The Institute of Chartered Accountants in Australia (the Institute) is the professional body representing Chartered Accountants in Australia. Our reach extends to around 70,000 of today’s and tomorrow’s business leaders, representing approximately 57,000 Chartered Accountants and 13,000 of Australia’s best accounting graduates currently enrolled in our world-class Chartered Accountants postgraduate program.

Our members work in diverse roles across commerce and industry, academia, government and public practice throughout Australia and in 108 countries around the world.

We aim to lead the profession by delivering visionary leadership projects, setting the benchmark for the highest ethical, professional and educational standards, and enhancing and promoting the Chartered Accountants brand. We also represent the interests of members to government, industry, academia and the general public by engaging our membership and local and international bodies on public policy, government legislation and regulatory issues.

The Institute can leverage advantages for its members as a founding member of the Global Accounting Alliance (GAA), an international accounting coalition formed by the world’s premier accounting bodies. With a membership of over 800,000, the GAA promotes quality professional services, shares information, and collaborates on international accounting issues.

Established in 1928, the Institute is constituted by Royal Charter. For further information about the Institute visit charteredaccountants.com.au

Innovation Australia is an independent statutory body established, on 27 September 2007, to assist with the administration of the Australian Government’s industry programs, designed to stimulate invention in industry through research and development, commercialisation and increased availability of venture capital. Innovation Australia is an amalgamation of the former Industry Research and Development (IRD) Board and the Venture Capital Registration Board (formerly known as the Pooled Development Funds Registration Board). On its establishment, Innovation Australia assumed the roles, responsibilities and powers of the two former Boards.

Empowered by the Industry Research and Development Act 1986 the mission of Innovation Australia is: “To increase the economic return from successful technology-based enterprises in Australia by guiding the Australian Government’s investment in the commercialisation of the nation’s research and development and innovation.”

By accomplishing this mission, Australia will be: “A nation that is achieving global competitiveness through a strong culture of industry innovation.”

For further information about Innovation Australia and its activities, visit www.ausindustry.gov.au
Innovation is becoming an increasingly important factor in Australia’s long term economic prosperity as the economy undergoes significant structural change.

Confronting the challenges of structural change is a key theme of the Institute’s future[inc] initiative which highlights the long term challenges in Australia’s economic policy debates.

Innovation is key to lifting productivity in the long term and while the scale and rate of innovation will vary, it is encouraging to see a growing number of Australian businesses actively pursuing and promoting innovation.

Globalisation, technological developments and environmental challenges are prompting historic changes for business, economies and society more broadly. With lower barriers to entry into the market and higher costs for failing to innovate, we are presented with exciting opportunities as well as complex challenges.

Education will also be essential to embed a culture of innovation. It is in this regard that the Institute, in partnership with Innovation Australia, has produced this Business Briefing: 20 issues on business innovation, which seeks to provide business leaders with guidance on key issues in innovation including:

• Drivers of innovation
• Collaboration
• Embedding an innovation culture
• Asian economic growth
• Digital technology.

While principles of risk management and protection of intellectual property remain key issues with innovation, we are witnessing some important shifts in approaches marked by greater collaboration between businesses.

The Institute has collaborated with Innovation Australia whose important work supports those Australian businesses seeking to innovate. Chartered Accountants, with their advanced analytical abilities and commitment to consistently examine long-range risks and opportunities, are well placed to provide advice about the scale and rate of innovation for your business.

Our Business Briefings offer business leaders, financial professionals and advisers with guidance in navigating contemporary business challenges. Other publications in the series are available at charteredaccountants.com.au/businessbriefing

I give my thanks to Innovation Australia for sharing their knowledge and expertise with the Institute to produce this Business Briefing.

Tim Gullifer FCA
President
Institute of Chartered Accountants Australia
Chairman, Innovation Australia

Foreword

As Chair of the Innovation Australia Board and on behalf of its members, I am pleased to partner with the Institute of Chartered Accountants Australia on this Business Briefing: 20 issues on business innovation – a snapshot of the fundamental building blocks for supporting and enhancing business innovation.

As globalisation and technology drive competition, innovation is becoming progressively more crucial to business success and the broader health of our economy. Established as a development of the Industrial Research and Development Board in 2007, the Innovation Australia Board provides financial support to innovative firms.

In 2011-12, the most recent year for which we have satisfactory data, Australia recorded its highest number of businesses actively fostering innovation – at just under 50%. The increasing number of innovating businesses is good news for Australia but there remains considerable scope for improvement. Australia still has a lower proportion of innovating businesses than the EU-27 average (approximately 53% in 2010) and it is much lower than Germany, where in 2010 nearly 80% of businesses reported innovation activity.

Innovation within businesses is strongly associated with growth in productivity, staff numbers, exports and profitability.

This publication provides practical information and examples of how businesses can benefit their own shareholders and employees by embracing innovative growth strategies.

I commend this publication to you and hope it proves useful to you on your own innovation journey within your business.

Dr Nicholas Gruen
Chairman
Innovation Australia

Innovation Australia is an independent statutory body established to assist with the administration of the Australian Government’s innovation and venture capital programs designed to support industry innovation.
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### USEFUL LINKS
Introduction

WHAT IS INNOVATION?
The word ‘innovation’ refers to ‘something newly introduced’. Innovation is about applying ideas to create new solutions. This solution may be a new product, a new approach or even a new application of an old product or approach.

Business innovation is not just about the generation of new ideas, but also about execution: bringing an idea to market, making a change or doing something in a new way that generates benefits and value for the business.

It is the element of implementation that separates innovation from knowledge and invention.1

Innovation by business involves a spectrum of activities. These range from research and development, new product and service development, the introduction of improved organisational activities and other activities such as market research. The magnitude of innovation can range from radical new ideas that transform a market or an industry, to incremental changes that build on existing products or processes for just a few customers. Innovation can be new to the world or new to the business – either way it is a powerful transformative force.

There is no one size fits all model for innovation in business. This publication outlines why innovation is important and some of the options for businesses who wish to encourage and support innovation across their organisations. These are discussed under five headings:

• Understanding business innovation
• Fostering a business culture that supports innovation
• Working collaboratively
• Managing risk, intellectual property protection and accessing finance
• Future challenges and opportunities.

WHY SHOULD BUSINESSES INNOVATE?
Innovation is an important component of business operations. In 2011-12 Australia reached its highest historical percentage of businesses innovating at 46.6% of all businesses.2

It can provide cost advantages through process innovations, as well as intellectual property and opportunities for product differentiation and improvement. It drives new product development and improvements in business efficiency, and these in turn can generate increases in trade and productivity. Innovative businesses can benefit from being first to the market with new products and/or services, allowing them to establish market share and customer loyalty.

Research has shown that innovative businesses3 have a number of advantages over businesses that do not innovate. As Figure 1 shows, in Australia innovative businesses are:

• Twice as likely to be more productive
• Twice as likely to increase staff numbers
• More likely to increase profitability
• Four times more likely to increase their range of products and services.4

In 2011-12, 91% of Australian businesses undertaking some type of innovation reported benefits. Improved customer service (43%) was the most commonly reported benefit, followed closely by increased revenue (42%).5

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3. An innovative business is any business that undertook any work that was intended to, or did, result in the introduction of an innovation.
FIGURE 1: INNOVATIVE BUSINESSES COMPARED TO BUSINESSES THAT DO NOT INNOVATE – INCREASES IN BUSINESS PERFORMANCE AND ACTIVITIES, 2010-11

Understanding business innovation

1. WHAT DRIVES BUSINESS INNOVATION?

A fundamental driver of business innovation is the desire to expand and improve competitiveness, productivity and profitability. Businesses need to regularly reassess their management practices, production processes and their use of technology. The inspiration for innovative activity can come from a variety of sources including:

OUTCOMES OF SCIENTIFIC RESEARCH BOTH IN THE PUBLIC AND PRIVATE SECTORS

The development of new technologies, products and processes creates new economic and market opportunities for businesses.

CASE EXAMPLE
Audinate, a Sydney-based company developed Dante™, a hassle free, plug-and-play digital media networking technology that revolutionises the way audio systems are connected, producing pristine sound over standard information technology networks. This technology is now licensed to more than 45 companies, including Yamaha and Bosch, and is used globally in the audio visual industry.

MARKET RESEARCH AND CUSTOMER DEMANDS

Customer feedback and knowledge of changing customer preferences can lead to improvements in business processes and customer interactions. Many service innovations such as home delivery services, online ordering and ethical investment options have resulted from responses to customer feedback.

CASE EXAMPLE
The Qantas Next Generation Check-In program which allows passengers to self-manage their arrival and check-in, was developed in response to customer-driven feedback. This program has improved Qantas’ operational processes by enabling more check-ins to be processed at one time while eliminating long passenger queues and waiting times.

COMPETITORS’ ACTIVITIES

Businesses are more likely to innovate when they face competition in order to respond to changes in competitor offering and capabilities.6

Business competitiveness improves through investment in problem solving capabilities, collaborating with customers, suppliers and other businesses, adapting existing technologies and processes to new uses, and creating new solutions to satisfy customers.

CASE EXAMPLE
In the fast food industry, the introduction of healthier eating options by one fast food company led to a knock on effect of healthier fast food choices being offered to customers by most major fast food companies to maintain competitiveness and respond to customer demand.

SOCIAL AND ECONOMIC REFORMS

The introduction of reforms by governments can fundamentally alter the operating environment for businesses through changes to regulations and governing codes. Businesses maintain competitiveness by implementing new ways to respond and adapt to such regulations.

CASE EXAMPLE
A regulatory ban on single use, lightweight polyethylene plastic bags in some Australian jurisdictions (South Australia, Australian Capital Territory, Northern Territory and Tasmania) for environmental reasons has had an impact on the operating environment of local businesses. Retailers and supermarkets have adapted by providing alternative shopping bags options for their customers to purchase such as reusable cotton bags and compostable biodegradable plastic bags that are compliant with the Australian Standard AS4736.

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2. INNOVATION IS MORE THAN JUST TECHNOLOGY

It is a common misconception that innovation refers only to research and development and technology. Internationally accepted definitions consider the scope of innovation to include the implementation of new or significantly improved products, processes, marketing or organisational methods. This includes improvements to all types of operational processes within a business, such as production lines, financial systems or human resource management, as well as business model innovation (i.e. structural changes, new strategic partnerships or financial models).

Innovation may allow existing markets to evolve with better value, allowing firms to compete against and build upon each other’s improvements. This type of innovation is described as sustaining innovation. Sustaining innovation does not disrupt existing markets. Examples include: the early automobile (which was considered a luxury item and did not disrupt the horse drawn vehicle market); and fuel injection.

While sustaining innovations are typically innovations in technology, disruptive innovations can have far reaching consequences for existing markets.

Disruptive innovation explains the process by which a new product or service transforms an existing market or sector by increasing the simplicity, convenience, accessibility, and/or affordability of products and/or services thereby irrevocably changing the status quo in the market. Examples include: the mass-produced automobile; personal computers disrupting the mainframe and minicomputer market; and mobile phones disrupting fixed line telephony.

The principles of disruptive innovation can be applied across all sectors. The increasing availability of online learning and access to online courses (see issue 17) is another example.

Disruption can be a positive force, transforming sectors to make products affordable and convenient, thereby making them available to a much larger population. Such innovations challenge the conventional market through the creation of new markets. New ideas and processes also have different degrees of novelty and risk associated with implementation. The scale of change, novelty and risk classifies innovation into two main categories:

- **Radical** – leading to fundamental changes in processes or products. This usually involves new technology, high risk or uncertainty and a focus on processes, products or services that are untried or untested; or
- **Incremental** – involving smaller-scale adaptations of existing products or processes. Innovations of this type usually involve existing technology and low risk or uncertainty. They focus on improvements to existing processes, products or services and improve the business competitiveness within established markets or industries.

Radical innovation is less common than incremental innovation. A recent survey of over 2,000 Australian businesses found that 70% of innovation investment was incremental, while the remaining 30% was radical. This suggests Australian businesses are not just focussed on investment in the next generation of product or service but on ‘a more systematic approach to innovation and improvement’.

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<th>TABLE 1: EXAMPLES OF DIFFERENT TYPES OF INNOVATION</th>
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<td>PRODUCT/SERVICE</td>
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<td>Radical</td>
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<td>Incremental</td>
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9. ibid.
Understanding business innovation (continued)

3. BUSINESSES INNOVATE IN DIFFERENT WAYS

The ways in which businesses innovate and implement new ideas are changing.

Historically, innovation has commonly been practised using a ‘closed innovation’ model, particularly with regard to new technology and research and development. In recent decades there has been a shift towards a more open model that encompasses increased collaboration and partnerships.

Professor Henry Chesbrough, of the Hass Business School, University of California Berkeley, coined the term ‘open innovation’. He points out that the closed model of innovation was highly successful in the past – leading to the commercialisation of many innovations and the growth of some very large companies, such as General Electric and Bell Laboratories.11 However, it is not well suited to all types of innovative activity or to the 21st century global landscape, where information, staff and capital are much more mobile and adaptable. The contrast between closed and open innovation is illustrated in Table 2.

There are costs and benefits associated with both models. The closed model avoids complications that can arise from working collaboratively with external partners, as business relationships may be affected by changing aims, unequal bargaining power and cultural or organisational incompatibilities between the parties.

The open model can create greater efficiencies and realise opportunities that may be missed in a closed model. For example, a firm might invest a large amount of money in an idea before it realises that the innovation is not a good fit for its business. Under the closed model that idea might just be put on the shelf. An open innovation approach could see the firm establish a partnership or license its intellectual property to another party to further develop and commercialise the idea.

The open model can provide greater scope for business growth because its innovative potential is not limited to the capacity of its internal resources. The open model can also increase the scale and scope of a business’ activities, allow for costs and risks to be shared, and improve the business’ ability to deal with increasingly complex business environments.12 Collaboration is discussed in more detail in issues 7 to 10.

<table>
<thead>
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<th>TABLE 2: CLOSED AND OPEN INNOVATION</th>
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<td>Profit</td>
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<td>Collaboration</td>
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CASE STUDY: KAGGLE
Kaggle, a global data science platform, was founded in Melbourne in 2010. The company has grown into a global business, raising $US11 million in three months. Kaggle has built its business model around the principles of open innovation by offering customers ways to crowd source data analytics from a large expert network through online competitions. Many of the analyses performed by Kaggle have improved significantly on solutions that had originally been developed in-house by their clients.
Recently Deloitte announced that it was partnering with Kaggle to expand its data analytic capabilities.14

4. BUSINESS INNOVATION STRATEGY
Businesses should seek to align innovation activities with business priorities and strategy. Innovation that is misguided, not based on critical analysis, or for the sake of innovation itself, may not be in the interests of the business.15
An innovation strategy helps to clearly identify innovation objectives and inform decisions on how to best allocate resources to meet those objectives in conjunction with broader business goals.

ALIGNING BUSINESS AND INNOVATION STRATEGY
1. Define business strategy – what is the business plan? How will the business grow?
2. Define innovation strategy – how will innovation help achieve the business goals?
3. Identify appropriate innovation – where will the business focus innovation resources?
4. Implement the innovation – monitor progress and success.
Source: PricewaterhouseCoopers 2013, Breakthrough innovation and growth, p. 23.

Four broad types of innovation strategy are proactive, active, reactive and passive.16

PROACTIVE
Businesses with proactive innovation strategies tend to have a strong focus on research and technology and aim to be market leaders in their field. They:
• Source new solutions from applied and basic research and development and collaborate with technology leaders and customers
• Undertake high risk projects that have large potential
• Seek to create products and services that are new to the world
• Rely on intellectual property laws, secrecy and the speed of their innovative activities to protect and maximise the benefit and value from their innovation investment.

Some examples of companies with this type of strategy are DuPont, Apple and Qantas. Dupont has produced key innovations such as cellophane, nylon, teflon and lycra. Apple has produced the Macintosh, the iPhone, iPad and iPod. Qantas has also shown itself to be a proactive innovator with the early introduction of flat beds and in-flight entertainment systems.17

Understanding business innovation (continued)

ACTIVE
An active innovation strategy focuses on defending existing technologies and markets, but with a willingness and capacity to change and adapt quickly once new markets and technologies are proven. These companies mainly look to introduce incremental innovation that is sourced from in-house applied research and development and they collaborate with technology leaders, customers and suppliers. Businesses with an active innovation strategy take low to medium risks and include companies such as Microsoft and British Airways. Examples of these companies following proactive innovators in their markets include: Microsoft’s Windows built upon Apple’s Macintosh and Xerox’s graphic user interface; Xbox learnt from Nintendo, Sega and Sony products; and British Airways introduced flat beds shortly after its competitors.18

REACTIVE
The reactive innovation strategy is used by companies that tend to be ‘followers’ or ‘imitators’ of more innovative companies. They take a low-risk approach and seek more cost-effective ways to sell existing products and services. As such, their innovative activity tends to focus on business operations, such as implementing new ways of connecting with customers or of delivering products and services. Budget or ‘no frills’ airlines are examples of businesses with reactive innovation strategies. For example RyanAir and Air Asia have successfully adopted the ‘no frills’ service business model from competitors.19

PASSIVE
Businesses with passive innovation strategies take a very low-risk approach to innovation and will wait until their customers require a change in their products or services. One example is in the auto industry where some auto suppliers, such as Bosch and NipponDenso are active innovators; however other firms further down the supply chain usually have their product specifications determined by the purchaser of their product.20

CASE EXAMPLE: MATCHING YOUR INNOVATION STRATEGY TO YOUR CUSTOMERS
When Michelin’s run-flat tyre was introduced in 1997, no consumer could buy it. The innovation uses a dashboard light to alert drivers to the need for service after a specified distance driven following a flat. Therefore the tyres could only be used in vehicles designed to accommodate them. Michelin had to wait until willing car manufacturers’ were ready for new vehicle design— which is often three to four years before volume production.

Additional intermediaries included dealers that needed to understand and support the system and automobile repair shops that had to invest in new service equipment. Nine years after its introduction, the run-flat tyre was standard equipment on only a handful of car models.

Fostering a business culture that supports innovation

5. LEADERSHIP – THE ROLE OF CHAMPIONS

A challenging range of strategic, operational and business integration skills are required to lead innovative businesses. Leaders set the tone within the business and have a major influence on the culture and the attitudes of staff.

To promote a culture of innovation in the workplace, it is incumbent on business leaders to encourage the generation, adoption and implementation of new ideas. Through their actions, leaders can demonstrate that creating an environment that supports new ideas and ways of improving practices is a priority for the business.

A common feature within workplaces with a strong culture of innovation is the role of a ‘champion’ – an employee that leads by example and is committed to empowering new approaches and solutions and creating an environment that drives innovation within the organisation’s culture. Champions play a pivotal role in enabling innovation by demonstrating willingness to accept risk while supporting and rewarding innovative ideas and approaches.

Employees need to understand that they have senior management support for encouraging and pursuing new ideas and processes. Engaged executives can provide mentoring and help set directions for teams.21 This encourages staff to express new ideas without fear. One way to engage top level management support is by establishing an innovation committee of senior management that meet regularly to discuss and respond to innovation priorities and new ideas suggested by staff.

Managers could also acknowledge or reward innovative ideas that do not necessarily lead anywhere by recognising the learnings, process, creativity or ingenuity involved, rather than the outcome.

6. ENCOURAGING YOUR STAFF TO EMBRACE NEW IDEAS

Suggesting new ideas and discussing opportunities for improvement are not always considered core responsibilities within the remit of every employee in the organisation. Many junior staff would consider these issues to fall within the role of management.

Fundamental to fostering a culture of innovation is putting its responsibility at the forefront of employees’ minds. All employees should understand their role in implementing new ideas and suggesting opportunities for improvement to supervisors.

Networking and forums for creative thinking and problem solving provide an opportunity for staff to share and generate ideas, and will prompt and support staff to raise new ideas for feedback. Facilitating such discussions in team meetings and gatherings also sends an explicit message that innovation is part of the business culture and that staff are encouraged to think and discuss new ideas in their day-to-day operations.

A recent study of 2000 Australian organisations found that the top 25% of innovation performers (‘innovation leaders’) are nearly ten times more likely to report a culture that emphasises teamwork than organisations in the bottom 25% of innovation performers.22

Guiding principles for building a business culture that supports new ideas:

- Provide feedback or action on ideas suggested by staff. Without feedback, staff may be discouraged from putting forward ideas and become disengaged
- Recognise and thank staff who suggest ways to improve business activities
- Provide tools and incentives for managers to encourage them to support innovation when there are many other competing demands against which their performance is measured
- Facilitate networking, cross-team communication and project teams on common workplace challenges to overcome silo mentalities.21 A silo mentality can affect the productivity of a business and decrease innovation within the workplace, as teams are less likely to share ideas or resources outside their direct work group.

CASE EXAMPLE: COCHLEAR TECHNOLOGY AND INNOVATION COMMITTEE

One of Australia’s most renowned international export success stories is Cochlear – manufacturer of hearing devices. Cochlear has a specific Technology and Innovation Committee whose role it is to:

- oversee the strategic direction of the Company’s technology research and product development programs, management issues and resource allocation in terms of responding to the Company’s agreed corporate strategy and to advise the Board on the principal issues arising that require consideration by the full Board.
- In undertaking such oversight, the Committee will take into particular account the extent to which the technology programs, priorities and resource allocation are responding to the Company’s:
  - (a) Agreed target markets and competitive positioning
  - (b) Product value chain cost objectives
  - (c) Product field performance and warranty objectives.

The Committee will also receive from time to time briefings on external developments in relevant technologies and clinical fields. The Committee will annually review its performance. 3

Source: Cochlear Ltd 2013, Cochlear Technology and Innovation Committee Terms of Reference, viewed 17 September 2013, www.cochlear.com

Working collaboratively

7. BENEFITS OF COLLABORATION

The intensification of global competition has accelerated product lifecycles and so the speed and efficiency at which businesses must innovate. Innovation has also become more complex and costly, requiring more diverse knowledge inputs. Many businesses now look outside their boundaries for expertise and access to world leading knowledge.

Organisations collaborate to solve complex problems and think outside the box; share knowledge, material resources and risk; build skills and other capabilities; stay abreast of new developments; and expand their market reach and achieve economies of scale. Collaboration also directly enhances business performance across a wide range of indicators (Figure 2).

The importance of collaboration for businesses is clear. Compared with innovative businesses that don’t collaborate, innovative Australian businesses that do collaborate are:

- 23% more likely to report increased productivity
- 24% more likely to report increased profitability
- More than three times more likely to increase the number of export markets targeted
- 47% more likely to increase the range of goods or services offered
- 24% more likely to increase employment
- 34% more likely to increase training for employees.24

FIGURE 2: INNOVATIVE COLLABORATING BUSINESSES COMPARED TO INNOVATIVE BUSINESSES THAT DO NOT COLLABORATE – INCREASES IN BUSINESS PERFORMANCE AND ACTIVITIES COMPARED TO PREVIOUS YEAR 2009-10


8. BUSINESS ADVISORY SERVICES AND MENTORING

One form of collaboration is accessing expert, tailored, confidential and independent advice and mentoring that can assist businesses to invest strategically in their own profitability and long-term growth. Such relationships are usually formed with business professionals who have real-life practical experience in commercialisation and innovation.

There are a variety of mechanisms and programs to assist businesses in sourcing good quality advice. These range from professional accountants to industry association offerings and government business support programs such as Commercialisation Australia and Enterprise Connect. These support programs provide participants with access to case managers and business advisors – experienced business professionals with commercialisation and innovation experience.

CASE EXAMPLE: STEBERCRAFT PTY LTD – ENTERPRISE CONNECT TAILORED ADVISORY SERVICE

Stebercraft Pty Ltd, also trading as Steber International, is an Australian-owned business that manufactures custom-designed boats for patrol, sea rescue, defence and recreational purposes for clients in Australia and throughout the world. Stebercraft has been owned by the same family since its foundation in 1946 and has grown to provide over 55 jobs.

Enterprise Connect provided a Tailored Advisory Service grant that enabled Stebercraft to engage a consultant to help prepare a strategic business plan and a research and development plan. Stebercraft also implemented other innovations including a new human resources management system and an integrated quality occupational health and safety and environmental management system.

Enterprise Connect provided tailored market research through Austrade that indicated a real opportunity for Stebercraft to increase its boat refurbishment service. Stebercraft carried out factory extensions, expanded its infrastructure to accommodate the refit market and developed marketing strategies promoting the service.

The results have been impressive. Stebercraft secured a contract with the Royal Australian Navy. A dedicated and coordinated workforce has now delivered on this and is ready to deliver on many other opportunities.

By upgrading its plant and implementing more efficient production methods, the business reduced its electricity consumption by 11% over two years. It is on track to reduce waste by 75% by 2020. Stebercraft was awarded Manufacturer of the Year at the 2011 Hunter Manufacturing Awards.

9. CONNECTING WITH UNIVERSITIES AND OTHER RESEARCH INSTITUTES

For businesses, the benefits of partnering with universities and other research institutes include:

- Developing new ideas, products and services for the market
- Reducing research costs by gaining access to state, territory and Australian government funding schemes and modern research infrastructure
- Receiving expert advice and accessing the latest technology and equipment
- Having access to skilled researchers
- Gaining access to national and international knowledge networks
- Introducing businesses to new and innovative techniques.

For universities and researchers, working with businesses provides the opportunity to:

- Produce high quality and relevant research that translates directly into commercial outcomes
- Produce research leading to greater social, economic and environmental significance
- Improve graduate outcomes and effective knowledge transfer
- Build valuable contacts and networks
- Build a reputation as a world-class research institution open to business collaboration.

Once the appropriate institution and researchers have been identified, a challenge for businesses in connecting with research institutions can be the difference in mindsets and the expectations and objectives of innovation activities undertaken. Research institutions can be motivated by performance metrics based around publication rates. They may also work to different timelines than a business. Businesses on the other hand are motivated to innovate to improve competitiveness, increase revenue or responsiveness to customer needs and are often driven by profit objectives.

In order to collaborate effectively, businesses and researchers need to support ongoing communication to ensure each party understands agreed expectations. Matching a business with academic research expertise requires knowledge of the strengths of each, and how they are complementary, as there is considerable investment in time and resources required when collaborating.
CASE EXAMPLE: AW BELL PTY LTD – PARTNERSHIP WITH CSIRO

After nearly 60 years supplying the domestic market with metal parts, the family owned and operated AW Bell Pty Ltd is now a successful exporter to the international aerospace industry.

In 2009, AW Bell undertook a thorough business review with their Enterprise Connect business advisor. This resulted in a new strategic direction for the business: expanding into the aerospace export market. A.W. Bell recognised the need for high calibre expertise and equipment to improve their investment casting process.

With support from Enterprise Connect’s Researchers in Business program, CSIRO’s Small and Medium Enterprise Engagement Centre facilitated the placement of CSIRO’s Materials expert, Dr Roger Lumley, into A.W. Bell’s business to develop this process.

The company combined their manufacturing experience with Dr Lumley’s mix of theory, experience and practical hands-on capability, to develop a new technique for metal processing, resulting in AW Bell becoming the preferred supplier to a major international company in the aerospace industry.

Three years after embarking on their new direction, the company is now transforming their research and development into a fully-fledged production system.

10. INTERNATIONAL COLLABORATION

Collaborating on an international scale builds capacity and facilitates access to new knowledge (most of which is created outside of Australia). It also attracts foreign investment, highly skilled foreign researchers and workers, and extends Australia’s global influence. All of which provide opportunity for business growth.

Globalisation has significantly altered the scope for collaboration as it drastically broadens the choice of potential partners, giving rise to the development of global innovation networks. Global collaboration on innovation is fuelled by formal interactive cross-border arrangements, growing international trade and competition, and greater fragmentation of production processes along global value chains. Businesses can build networks of distributed research and development globally in order to understand local market trends, to tap into local knowledge, access new supply chains and to provide further sources of new technology.

Particularly across Asia (including China, Japan, India, Indonesia and Korea) there are emerging opportunities for Australian businesses to tap into export markets and build deeper connections with Asian partners and potential competitors. These opportunities enable businesses to acquire new knowledge and capabilities about market needs through collaboration and partnerships. Two factors are fundamentally important for successful engagement with Asia – capacity for implementing new ideas and processes and knowledge of Asian markets. This is discussed in more detail in issue 16.

Collaboration success depends on the provision of complementary skills by each party and on how well they work and communicate with each other. Businesses that are successful at international collaboration on innovation recognise face-to-face contact as important to establish, progress and maintain collaborative international partnerships. While technologies like video conferencing make international communication easier, it is face-to-face interaction that consolidates partnerships, builds trust and, in some instances, determines the success of the collaboration.
Managing risk, intellectual property protection and accessing finance

11. ASSESSING AND MANAGING RISKS

Innovation is an inherently risky activity for businesses. However, this must be balanced against the risks associated with not innovating. The risks involved with innovative activity vary widely depending on the type and scale of innovation. For example, a radical innovation will inevitably involve greater risk than an incremental innovation. However, the potential rewards that can result from these different innovation types will also tend to be greater when the innovation is radical.

Australian survey data indicates that the three top barriers to innovation as they are perceived by companies are long lead times in development, a risk adverse culture and remuneration not being linked to innovation outcomes.


Business practices that can assist in minimising risk associated with innovation include:

- Collaborating with experienced partners
- Developing a thorough understanding of the market for new products or services including competitors’ products and services and understanding your customers’ preferences and expectations
- Assessing the technical viability and commercial feasibility of a new idea as soon as possible and having a clear understanding of when to abandon an idea that is not viable or feasible
- Identifying the value proposition of your innovation and aligning this with the business environment
- Managing your intellectual property carefully.

12. FINANCING THE IMPLEMENTATION OF NEW IDEAS

Not all innovation will require investment. Indeed some innovation may have no cost. For those innovations that do require additional finance, the source will depend on whether it is a large established organisation seeking additional funding, a small business or an entrepreneurial technology based start-up.

Large organisations may have additional working capital available for investing in research and development. Alternatively, they could access existing finance channels such as equity raising and bank facilities. Bank financing will commonly require detailed historical and projected financial information, which is not generally available to new high-tech businesses. Equity raising may involve similar forecast data and can also be relatively costly depending on the amounts to be raised.

Finance sources for high risk technology start-ups will often differ from these traditional methods of bank loans and equity raising used by established businesses and may include angel investors or venture capital.

ANGEL INVESTORS

Angel investors are individuals who invest their own money in start-ups. In return for their investment, angels take equity or an option to take equity in the start-up.

Along with risk capital, angels provide value to their investees through their expertise and support to help them grow. This combination of financial and intellectual capital is why angel investment is often referred to as ‘smart capital’. Angel investors typically take a very ‘hands-on’ approach with the start-ups they invest in – they are not passive investors.

VENTURE CAPITAL

Venture capital is an effective mechanism for commercialising innovative technologies and business models. It is most attractive for new technology companies with limited operating history and no real tangible assets that are too high risk to raise capital themselves from more conventional sources like banks. Through the provision of venture capital equity investment, innovative early-stage businesses can access capital to commercialise their innovation. Venture capital fund managers can also provide invaluable strategic, investment and business advice.

Managing risk, intellectual property protection and accessing finance (continued)

To attract venture capital a business needs to articulate clearly and concisely:

- What their competitive advantage is
- That their technology is scalable
- How well the intellectual property is protected
- How big the market is
- How much capital is required and for how long
- What milestones remain to be achieved prior to market entry and beyond.

The fund manager will conduct their own due diligence and form an opinion on the management team’s ability to achieve the goals of the business within the specified time.

CROWD FUNDING
Crowd funding involves many individuals (hence ‘the crowd’) making usually small-sized financial contributions to support a cause or venture, be it with a social, community or commercial focus. This process is typically enabled across an online platform like Pozible and Indiegogo where the idea is hosted, described and made accessible to the public.

The scope for crowd funding is broad, including for example funding art projects (perhaps the production of a short film), through to new scientific research. International developments of the crowd funding concept involve loans to businesses and also investment in companies in exchange for equity.

The potential for crowd sourced equity funding in Australia is not yet clear. As an emerging funding concept, current regulatory arrangements in Australia for corporate fundraising may not be particularly tailored to crowd sourced equity. Some small start-ups may also be discouraged by the prospect of having to deal with many small investors. Nevertheless crowd sourced equity may become a significant financing source for innovative projects to access seed capital while using online means of communication with investors.

GOVERNMENT SUPPORT
The Australian, state and territory governments provide a range of programs that aim to foster innovation and support businesses engaged in innovative activities. The programs are attuned to the needs of different businesses, including small and medium-sized businesses, and assist firms at different stages in their growth cycle.

The Grants and Assistance Finder, available at www.business.gov.au, provides a comprehensive listing of funding and assistance programs available from Australian, state and territory governments, and in some cases from local councils.

CASE EXAMPLE: SEEK LIMITED
The website – seek.com.au – enables jobseekers to search for jobs that meet their specific criteria much more efficiently than traditional means, such as newspapers. For employers and recruiters, SEEK’s website delivers access to a large audience at a significantly lower cost. But when the company was formed in 1998 few people realised the internet would one day rival or eclipse newspaper job classifieds.

Key investments from angel investors and venture capitalists in the company’s early days helped SEEK grow. CHAMP Ventures provided venture capital support by investing $2.5 million in SEEK through its investment fund AMWIN. The return to investors, during 2003-05, was $16.48 million.

Stuart Wardman-Browne, Executive Director of CHAMP Ventures, said the investment in SEEK was based on its compelling solution for job seekers and employers, as well as its motivated and talented management team.

‘SEEK had compelling cost benefits by providing a common sense solution to a market dominated by the print industry’, Stuart said.

‘Even back in 1998-99 the market size for job advertisements was $700 million, just in Australia alone. This made it a decent market to go after. Many IT innovations need to go global, but because of the size of the domestic market SEEK didn’t need to go global initially.

‘There was also a labour shortage in Australia at the time, and because our main competitors – the newspapers – would have to compete with themselves SEEK had great potential to lead the market. Eventually the newspapers did work out a way to go online too, but it took a while and by then SEEK was able to establish a strong market leadership.’

As well, SEEK’s management team was a key driver. ‘In the 20 years I have been in the industry the SEEK management team is one of the strongest I’ve worked with’, Stuart said.

‘A key part of our assessment is always making sure the management team is strong.’

AMWIN assisted SEEK through capital raising and strategy and investment advice.

‘There were many directions SEEK could have taken in its early days, but the team realised it was important to pick two or three key strategies and nail them. After achieving itself as market leader, SEEK could then go offshore, or expand into different areas, as it has since done.’

13. PROTECTION OF INTELLECTUAL PROPERTY

Not all new ideas, processes or procedures introduced by a business will produce enforceable intellectual property (IP) rights. However, it is important to understand IP and to consider protecting any IP rights that exist within a business.

Standard patents can be used to protect novel and non-obvious inventions across a wide range of technological fields. This can include new business methods as well as new products. Standard patents last for up to 20 years.

Innovation patents are also available to protect novel innovations or incremental changes to existing technology. Innovation patents last for up to eight years.

Trade marks can be used to protect the identity of a business and its products. A trade mark can be a letter, number, word, phrase, sound, smell, shape, logo, picture, aspect of packaging or any combination of these. Trade marks can be renewed every 10 years.

Registered designs are used to protect the visual appearance of a product, but not the way it works. Registration initially protects your design for five years from the filing date with a renewal option for a further five years.

Plant Breeders Rights are used to protect new varieties of plants that are distinguishable, uniform and stable. A Plant Breeders right lasts for up to 25 years for trees or grape vines and 20 years for other plant species.

Copyright protects the original expression of ideas, but not the ideas themselves. Common works protected by copyright are books, films, music, sound recordings, newspapers, magazines and artwork. Copyright also protects originally created typographical arrangements, databases, media broadcasts, computer programs and compositions of other people’s work such as academic journals or CD compilations.

Whereas the rights outlined above are administrated by IP Australia and must be applied for, registered and renewed periodically, copyright does not need to be applied for, and there is no system of registration in Australia. The work does not need to be published or have a copyright notice on it before it is covered by copyright – the protection is free and automatic, from the time of creation.

Other forms of more specific IP that a business may own include confidentiality agreements, circuit layout rights and trade secrets.

Businesses that hold IP would benefit from developing an IP management strategy to monitor and protect their rights. The strategy should align with businesses’ overall commercial objectives and enable the business to establish, evaluate and enforce all IP rights. Businesses need to be aware that IP rights can be expensive to establish and much more expensive again if they need to be litigated. The costs of and delays involved give larger firms strategic advantages over small ones where there is litigation between them.

IP is discussed extensively in the Business Briefing: 20 issues on intellectual property which is available on the Institute website.

14. MEASURING EFFECTIVENESS AND OUTCOMES FROM INNOVATION

Innovation rarely features in a business performance measurement system, and what is not measured (or measurable) is often not seen as important. While the resources invested in innovative effort can sometimes be quantified, the impact of the innovative activity can be much more difficult to quantify, and it can take significant time for it to become clear.

Performance measures that are established to determine the success of any innovation need to consider why the innovation was introduced. For example, the motivation may have been to increase staff retention, or increase market share, or increase profit margins. All of these reasons will have different performance measures to monitor success.

The motivation for innovation can change over time and performance measures should be adjusted to reflect this. For example a business may start off looking to increase customer loyalty through a new service innovation and initially base performance measures around the number of regular customers. While working towards this goal the business may discover that having staff who can develop long standing relationships with customers is an important part of their strategy. Innovations to retain staff may then be introduced and staff retention rates would then become another key performance measure.

Indicators for businesses to consider when measuring innovation impacts and outcomes include:

- Customer perceptions of innovation and whether they perceive the business as currently innovative
- The results (e.g. increased profit, productivity or other business performance measures) from the introduction of the new process, product or service
- Innovation activities that have been unsuccessful and discontinued, and what they have taught the business in terms of future innovation to be undertaken.
15. FORESIGHTING

Foresighting is a process used to research and understand the forces shaping the long-term future of an issue, which is then considered when businesses plan for the future.

Through foresighting, businesses use a structured approach to examine the relationships within industry, key assumptions, uncertainties, factors driving change, and expected and unexpected outcomes. As it is future focussed the process of foresighting carries an element of uncertainty. However it enables businesses to identify a range of plausible future trends such as changes within the market, consumer demands, future technologies and so on. It helps a business to figure out what additional information and strategies may be required to help better plan for its future.

Examples of emerging technologies and trends predicted to grow in the future include:

- **Service robotics** – robot devices that work alongside individuals in markets such as agile manufacturing, logistics, medicine, healthcare
- **3D Printing** – inkjet technology which could give individuals the power to manufacture their own product, and can be used for a range of applications from product design and manufacturing to building biological tissues and large-scale housing production
- **Nanotechnology** – involves the manipulation of matter at the molecular scale that has the potential to fundamentally alter the way people live, by providing new drug delivery systems, faster and cheaper manufacturing processes, cleaner and more efficient energy generation, new materials, clean water and the next generation of computing devices
- **Cloud Computing** – involves delivering hosted services (for example business applications such as office suites and data storage) over the internet.

Through foresighting, businesses can also identify potential future market opportunities for their services and/or products.

16. ASIAN ECONOMIC GROWTH

The number of middle class consumers in Asia is projected to increase sixfold to 3.2 billion in the period 2009 to 2030 alone.29 Rising affluence that facilitates travel and the explosion in social media and mobile telecommunications are spurring much greater engagement between Asian countries (including Australia) in industry, commerce and culture.

The pattern of demand in Asian economies may change as incomes and patterns of consumption transform in coming decades.20 If Australia is to diversify its export profile to its major markets, it will need to innovate and enhance business and cultural capabilities in relation to these countries.

Growth in the Asian region provides a breadth of opportunities and choices for Australian businesses.31

‘Asia literacy’ is a term increasingly used by businesses, reflecting the need to increase knowledge of Asia and Asian languages.32 The ability of Australian businesses to understand and negotiate with foreign customers and partners is critical to business success and accordingly Australian businesses must consider a greater emphasis on the importance of bilingual skills.

As Asian countries continue their economic development, demand for more specialised products and services will emerge and competition will be driven by innovation. Australian firms that increase their capacity to generate radical and new to the world innovations as a way to position themselves in high value added supply chains will be well positioned to succeed in the changing global economy.
17. DIGITAL TECHNOLOGIES

The application and accessibility of digital technologies provide businesses with efficiency and growth opportunities. Around a fifth of Gross Domestic Product growth in advanced economies over the past five years is a result of the internet and associated technologies – with 75% of this growth occurring in sectors not traditionally seen as ‘technology’ industries. 33

In 2013 there were an estimated 2.7 billion people, or nearly 40% of the world’s population connected to the internet. 34 This figure is growing rapidly with nearly 300 million additional people accessing the internet in the last year. 25 The proliferation of online sales potentially offers Australian businesses a larger global customer base, but also increases competition from international rivals.

A global survey 26 of executives representing over $256 billion in annual turnover across a broad range of industries found that 57% of respondents believe that mobile technologies will have the greatest positive impact on their business over the next five years from a digital perspective. This sentiment is supported by strong global uptake of mobile technologies with 6.8 billion mobile subscriptions globally in 2013.

Benefits from effective integration and management of new digital technologies include: better customer experience and engagement; efficiencies and savings from streamlined operations; and growth from the introduction of new lines of business or business models. 37

Considerable resources are required to effectively implement digital technologies into a business. Emerging technologies like social media analytics and embedded devices require new skills sets amongst employees. Despite the increasing acceptance of the digital economy for business success many companies still struggle with realising the value from their investment in digital technologies. Around the world most companies lack experience with digital technologies and are not using these tools to their full potential. This correlates with a lack of leadership commitment in digital technologies within organisations. 38

Major obstacles for companies wishing to undergo a digital transformation are a lack of urgency; not enough funding; limitations of existing information technology systems; unclear roles and responsibilities; and a lack of vision and strategy for the use of digital technologies within the company. Legacy technology systems, poorly suited to rapid advancements in the digital economy are a major issue for many businesses. The implementation of digital innovation within a business requires a continuous process in order to keep pace with competitors.

In order to overcome these obstacles business leaders must develop a vision of the company’s digital future, share this with their staff and create the structures within the company to encourage the realisation of this vision.

ONLINE LEARNING

The recent proliferation of online learning in tertiary education provides a good example of how digital technologies can alter an industry.

In the last ten years the number of US students taking at least one online course has increased from less than 10% to 32%. This increase has occurred almost linearly over the past decade and shows no signs of abating. Only 11.2% of United States institutions report that online learning is not critical to their long-term strategies. 39

In Australia the recently launched $4.5 million Biomedical Education Skills and Training Network cements a global lead in technology-led innovation in medical education.

Medical students are demanding interactive, adaptive learning experiences and the University of New South Wales, University of Melbourne, University of Queensland and James Cook University, together with peak bodies in medical science and nursing are creating pooled digital education.

The Smart Sparrow Adaptive eLearning platform invented at the University of New South Wales is now used in hundreds of university courses in Australia, enabling students to receive feedback based on their individual capabilities as they progress. 40 The OneVentures Innovation Fund limited partnership, licensed under the Australian Government’s Innovation Investment Fund, is an investor in Smart Sparrow Pty Ltd.

38. Ibid.
18. INNOVATION FOR SHARED VALUE AND SOCIAL OUTCOMES

Today’s unmet needs are tomorrow’s growth and value creation opportunities. Social problems can provide opportunities for business growth. Businesses can develop new markets and improve their brand and their attractiveness to employees by generating social and environmental value as they pursue profit. Australian organisations that are innovation leaders are four times more likely to report working proactively to improve social and community impacts than organisations that perform poorly at innovation.41

William D. Eggers and Paul Macmillan have explored the concept of a ‘solution economy’42 where they argue ‘government is no longer the only game in town when it comes to societal problem solving. Society is witnessing a step change in how it deals with its own problems - a shift from a government-dominated model to one in which the government is just one player among many’. The rising cost of health care, road congestion and access to education are increasingly being addressed through the partnership of business, government and not-for-profit organisations. These players are transforming difficult social challenges into market opportunities through the use of emerging technologies and innovative business models to afford both social benefit and business growth.

Impact investing is another approach to social innovation. The distinguishing feature of impact investing is the intention to change in how it deals with its own problems - a shift from a government-dominated model to one in which the government is just one player among many. The rising cost of health care, road congestion and access to education are increasingly being addressed through the partnership of business, government and not-for-profit organisations. These players are transforming difficult social challenges into market opportunities through the use of emerging technologies and innovative business models to afford both social benefit and business growth.

Impact investing is another approach to social innovation. The distinguishing feature of impact investing is the intention to achieve both a positive social, cultural and/or environmental benefit and some measure of financial return. The intentional design for positive benefits to society distinguishes impact investing from other, more traditional investment approaches.43

Nationally and internationally, impact investments are being used to finance initiatives in a wide range of areas, including the arts, aged care, community development, education, employment, health, environmental management, sustainable agriculture, renewable energy, justice, social housing and international development.44

CASE EXAMPLE: STREAT

STREAT is a café in Melbourne that provides support, industry training and jobs designed to change the long term outcomes for homeless people ‘one meal at a time’. It has a clear business model and is targeting growth to reach 100 young people and provide over 90,000 hours of training per year by 2015. Its most recent expansion was financed by a capital raising of $300,000; one of the first share issues by a social enterprise in Australia.

CASE EXAMPLE: YACKANDANDAH COMMUNITY DEVELOPMENT COMPANY

The Yackandah Community Development Company was formed in 2002 by local residents concerned at the impact the proposed closure of the local service station would have on the economy and wellbeing of their town. The initial investment has enabled the services to not only remain open, but to expand; the business employs 12 local residents and has generated total revenues of over $26 million and provided $100,000 in grants to community initiatives. The business has operated profitably in all but one year and paid dividends to investors in four years.

INNOVATING FOR SHARED VALUE

In ‘Innovating for Shared Value’, Pfitzer et al, outlined five elements for creating social and business value:

1. Social purpose – embedding a social mission into the business culture and channeling resources to the development of innovations that can help solve social problems
2. Defining the social need – conducting extensive research to develop a deeper understanding of the social problem, the extent of stakeholders affected, the barriers to progress, the options for driving change and the parties that can help
3. Measuring Shared Value – monitor progress by analysing how much social change is needed to unlock business value, strategies for achieving that change, and the possibility of getting others to invest in the shared value initiative. A business plan can be used to monitor the progress
4. Optimal innovation structure – consider various options for designing the best financing, governance and management systems to manage risk and successfully implement new social initiatives
5. Co-creating with external stakeholders – involve stakeholders in identifying all the dimensions of a problem and designing and implementing solutions while leveraging their capabilities.

19. ECO-INNOVATION

Australia, like the rest of the world, faces major environmental challenges such as industrial pollution, biodiversity loss and deteriorating natural resources. These problems can take a heavy toll on human health, natural ecosystems and the future wealth of Australians. Innovation by businesses to reduce their environmental impacts or improve the environment (so called eco-innovation) is an essential ingredient to creating a green, healthy and wealthy future.

Reducing environmental impact is also important for a business’ bottom line. Australian eco-innovators are more than twice as likely to increase their productivity on a yearly basis than other businesses (Figure 3). Research shows that this activity is much more likely to translate into profit when businesses pay close attention to all the elements of their business model. Like all innovation activity eco-innovation is not just about new technology. New methods of organising a business or marketing products and services to customers can also reduce a business’ broader impact on the environment.

In addition to improving the productivity or profitability of business operations, a focus on reducing environmental impact through innovation can increase market share or open up new markets. Many of these new markets are on Australia’s doorstep. By 2030 the population of the world is projected to be over 8 billion. It is expected that countries will be struggling to meet the increased demand for energy, water and food while simultaneously meeting the environmental stresses of global warming, loss of species habitat, ocean acidification and over-harvesting of fauna and flora. These changes will create a large market for new environmentally sustainable products and services. Billions of dollars worth of export opportunities currently exist for early-mover Australian firms that can meet the demand for new innovative environmental solutions from emerging Asian economies such as India, China and Indonesia. It is projected that these billions will turn to trillions as Asian economies grow. The growth of Asia is discussed in issue 16.

Data shows that despite some progress over the past 20 to 30 years Australia ranks very poorly on business environmental performance compared with other developed countries around the world. Environmental management activities are being undertaken by only 38% of all Australian businesses. The percentage of all Australian businesses that reduced their environmental footprint through innovation was even smaller at 10% and only half of these businesses did this deliberately. There are opportunities for businesses to better manage their use of resources, reduce their waste and pollution and to increase market share and profitability.

Innovation to reduce a business’ environmental footprint does not have to be expensive and does not have to involve something that is new to the industry. One of the key practices of environmental innovators is their efforts to measure and track sustainability goals and performance. As a starting point a business could monitor its use of electricity, water and other materials or monitor its flow of waste. Measurement of a business’ environmental footprint is the critical first step towards improving its bottom line and identifying opportunities for eco-innovation.

FIGURE 3: THE LIKELIHOOD OF BUSINESS PRODUCTIVITY GROWTH FOR STRATEGIC ECO-INNOVATORS, OTHER INNOVATORS AND NON INNOVATION-ACTIVE BUSINESSES, 2010—11

Data shows that despite some progress over the past 20 to 30 years Australia ranks very poorly on business environmental performance compared with other developed countries around the world. Environmental management activities are being undertaken by only 38% of all Australian businesses. The percentage of all Australian businesses that reduced their environmental footprint through innovation was even smaller at 10% and only half of these businesses did this deliberately. There are opportunities for businesses to better manage their use of resources, reduce their waste and pollution and to increase market share and profitability.

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20. BIG DATA

Big data is the collection, analysis and generation of insights from a wide variety of data sources in order to improve business and system-wide performance.\(^{47}\) It is not just about data size, it’s about the variety and diversity of data sources.\(^{48}\)

It is estimated that 90% of the data in the world today has been created in the last two years alone.\(^{49}\) This data comes from structured formats such as databases, sensors used to gather climate and other information, transaction records of logistical events such as shipping purchases and delivery, mobile location data, call centre transcripts and digital pictures and videos posted online to name a few.

Big data allows any business to analyse new sources of information and use these insights to better inform their business. Businesses can leverage big data to improve their existing processes and discover new market opportunities.

Nearly two out of three organisations globally intend to invest in big data technology, however only 8% have actually deployed these capabilities so far.\(^{50}\)

Opportunities to create value through analysis of big data include:\(^{51}\)

- Increasing the precision of specific customer segments through analysis of their transactions and shopping behavior patterns across sale channels
- Gaining knowledge of customers preferences and behaviours by linking data from online transactions and data from social media
- Improving customer interactions and experiences by delivering relevant real-time offers based on specific customer locations
- Predicting customer shopping behaviours and offering relevant, appealing products, processes or services to influence customers.

TIPS FOR USING BIG DATA

IBM’s Pramanick Sushil suggests the following tips to consider when implementing big data strategies:

1. Understand and analyse your business requirements and strategy for the use of big data
2. Undertake a full evaluation of the data coming into the business and how it can be used to the business’ advantage
3. Establish a platform to share analysis, planning and ensure oversight of big data projects
4. Use agile and recurring implementation techniques that deliver quick solutions based on current needs (e.g. start small by identifying specific, high-value opportunities, while not losing sight of the big picture)
5. Invest in training to enable employees to correlate different types and sources of data, to make associations, and to make meaningful discoveries from big data
6. Incorporate decision-making using intelligence from big data analysis into the business’s operational workflow.

Source: P Sushil 2013, IBM The Big Data and Analytics Hub
http://www.ibmbigdatahub.com

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### UNDERSTANDING BUSINESS INNOVATION

1. Does your organisation have processes in place to identify and adapt to changes in scientific knowledge, market demands, competitor activities and legislative reforms? [ ] Yes [ ] No

2. Is your organisation considering new ways to develop and deliver the products or services that it provides? [ ] Yes [ ] No

3. Does your organisation understand the difference between closed and open innovation and make strategic decisions on the appropriate approach? [ ] Yes [ ] No

4. Is innovation included in your organisation’s business strategy? [ ] Yes [ ] No

### FOSTERING A BUSINESS CULTURE THAT SUPPORTS INNOVATION

5. Can you identify innovation champions in your organisation? [ ] Yes [ ] No

6. Does your organisation encourage its people to suggest ways to improve processes, products, services, marketing, distribution or other things that it does? [ ] Yes [ ] No

### WORKING COLLABORATIVELY

7. Has your organisation considered or is it currently engaged in collaboration activities? [ ] Yes [ ] No

8. Does your organisation use external experts to help it improve products or services, or to solve problems? [ ] Yes [ ] No

9. Does your organisation commit time and resources to looking for solutions, new ideas or new opportunities from relevant research institutions? [ ] Yes [ ] No

10. Does your organisation explore new ideas, potential solutions or new opportunities by actively engaging with international organisations? [ ] Yes [ ] No

### MANAGING RISK, INTELLECTUAL PROPERTY PROTECTION AND ACCESSING FINANCE

11. Has your organisation developed a risk management strategy for new products or services it is developing? [ ] Yes [ ] No

12. Has your organisation considered different types of finance for its innovation strategy and determined a preferred source of funding? [ ] Yes [ ] No

13. Has your organisation considered whether intellectual property will be developed and how to protect this if appropriate? [ ] Yes [ ] No

14. Does your organisation measure the impacts and/or outcomes of innovation? [ ] Yes [ ] No

### FUTURE CHALLENGES AND OPPORTUNITIES

15. Does your organisation use methods for identifying the forces that are likely to drive change in the future? [ ] Yes [ ] No

16. Is your organisation strategically approaching the opportunities presented by the rise of the Asian middle class? [ ] Yes [ ] No

17. Does your organisation have an integrated digital technology strategy? [ ] Yes [ ] No

18. Has your organisation considered ways it can generate positive social change as part of its business strategy? [ ] Yes [ ] No

19. Is your organisation measuring its environmental impact? [ ] Yes [ ] No

20. Does your organisation use new and integrated sources of data to gain insights into customers and business performance? [ ] Yes [ ] No
Future[inc] is a two-year initiative that explores the major public and economic policy challenges confronting the nation over the coming years and decades. As part of this initiative the Institute has consulted widely within the business community to identify what business leaders believe are the priorities for developing a sustainable economy and a more prosperous future for our nation. The Institute has released two papers in the future[inc] series so far. The first paper, Developing a plan for Australia’s economic prosperity, was launched in April 2013 and is a comprehensive analysis of our future economic outlook, framed around a SWOT analysis of all corners of our economy. The second paper, An economic policy platform for the next term of government, sets out the big issues the incoming government will have to tackle and ways to strengthen our national economy over the next three years.

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