development, particularly entrepreneurial activity. Collective investment should be encouraged in assets, models, and mechanisms that benefit many stakeholders.

A suitable support framework for businesses should include activities to:

- gather and provide useful information

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<sup>6</sup> For statistical purposes, the Australian Bureau of Statistics (ABS) defines a small business as having 0–19 employees, a medium business as having 20–199 employees, and a large business as having 200 or more employees. Micro businesses are small businesses with 0–4 employees.

- communicate policies, programmes, and the need for continuous reform to stakeholders and the wider community
- stimulate technological development and innovation
- encourage participation in international business
- foster economic policy research and development.

These activities are discussed in more detail below.

The appropriate role of government in the operation of this framework is critically important, and is discussed in section 9.

### **Obtain and provide access to relevant information**

The gathering of appropriate qualitative and quantitative information about Australia’s major groupings of interrelated firms and institutions is an essential prerequisite to aligning policies and initiatives with business needs.

Industry sectors as usually defined—agriculture, manufacturing, mining, services—and the information gathered and reported on them do not adequately address modern economic and business needs.

Significant difficulties can arise in using existing government data for policy development because the definition and measurement of business activities may not align with the analyses required for cross-sectoral and knowledge-based activities, or cluster development and participation in global value chains.

The modern Australian economy is increasingly characterised by cross-industry interdependencies as firms and institutions interact across the boundaries of industry sectors, and the categories within sectors, as usually defined. For example:

- many value-added manufacturing activities are linked to the agriculture, forestry, and fishing sector—for example, food processing; timber and paper products; textiles, clothing, and footwear
- the mining and energy sector is closely interrelated with manufacturing activities such as the processing and refining of resources to produce chemicals, plastics, metals; and with mining equipment, technology and services (METS) activities
- construction is closely associated with providing the infrastructure needed by the resources industries
- many interrelated service categories intersect to provide tourism products—for example, accommodation; road, rail and air transport services; food and beverage services; travel services
- public and private education, R&D institutions, and professional, business and consulting services, provide skills and knowledge inputs to all sector categories.

Porter’s cluster mapping methods, and new industry mapping approaches being developed at QUT, should be used to provide more detail of the workings of the Australian economy.

In addition, more information is required about the factors that initiate, hinder, and facilitate the process of developing existing, and creating new, businesses. Studies such as the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) being conducted by the Australian Centre for Entrepreneurship Research at the Queensland University of Technology is likely to assist here.

Access to this type of information will markedly increase the efficiency of private sector investment, and foster business formation by capitalising on group capabilities.

It is important that government, industry and relevant institutions collaborate closely to develop a coordinated and coherent data collection and access process that is pertinent to business and economic development needs.

### **Establish a communication program**

Economic development issues are complex and interdependent. Leadership from the top of government is needed to articulate and explain a conceptual framework for growth and shared prosperity and advocate the ways and means for its adoption. Unless this is done, it is much easier for special interests to isolate important issues and influence outcomes in a counter-productive way.

A well-structured communication program should be established to engage business and industry stakeholders, and the wider community, in the process of economic development.

Program components should include:

- a public awareness and education program where political leaders and policy makers can regularly detail the goals and advantages of policy directions, provide information and analysis, involve the public by seeking input and feedback, and establish community recognition of the need for continuous reform. Regular Prime Ministerial television presentations explaining the nature and purpose of economic policy developments to the wider community would be particularly effective in this regard.
- forums, events, and other exchange opportunities (sponsored by government, industry associations or tertiary institutions), to identify business needs and opportunities, and challenges to and opportunities for economic and productivity growth. Local and overseas experts and business leaders should be sponsored to ‘headline’ or contribute to these events. Tapping into existing programs that have established a strong following and network base would be worth considering (for example, CEDA’s events program)
- outreach and extension activities to understand and address local constraints to productivity growth, and to identify gaps and weaknesses in public policy.

### **Activities to stimulate innovation**

Hindle 2009 defines innovation as the combination of invention and entrepreneurship to create new economic value for defined stakeholders.

In turn, he defines invention as the application of skill and inspiration to produce new knowledge, and entrepreneurship as a three-phase process (opportunity evaluation, commitment, and management) that transforms the potential value of new knowledge into actual value.

While invention (which blends knowledge and creativity) is an important component of the innovation process, even more important is the capability to transfer the potential value of new knowledge into realised economic value (that is, entrepreneurship).

McKinsey has suggested a number of actions to promote entrepreneurship by creating a supportive environment, financing enterprise from inception to critical size, and fostering an entrepreneurial culture (McKinsey 2011). These initiatives, together with other suggestions and examples, include:

- foster increased collaboration and cooperation between universities and business, and between established companies and entrepreneurial start-ups. For example, through

industry associations, encourage large companies and universities to form partnerships with startup enterprises, and to sponsor startup accelerator initiatives.

- through industry associations, encourage large companies to use their purchasing policies to help SMEs. For example, even where large companies may not wish to directly invest in technology development, they could commit to purchase the technology should it be successful. This could help SMEs access other funding sources such as venture capital.
- establish, with industry, programs for the development of relevant secondary, tertiary, and vocational education curricula, and encourage a better alignment between educational courses and local skills requirements (secondary and higher education, and vocational training)
- encourage educational partnerships in science, technology, engineering and mathematics (STEM) fields with industry participation through corporate internships, mentoring, and real-world research projects
- ensure a stable, simple regulation and taxation environment to maximise opportunities for growth. For example, redesign tender processes to make it easier for SMEs to apply for government work; simplify procedures for grant applications; make it easier for highly skilled migrants (e.g. top computer science graduates) to obtain visas.
- encourage the availability of financing for each stage of enterprise development (seed, start-up and expansion), and encourage the development of equity markets dedicated to high-potential SMEs, in order to support the growth of entrepreneurial ventures
- foster the development of targeted educational programs to boost the attractiveness of entrepreneurship, and stimulate an entrepreneurial mindset in the business community and general population
- encourage industry and academia to further support the development of entrepreneurial infrastructure including local centres of entrepreneurship and the ecosystems for business start-ups
- stimulate the further development of industry-relevant research and development activities in both higher-education institutions and industry. It is noteworthy that only 30% of Australian researchers are employed in the business sector by contrast with 80% in the US, 64% in Switzerland, and 70% in Japan (Office of the Chief Scientist 2013). Overseas evidence suggests stronger collaboration between universities and the business sector would likely result were higher numbers of researchers employed in the private sector in Australia.
- encourage an expansion of linkages between publicly-funded research organisations and industry to undertake collaborative applied industrial research and development
- encourage universities to provide incentives for their researchers to engage with business—for example, through their performance and promotion criteria, and by rewarding strategic collaboration with industry
- stimulate formal relationships between Australian and overseas research agencies and institutions (including multilateral R&D collaborations), particularly in areas such as geosciences and mining, agricultural sciences, and health and life sciences. Australia's research must be globally connected to reach the scale necessary to maximise its contribution to productivity and economic growth.

Australia should closely examine examples of world-class support infrastructure for innovation as a source of ideas for augmenting local innovation activities. Examples are listed in the Appendix.

### **Activities to stimulate technology transfer, diffusion and adaptation**

Specific measures that have been suggested for improving the transfer and absorption of technology include<sup>7</sup>:

- awareness-building and technology demonstration:
  - increase the knowledge of potential technology users about available technologies, possible applications, and benefits and costs (for example, through benchmarking services, facility visits, or technology demonstrations)
  - provide opportunities for SMEs to continuously learn about new technology developments and opportunities (for example, membership of learning groups and associations, attendance at exhibitions or seminars, and exchanges of personnel).
- information search and referral services:
  - improve the information resources available to firms, including information about technology trends and opportunities
  - reduce the information search costs associated with technology transfer and diffusion by adding value to information requests and matching user needs with appropriate resources.
- technical assistance and consultancy:
  - help firms identify expert services to assess business problems, identify opportunities to upgrade technologies and business practices, and assist in implementation
  - assist firms to develop longer-term technology upgrade paths, in the context of broader business plans; obtain in-plant technical assistance and problem solving; and commercialise new technologies through assistance with pilot production, marketing, and procurement.
- training—measures to increase education, training and expertise to understand, absorb, operate, and improve technology within SMEs, including on-the-job training, classroom training, management seminars, team-building workshops, and on-line learning
- collaborative research and technology projects—establishment of collaborative arrangements and institutions to focus research on key business needs and opportunities, and reduce the time to commercialise innovations
- personnel exchange and support of R&D personnel—measures to support the secondment of personnel (particularly from SMEs) to technical centres or other businesses to learn about new technologies or participate in cooperative R&D activities
- financial support—mechanisms and instruments to reduce constraints, increase opportunities, and stimulate financial innovation to improve access to financial resources, particularly for SMEs developing or adopting new technologies

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<sup>7</sup> For example, see Shapira, 1996.

- cluster measures—mechanisms and arrangements to promote technology transfer and adoption by strengthening organisational capabilities and linkages within particular regions and industries, and across industries. These measures aim to improve links between technology developers and users through physical proximity, availability of specialist expertise and skilled personnel, and shared access to equipment and facilities such as applied technology centres and hubs for information exchange, meetings, training, and exhibitions.

Australia should closely examine overseas experience in the successful use of infrastructure and programmes for the transfer and assimilation of technology, including hubs and clusters, for potential adaptation to local circumstances. Examples are listed in the Appendix.

### **Activities to encourage participation in international business**

Recent research by international agencies has identified several international business developments that have important implications for policies aimed at increasing productivity and economic growth.

Of particular importance is the observation that world trade, investment and production are increasingly organised around global value chains (GVCs) (OECD 2013; OECD, WTO and UNCTAD 2013).

A global value chain involves all the activities that firms engage in, at home or abroad, to bring a product to the market, from conception to final use (OECD 2013). These activities include research and development, design, production, marketing, logistics, distribution, and customer support.

The development of GVCs has led to several important outcomes.

Firstly, trade and production are becoming more fragmented and complex as technological progress (for example, in transportation logistics and information and communication technologies) has rapidly increased the interconnectedness of economies. For example, more than 50% of the world's manufacturing imports are intermediate goods (primary goods, parts and components, and semi-finished products), and more than 70% of the world's services imports are intermediate services, such as business services. Exports increasingly include value-added imports from abroad which are then further processed in partner countries. For example, depending on country, between 30% and 60% of G20 countries' exports comprise intermediate inputs traded within GVCs. In addition, the average services content of exports of G20 countries exceeds 40%.

Secondly, GVCs have resulted in increased specialisation as firms and countries undertake specific functions and tasks that collectively constitute a GVC. Networks of global buyers and suppliers have arisen which are largely controlled and co-ordinated by multinational enterprises (MNEs).

Thirdly, although the expansion of the operations of MNEs through foreign direct investment (FDI) has been the major driver of the growth of GVCs, SMEs increasingly play an important role particularly in the domestic part of the value chain where they are involved in the production of inputs that ultimately reach foreign customers through exports. SMEs also now participate in activities such as cross-border partnerships, sub-contracting, foreign investments, and technical and commercial cooperation (DHL Express 2013).

By building efficient value chains across firms and locations, firms can increase their competitiveness and productivity by sourcing inputs from lower-cost or more efficient producers; outsource production to benefit from the economies of scale and scope that specialised suppliers can provide; increase access to foreign markets; and gain access to

strategic knowledge assets (such as skilled workers, universities, research centres, etc.). Proximity to competitors and suppliers can also help firms learn from others and facilitate collaboration.

In view of the above developments, it is important that Australia's trade and investment policies focus on the increased competitiveness and productivity attainable from further participation of its businesses in GVCs.

It is no longer sufficient to focus international business policies solely on traditional exporting and importing. As discussed above, trade and investment have become much more sophisticated and differentiated business activities.

Many of the policy measures required to stimulate greater internationalisation of business have parallels to those discussed above in relation to technology transfer and absorption and, in many cases, complement those measures. For example:

- raise awareness of increased market opportunities available through improved technologies and techniques (such as cheaper communications technologies and more efficient logistics services), including case studies of successful international business activities—in particular, examples should be made and publicised of local entrepreneurs who have been successful in internationalising
- improve availability of, and access to, relevant information and referral services. Examples of relevant information and services include: market intelligence; information on foreign standards and regulations, tax, and finance; engagement with potential foreign partners; establishing a foreign customer base; trade clearance procedures; time, cost, and reliability of export and import supply chains.
- strengthen international linkages between national and regional hubs of relevant information flows
- stimulate the provision of targeted and quality business support services to assist SMEs access facilities, services and advice needed to internationalise their activities. Areas in which SMEs often seek outside support include: technology-related issues; product standards; training programs directed at international business activities; legal (including intellectual property), accounting, finance and marketing services.
- encourage the building of partnerships or arrangements with leading global value chain multinational enterprises (GVC MNEs). Inclusion of local SMEs in the supply chains of MNEs, and their resultant (indirect) involvement in exporting activity can lead to significant diffusion of technology and more efficient business models, thereby raising the international competitiveness of SMEs.
- support the special financial needs of internationalisation
- strengthen cluster and ecosystem measures (interaction, collaboration, institution-building, etc.)
- encourage the creation of support and cooperation networks (cross-sector and cross-border) in which entrepreneurs can come together for advice and mutual support as an opportunity for shared learning about successes, failures and best practices
- improve skills and training relevant to international business activity, including foreign language training. In particular, programs focused on developing the international orientation of leaders and key decision makers in SMEs as part of the strategic planning



and management of these organisations is likely to prove very valuable (Lloyd-Reason *et al.* 2004; European Commission 2007).

- foster an entrepreneurial and international mindset among students in high schools, technical training colleges, and universities. For example, formalise entrepreneurship as part of curricula, and target training programs for groups of entrepreneurs focused on development of international business management capabilities.
- remove barriers and unnecessary regulation that impede or restrain internationalisation of SMEs.

Australia should closely examine overseas experience in the successful use of infrastructure and programmes that support the internationalisation of enterprises (in particular, SMEs), for potential adaptation to local circumstances. Examples are listed in the Appendix.

### **Activities to stimulate economic policy research and development**

Australia would benefit from the establishment of institutions which focus on the development of ideas for advancing the economy. Ideally these would be sponsored through collaborative arrangements between industry and academia, and would provide an authoritative and independent source of information and advice to the community.

The role of government should be to:

- encourage the development of institutes for strategy and policy development (corporate and government) focusing on international competitiveness, productivity and economic growth, including linkages with relevant centres of expertise in these areas in Australia and overseas
- stimulate research and analysis into appropriate policies and programs for productivity improvement (corporate and government), including development of technology (invention, transfer, absorption, adaptation), entrepreneurship, internationalisation, and options for the provision of physical and ‘soft’ infrastructure
- promote the strengthening of skills in the above areas through educational and professional development opportunities.

Examples of centres of expertise in economic policy research and development are listed in the Appendix.

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## 9 NATURE OF GOVERNMENT INVOLVEMENT

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The private sector is the engine of productivity improvements and economic growth. However, governments (Commonwealth, States and Territories) play a central role in shaping the conditions for private sector success in areas such as planning; taxation and regulation; competition policy; education and training; trade and investment; Commonwealth–State relations; provision of core public services and infrastructure; and wider social and environmental policies. Moreover, the role of government is important in dealing with the structural adjustment issues associated with ‘creative destruction’.

An approach to economic development policy that is consistent with this reality is for government to provide an institutional framework which promotes internationally competitive behaviour by reducing impediments and increasing incentives; provides relevant and efficient public services; and helps the private sector build the capability it needs to sustain productivity improvements and economic growth.

This approach is consistent with the two strands—endogenous and evolutionary—of new growth theory. Both strands stress that economic growth is largely an endogenous process, but one in which government has a crucial role to play. For endogenous growth theory, the role of government is to compensate for ‘market failures’ whereas for evolutionary growth theory the role of government is wider in the sense of helping to mitigate the uncertainties in making rational economic decisions.

As noted in section 6, recent reports have stressed the need for Australia to further liberalise its economy and embrace global opportunities, and have made suggestions on how this could be done.

It is important that obtaining community support for a general consensus on policies for economic growth and shared prosperity is treated as a high priority by governments so that Australia’s living standards continue to improve.

As stressed in section 7, these policies need to include complementary initiatives and programmes for market liberalisation and the building of capabilities.

In relation to building capabilities, subject to overall government policies and the provision of certain core services and infrastructure by governments, the private sector should lead in providing business development programmes, infrastructure elements and services because<sup>8</sup>:

- private sector organisations are in the best position to respond to market signals and incentives, and growth opportunities
- business leaders often have the skills and ability to assemble the resources needed to undertake large, complex problems with multiple constituencies and sustain them through election cycles
- economic infrastructure and services provided by the private sector are more likely to be relevant to the on-going and changing needs of businesses—for example, trade and industry associations can assist private service providers upgrade their capabilities leading to greater involvement by SMEs in knowledge-based and international activities

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<sup>8</sup> The important role of business in building capabilities, particularly at the local level, is discussed in Mills 2015.

- the activity of providing economic infrastructure and services itself provides a major source of opportunities for businesses, and associated organisations and institutions—for example, start-up accelerators and incubators
- it is more likely that relevant economic development initiatives and programmes will be sustained if led and managed by those with a commitment to, and an inherent interest in, successful business and economic outcomes
- business development programmes that are no longer relevant due to changed circumstances will cease to operate through the process of ‘creative destruction’
- economic infrastructure and services would be provided in the most economically efficient way, with minimal financial commitment and risk to the community through its government.

Some government support may be necessary to help establish and sustain capability-building initiatives—for example, seed capital and loan guarantees; contributions towards assessments and feasibility studies; specialist consulting support; targeted information, awareness and communication programs; and strategic assistance to bring about institution building and collaborative arrangements, including shared funding arrangements.

However, public resources should be found by reprioritising existing programmes, rather than sourcing additional public contributions, and should be provided only after a thorough analysis of needs and benefits and costs. As appropriate, public funds should be supplied on a contestable or franchise basis to qualified private or institutional providers.

The private and public resources needed for business development initiatives and programmes must have the scope and scale necessary for success. Small, fragmented programmes are usually of limited benefit and are difficult to sustain.

### Institutionalising support mechanisms and programmes

Suggested institutional concepts include:

- agencies of government to act as brokers, convenors, and catalysts in facilitating linkages for economic development by working with leading individuals in business, education, research, and policy development. Where appropriate, employ working groups led by industry to pursue targeted agenda. Examples include Innovate UK (Technology Strategy Board) and the Massachusetts Technology Collaborative.
- institutional support for potential industry clusters which build on existing and emerging strengths (for example: food and agribusiness; resources including mining equipment, technology, and services (METS); life sciences, medical technologies, and pharmaceuticals; information and communication technologies). Examples include the regional innovation clusters programme supported by the U.S. Small Business Administration and the U.S. National Network for Manufacturing Innovation (NNMI).
- more participation by private sector intermediaries and agents to address the constraints to business start-ups and growth including barriers to interaction and collaboration among businesses (particularly SMEs), and between businesses and research organisations. Examples include technology intermediaries such as accelerators and incubators, and the UK Catapult Centres; providers of services including technology, education and training, and business and finance (including international business).

- greater involvement by large businesses and industry associations in providing funding, and other support for the mechanisms, ecosystems, and institutional infrastructure needed for economic development
- economic development infrastructure provided by the private sector, for example: technical and entrepreneurial education organisations (including specialised private universities), industrial research and innovation institutes, technology development and transfer facilities, centres for coordinating internationalisation activities
- economic policy research and development centres to focus on ways to advance Australia’s economy—for example, establish a partnership between industry and universities for an Australian Institute for Productivity and Economic Growth.

### Assess existing support framework

An assessment of the nature of government involvement should also include a critical examination of existing economic and industry assistance policies to assess the suitability and quality of support infrastructure, organisations, and programs. This assessment should encourage input from firms and institutions to maximise the benefit of their expertise and experience with government industry assistance programs.

Overlaps between State and Commonwealth industry assistance programs should be identified as part of this process.

Policies and programs that warrant continuation should be assessed to determine the extent to which they would be better administered, with appropriate modifications, by the private sector.

The ultimate objective of public policy is to improve the wellbeing of the community in economic, social and environmental terms. To do this it is not sufficient to focus policy solely on the equitable sharing of the nation's resources. For sustained improvements in shared prosperity it is vital to grow the nation's resources. Policies conducive to economic growth are, therefore, of central importance in raising standards of living, both material and non-material. Relatively small sustained increases in growth can make a large difference to a society's prosperity over the long run.

Modern developments in economic growth theory have identified sustained improvement in productivity as the main factor in determining long-run economic advance.

Productivity growth stems from a complex interaction of factors that include research and development, innovation, entrepreneurship, development of human capital through education and training, organisational change, industry restructuring and resource reallocation, and economies of scale and scope.

In addition, an economy's laws, government policies, and political and economic institutions are of fundamental importance for achieving productivity improvement and economic growth because they shape the economic environment in which firms produce and transact. An economy which provides incentives through competitive pressures and openness to trade and investment, and favours production and investment in capital, skills and technology will prosper compared to one in which incentives are dampened by high taxes, unnecessary regulation and other market impediments, and lacks infrastructure which supports the development of capability.

In formulating and implementing economic growth policies it is important to appreciate that the factors that influence productivity improvements and economic growth do not operate in isolation. For example:

- The incentive provided by competition or contestability is often necessary to bring about beneficial changes in organisations and management practices, or adoption and development of new technologies.
- Openness to trade and investment can stimulate access to new technologies and management expertise, and provide benefits of scale and scope through access to new or expanded markets.
- High quality education and training, which is internationally competitive, is essential for building knowledge and growing human capital.
- Appropriate policy settings and institutions are needed to ensure direction and stability for the investments in human and physical capital, and the research, development and innovation required for sustained growth.

The simultaneous liberalisation of markets, building of appropriate capabilities, and engendering opportunities can be a powerful approach to economic policy which would yield major economic benefits, including a strengthened fiscal and monetary position, improved productivity of public and private sectors, raised private sector growth and development, and increased employment opportunities.

A number of initiatives and actions have been suggested in this primer, including:

- further liberalise markets for labour, products and services
- remove barriers to legitimate business activity
- broaden the application of competition policy and economic regulation to increase the incentives provided by competition and contestability
- improve the productivity, effectiveness, and efficiency of the public sector
- increase the productivity of providing physical infrastructure by improving the selection, operation, and delivery of projects
- encourage the development of ‘soft’ infrastructure which supports innovation and entrepreneurship, provision of venture capital, technology transfer and diffusion, and internationalisation of business activities. Support capabilities would include mechanisms and programs that enable increased cross-sectoral interaction, co-ordination, and collaboration to bring knowledge-based capital to businesses and develop the policies and programmes needed for economic growth and shared prosperity.

It is suggested that, to the extent feasible, the necessary support framework should be engendered and guided by government policy, not provided directly by it. Provision of the soft infrastructure framework mainly by the private sector will provide opportunities for businesses and institutions, while ownership of the activities will provide incentives for positive and sustained performance.

Australia’s market-opening and national competition reforms since the 1980s have removed numerous entrenched inefficiencies from the economy resulting in many benefits and providing ongoing incentives for productivity improvement.

At present, the Commonwealth Government is considering or introducing further reforms aimed at increasing the sustainability of major expenditure programmes, rationalising and consolidating assistance programmes, making greater use of market mechanisms and technology in the provision of government services, increasing the efficiency of public administration, and extending the ambit of competition policy. In addition, the preparation of several policy (‘white’) papers is expected to lead to major reforms in areas such as operation of the Federation, Australia’s tax system, development of Northern Australia, and increased competitiveness and productivity of the agricultural and energy sectors.

However, much more needs to be achieved by further microeconomic and knowledge-based policy reforms as evidenced by Australia’s international competitiveness rankings (22nd place on the World Economic Forum’s 2016–17 global competitiveness index (WEF 2016); 17th place on the 2016 global index rankings of Switzerland’s Institute for Management Development (IMD 2016); and 19th place on the 2016 global innovation index rankings of France’s European Institute for Business Administration (Cornell, INSEAD, and WIPO 2016)).

A commitment to innovative policies for economic growth and diversification would lead to a major competitive advantage for Australia as a favourable environment for investment and business activity.

### Examples of capability-building infrastructure

There are many examples around the world and in Australia of ‘soft’ infrastructure which successfully improves the capability of enterprises to innovate, commercialise, and internationalise; and which supports economic policy research and development.

The following examples comprise important contributors in these areas, but are far from a complete list.

### Examples of infrastructure and services which support innovation, entrepreneurship, technology transfer and assimilation

- Institute for Business Innovation, University of California, Berkeley (incorporating the Garwood Center for Corporate Innovation and the Lester Center for Entrepreneurship) <http://businessinnovation.berkeley.edu/>
- MIT Industry Collaboration (incorporating Industrial Liaison Program, the Deshpande Center for Technological Innovation and the MIT Entrepreneurship Center) <http://web.mit.edu/industry/industry-collaboration.html>
- Massachusetts Life Sciences Centre <http://www.masslifesciences.com/>
- Cambridge-MIT Institute <http://www.cmi.cam.ac.uk/>
- Cambridge University (The Cambridge Cluster, Cambridge Enterprise, Centre for Entrepreneurial Learning) <http://www.cam.ac.uk/research/innovation-at-cambridge/the-cambridge-cluster>
- UK Imperial College (Imperial Corporate Partnerships, Imperial Consultants, Imperial Innovations) <http://www.imperial.ac.uk/>
- Massachusetts Technology Collaborative (including the Innovation Institute) <http://masstech.org/>
- Harvard University (Harvard Innovation Lab, the Technology and Entrepreneurship Center) <https://i-lab.harvard.edu/>; <http://tech.seas.harvard.edu/>
- Stanford University (Industrial Affiliate Program, Center for Entrepreneurial Studies) [http://corporate.stanford.edu/affiliate\\_programs.html](http://corporate.stanford.edu/affiliate_programs.html); <http://www.gsb.stanford.edu/ces>
- University of Maryland (Academy for Innovation and Entrepreneurship, Dingman Center of Entrepreneurship) <http://innovation.umd.edu/>; <http://www.rhsmith.umd.edu/centers-excellence/dingman-center-entrepreneurship>
- NorTech (Ohio USA) <http://www.nortech.org/>
- Ben Franklin Technology Partners (Pennsylvania USA) <http://benfranklin.org/>
- National University of Singapore Entrepreneurship Centre <http://enterprise.nus.edu.sg/>
- Centre for Business Innovation (Conference Board of Canada) <http://www.conferenceboard.ca/cbi/default.aspx>
- U.S. National Network for Manufacturing Innovation (NNMI) <http://www.manufacturing.gov/nnmi.html>

- UK Catapult Centres <https://www.catapult.org.uk/>
- Innovate UK (Technology Strategy Board) <https://www.gov.uk/government/organisations/innovate-uk>
- Fraunhofer Society (Germany) <http://www.fraunhofer.de/en.html>
- Inter-University Micro Electronics Centre (IMEC) (Belgium) [http://www2.imec.be/be\\_en/about-imec.html](http://www2.imec.be/be_en/about-imec.html)
- The Holst Centre (the Netherlands) <http://www.holstcentre.com/>
- European Commission's Competitiveness and Innovation Framework Programme <http://ec.europa.eu/cip/>
- Alpha Strauss FoodTech network in Israel <http://www.alphastrauss.com/>
- CSIRO industry engagement <http://www.csiro.au/Portals/Partner/Industry.aspx>
- National ICT Australia (NICTA) Centre of Excellence <http://www.nicta.com.au/>
- Mondelez International Food Innovation Centre, Melbourne <http://www.mondelezinternational.com.au/about-us/innovation>

#### **Examples of support services and infrastructure for cluster development**

- The Competitiveness Institute (TCI) <http://www.tci-network.org/>
- Massachusetts Technology Collaborative <http://masstech.org/>
- The Cambridge Cluster <http://www.cam.ac.uk/research/innovation-at-cambridge/the-cambridge-cluster>
- San Diego Life Sciences Cluster <http://www.sandiegobusiness.org/industry/lifescience>
- Institute for Strategy and Competitiveness — cluster mapping (Harvard Business School) [http://clustermapping.us/?utm\\_source=October+3%2C+2014+U.S.+Cluster+Mapping+newsletter&utm\\_campaign=US+Cluster+Mapping+Email+Newsletter&utm\\_medium=email](http://clustermapping.us/?utm_source=October+3%2C+2014+U.S.+Cluster+Mapping+newsletter&utm_campaign=US+Cluster+Mapping+Email+Newsletter&utm_medium=email)
- European Cluster Observatory (European Commission) <http://www.clusterobservatory.eu/index.html>
- European Cluster Alliance <http://www.eca-tactics.eu/eca/about>
- Institute for Competitiveness and Prosperity (Canada) <http://www.competeprosper.ca/>
- US Small Business Administration regional cluster initiative [https://www.sba.gov/about-sba/sba\\_initiatives/clusters\\_initiative/about\\_the\\_clusters\\_initiative](https://www.sba.gov/about-sba/sba_initiatives/clusters_initiative/about_the_clusters_initiative)
- US National Network for Manufacturing Innovation <http://www.manufacturing.gov/nnmi.html>
- Australian Cluster Observatory (University of Adelaide) <http://www.adelaide.edu.au/news/news75482.html>

Services provided by the Australian Government's Entrepreneurs' Infrastructure Programme (EIP), and its complementary Industry Growth Centres initiative, have similarities to those provided in successful innovation programs developed overseas (e.g. the US Small Business Administration regional cluster initiative, the Canadian business-led network of Centres of



Excellence, and the UK's Catapult Centres initiative). EIP offers advice and support to SMEs to help them boost productivity and growth. Services offered include business evaluations, supply chain facilitation, business growth services and grants, research connections, and assistance at accelerating commercialisation. Industry Growth Centres provide opportunities for industry-led activities to transition industries to higher value products and services in areas of competitive strengths.

### **Examples of infrastructure and services which help businesses internationalise their activities**

- government agencies — such as Austrade (EMDG, EFIC, TradeStart) <http://www.austrade.gov.au/>; US International Trade Administration <http://trade.gov/>
- industry, business and professional associations — for example, Export Council of Australia <http://www.export.org.au/eca/homepage>; the various Australian peak industry groups (e.g. Australian Chamber of Commerce and Industry, and associated networks <http://www.acci.asn.au/>); Finland's KiVi project [http://ec.europa.eu/enterprise/policies/sme/files/charter/conf2008/p69640\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/files/charter/conf2008/p69640_en.pdf); the World Trade Centers Association <https://www.wtca.org/>; AHK (the Worldwide Network of German Chambers of Commerce) <http://www.ahk.de/en/about-ahk/ahk-partners-in-germany/>, <http://australien.ahk.de/en/>; the European Commission's Enterprise Europe Network <http://een.ec.europa.eu/>; BusinessEurope <http://www.business europe.eu/Content/Default.asp>; US Chamber of Commerce <https://www.uschamber.com/>; Singapore International Chamber of Commerce <http://www.sicc.com.sg/>; Japan Chamber of Commerce and Industry <http://www.jcci.or.jp/home-e.html>; China Chambers of Commerce [http://www.chinachamber.org.cn/web/c\\_0000000200020001/](http://www.chinachamber.org.cn/web/c_0000000200020001/).

### **Examples of local and overseas centres of expertise in economic policy research and development include the following:**

- the Australian Productivity Commission <http://www.pc.gov.au/>
- Australian professional academies, associations, think tanks, and services firms which release informative reports from time to time on Australia's economic circumstances and prospects — for example: Australian Council of Learned Academies (ACOLA) <http://www.acola.org.au/>; Regional Australia Institute <http://www.regionalaustralia.org.au/>; Grattan Institute <http://grattan.edu.au/>; Lowy Institute <http://www.lowyinstitute.org/>; Centre for Independent Studies (CIS) <http://www.cis.org.au/>; Committee for Economic Development of Australia (CEDA) <http://www.ceda.com.au/>; CPA Australia <https://www.cpaustralia.com.au/>; McKinsey Australia [http://www.mckinsey.com/global\\_locations/pacific/australia](http://www.mckinsey.com/global_locations/pacific/australia); PwC Australia <http://www.pwc.com.au/>; Deloitte Australia <http://www2.deloitte.com/au/en.html>; Ernst & Young Australia <http://www.ey.com/AU/en/Home>; and KPMG Australia <http://www.kpmg.com/au/en/pages/default.aspx>
- economic policy research centres in Australian universities — for example: Crawford School of Public Policy (ANU) <https://crawford.anu.edu.au/>; Monash Business Policy Forum (Monash University) <http://www.buseco.monash.edu.au/mbpf/>; Centre for Economic Policy Research (ANU) <http://www.cepr.org/>; Centre for Applied Economic Research (UNSW) <https://www.business.unsw.edu.au/research/research-centres-institutions/applied-economic-research-centre>; South Australian Centre for Economic

Studies (University of Adelaide & Flinders University)

<http://www.adelaide.edu.au/saces/>; Melbourne Institute of Applied Economic and Social Research (Melbourne University) <http://melbourneinstitute.com/>

- international organisations and centres overseas—for example, World Economic Forum <http://www.weforum.org/>; IMD World Competitiveness Center <http://www.imd.org/wcc/>; OECD <http://www.oecd.org/>; McKinsey Global Institute <http://www.mckinsey.com/insights/mgi>; Brookings Institution <http://www.brookings.edu/>; Institute for Strategy and Competitiveness (Harvard Business School) <http://www.isc.hbs.edu/Pages/default.aspx>; US National Bureau of Economic Research (Productivity, Innovation, and Entrepreneurship Program) <http://www.nber.org/programs/pr/pr.html>; Fraser Institute (Canada) <http://www.fraserinstitute.org/>.

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