Between a hard rock and a soft space
design, creative practice and innovation

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Between a hard rock and a soft space:

design, creative practice and innovation

A background paper prepared for the National Innovation Review

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Executive summary

This paper discusses the contribution that the arts, humanities and social sciences can make to innovation systems and innovation policy by embedding design and creative practice in innovation.

Innovation policy is a major economic development strategy — a strategy that is being adopted and implemented by cities, regions and nations to achieve economic results, measured as positive changes in employment, income, exports and productivity.

This paper argues that innovation policy should reflect broader perspectives, and the contribution of the arts, humanities and social sciences to innovation.

We do not attempt to cover all contributions the humanities and social sciences can make to innovation (for example, contextual historical, economic or geographic analysis). However, by focusing on design and creative practice, we make a more general argument that innovation comes from deploying a wider range of disciplines in research than is often considered.

Innovation is not only the province of scientists, engineers and economists; it has also captured the interest and attention of researchers in the creative, visual and performing arts and in what the European Union refers to in its Framework 7 research program as the 'socio-economic sciences and the humanities'.

Some periods in history have been characterised by rapid economic, social and cultural change associated with developments and breakthroughs, both in science and in the arts. However, in addition to these 'supply' factors, 'demand' factors have been at work as well. Often, changes in underlying economic, social and cultural frameworks have allowed the generation, application and adoption of new ideas.

For example, the rapid growth in production associated with the Industrial Revolution was driven in large part by increasing demand, brought about by breakthroughs in public health (which extended life expectancy), new market opportunities (created through international trade) and financial innovations (such as the limited liability company).

Two centuries later, demand stimulated by the United States Defense Department was a key driver in the 1990s 'technology boom', which subsequently spilled over into consumer electronics. That boom was made possible by the 'invention' of venture capital as an investment vehicle for financing start-up companies.

Innovation policy is increasingly concerned with innovations in design and creative practice, and there is growing recognition of the contribution of the 'creative' industries[1] to economic prosperity, particularly in cities and regions. Competitive challenges are forcing traditional engineering-centred companies to transform themselves into experience-centred companies: design and creative practice have a critical role in that transformation.

Today, successful design requires a convergence of technology and the social sciences and humanities — including sociology, psychology and economics. Competition drives research into consumer behaviour, society and culture more deeply than ever. In this context, design is seen as the 'creative synthesis' of the disparate functions involved in the innovation process — R&D, marketing, supply chain management, and product lifecycle management.[2]

1   Definitions of the scope of the 'creative' industries vary. The ARC Centre of Excellence for Creative Industries and Innovation includes advertising and marketing; architecture, design and the visual arts; film, television and radio; music and performing arts; software development and interactive content; and writing, publishing and print media.

2   'Innovation through design: the creative synthesis', Marc Giget, Professor and Chair of Technology and Innovation, CNAM-Conservatoire National Des Arts et Métiers (France), paper for Design /Management Europe 12 conference, Paris, April 2008.

The application of artistic, cultural and creative practice — for example through multimedia applications and other software — is having a major impact on all sectors: defence, mining, manufacturing, transport, retailing, wholesaling, health, community services, and government. The capacity to innovate through architecture and design and the creation of 'aesthetic value' are primary sources of competitive advantage in the global economy. Countries throughout the world are developing design-led innovation policies.

In the not-for-profit and household sector, the co-creation and peer production of products, services and user-generated content, based on Web 2.0 social network media, are producing a very broad range of innovations and emergent business models, such as MySpace, YouTube and Flickr.

Whereas a science and technology-based view of innovation tends to focus on new manufactured products, a broader view pays attention to the role of the design and creative practice — not only in manufacturing but in other sectors, particularly services. The services sector makes up around 80% of the economy and is a major user of technological innovation, but complements that use with creativity, design and artistic insights and practices.

While there is substantial funding to support public research in the sciences, based on its links to innovation (principally in manufacturing), there is comparatively very little funding for research to build innovation in design and creative practice.

Over time, investment in the arts and culture sectors will bring returns through the economic contribution of the creative industries and flow-through benefits to other industries. However, as for investments in public science, it is not possible to specify the likely paths to adoption and application in advance. The importance of investment in knowledge transfer in this area is evident; for example, public investments in Australia's broadcasting, television and film industries have 'pulled through' many technological innovations, from radio in the 1930s to podcasting today. Creative content has provided the fuel for the development and growth of those industries, and more recently the digital 'new media'.

While many people in the arts and culture sectors do not see themselves as being part of an 'innovation system', there is growing evidence that investments in public art and culture can have substantial positive downstream impacts for all industries.

Research and learning in cultural and creative environments can be (and is) transferred into new start-up companies formed to commercialise creative ideas and into new product and service development in larger businesses. While technology can be an enabler, it is not necessarily the main source of business value (Howard Partners 2007).

From an innovation policy perspective, there is a strong case for including design and creative practice within the scope of Innovation Australia — the independent statutory body that oversights the administration of the government's innovation and venture capital programs.[3]

Arrangements for cooperation and collaboration among the various segments of the artistic and creative sectors to achieve innovation outcomes are not well developed. Policy responsibilities are distributed across several Australian Government agencies, and funding responsibilities are distributed between the Australian Research Council, the Australia Council for the Arts and other funding bodies. Relocating the creative functions into the innovation portfolio would help to resolve this policy fragmentation.

Leadership is needed. It should come from the creative sector, supported by government as appropriate. To this end, government, industry and research organisations should support the formation of a National Council for Design and Creative Practice. The council should have a specific role to formulate and advise on a national design policy, direct and fund programs of support for Australian business, and provide Australia with authoritative design knowledge by funding research programs in design and creative practice research and teaching.

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3   Formerly the Industrial Research and Development Board and the Venture Capital Registration Board.

Chapter 1

Innovation and innovation systems

This section examines the role of art and design as important supporters of manufacturing, service and other industries, and their role in industrial innovation.

1.1 Background

In the 20th century, research and development (R&D) in science and engineering became a priority for governments and business, as both adopted new policies to support the growth of new technology-based firms. Success was measured as increased economic wealth (growth in sales, profits, employment and exports). While there was originally a clear focus on the production of material objects (goods), the services sector now constitutes about 80% of the economy, so interest in innovation is now extending to that sector.

Communication technologies boomed from the mid-1950s, followed by the information technologies from the 1990s. New ideas moved swiftly into new products and services that society was quick to adopt. 'User-friendly' technology, designed to appeal to a wide variety of consumers by using bold colours and quirky shapes, led to the creation of new markets and to an increasing role for the *designer* in R&D.

A closer look at innovation systems suggests a need to examine the impact of art and design, to appreciate the role of 'public culture' in stimulating innovation, and to understand the role of social networks and interactions that underpin economic and financial relationships — in what is a dynamic and 'open' system.

This broader framework means extending our thinking about innovation from the 'science system' view of innovation systems, with a focus on R&D and manufacturing, to include innovation in the services sector. It also means picking up contributions from researchers about open innovation (Chesbrough 2003), social innovation through networks (Benkler 2006), and user-led innovation (Von Hippel 1988, 2005)

Along with this broader scope of innovation systems, there has been a growing interest in the influence of creativity on innovation. 'Creativity' means both the application of 'knowledge on materials and instruments', as occurs in many areas of science, technology and the arts, and the application of 'knowledge on knowledge', as occurs in many branches of the social sciences and humanities. Creativity in innovation systems is the domain both of 'creative workers' and of the broader category of 'knowledge workers' — people who 'analyse' and 'think for a living' (Davenport 2005).

1.2 Innovation policy objectives

Governments are interested in innovation because of its importance to economic and industry development. National, state and regional governments devise and implement innovation policies in order to achieve economic outcomes — as indicated by employment, business income and exports. From this perspective, the objective of innovation policy can be stated as:

To build economic strength and international competitiveness by generating and harnessing the latest developments in science (including the social sciences), technology, the arts and humanities, and applying these to real world applications — that is, products, services and processes (and performances) that people and organisations (private or public) are prepared to purchase and pay for (directly, or indirectly through the fiscal system).

To many, innovation is seen as being driven by expenditure on R&D and its commercialisation in new products. However, innovation also occurs in services, new business models and new ways of responding to changing customer wants and expectations.

Everett Rogers, in a classic work, *The diffusion of innovations* (1995), described innovation in these terms: *An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption. It matters little, so far as human behaviour is concerned, whether or not an idea is objectively new as measured by the lapse of time since its first use or discovery. The perceived newness of the idea for the individual determines his or her reaction to it. If the idea seems new to the individual, it is an innovation.*

From this perspective, innovation is quite simply the successful exploitation of new ideas (DTI 2003). Innovation is also a *process* that involves 'creative problem solving for practical outcomes'. Innovation and creativity are inextricably linked.

Innovation is generally associated with a willingness to take risks, a capacity to tolerate high levels of ambiguity and uncertainty, a talent for original thinking, and a passion to drive an idea through to adoption and application.

1.3 Towards a broader view of innovation

There is an emerging view that we need a broader view of where innovation comes from and where it is applied. This means looking beyond scientific and technological invention and the 'obvious forms of innovation' that are reflected in new materials and products, and thinking of innovation as a *process* that is vital to all sectors of the economy. An optimal innovation policy will take this broader view (NESTA 2006b). In this respect, innovation extends beyond firm-level commercial strategy to the work of government agencies and organisations in the non-government (not-for-profit) sector.

Companies have recognised that the 'look and feel' of products (their sensory and aesthetic effects) are essential competitive tools. Quality is no longer a competitive attribute: it is a condition of market entry. Virginia Postrel, in her widely acclaimed analysis *The substance of style* (2003) reports that:

'Aesthetics, or styling, has become an accepted unique selling point—on a global basis' explains the head of [GE] division's global aesthetics program. Functionality still matters, of course. But competition has pushed quality so high and prices so low that manufacturers can no longer distinguish themselves with price and performance, as traditionally defined. In a crowded marketplace, aesthetics is often the only way to make a product stand out. Quality and price may be attributes, but tastes still vary, and not every manufacturer has already learned how to make products that appeal to the senses.

In Australia, it seems that the volume and popularity of low-cost Asian imports is an indicator of price sensitivity—with a low expectation of quality. However, it might reflect marketing strategies based on what people are prepared to pay for, rather than research into what people might *want* to satisfy their needs and expectations. That research should be encouraged and supported if Australia's design industry is to be globally competitive and our rate of innovation is to improve.

Successful new industrial and consumer products result not only from good science and technology, but from great design and talented designers. For example, architects deal intimately with materials and structures. Both are core components of a degree in architecture and essential to professional practice. Both are the subject of continuing research by architect practitioners and academics. However, architectural achievement and commercial success require innovative architects who use sophisticated software to simulate, model and draw, as well as their knowledge of materials and structures. Art and design, which are reflected in the aesthetics (or styling) of the architect's product, have become accepted as unique selling points.

In the knowledge-based economy, innovation occurs where science and technology intersect with art and design. The link between science and art was probably widely recognised for the first time in London, during the Great Exhibition of 1851. It is highlighted today in the collecting, conservation and exhibition strategies of the Victoria and Albert Museum in London and the Powerhouse Museum in Sydney (see box). Australia does not have a national museum that focuses specifically on design.

Over the years, the interests of science and art diverged, with art being appreciated more 'for art's sake'. However, after many years of divergence and a philosophy of 'two cultures', we are now seeing a reintegration in industrial innovation, research and teaching in what is being referred to as the *domain of technology and creative practices*. A recent United States National Academies study reported that creative inventions are being increasingly recognised as key drivers of economic development (Mitchell et al 2003).

Vision and accident: the story of the Victoria and Albert Museum

The Victoria and Albert Museum began in a school of design set up by the British Government in 1836, as a result of the findings of a House of Commons Select Committee on Arts and Manufactures that sat in 1835 and 1836.

Most people have a view that 'art' constitutes a distinct activity, or production — self-defining, exclusive and unchallengeable. The art world tends to project itself as an exclusive zone. A 'secret weapon' is the accepted usage of the word 'Art': in the singular with a capital letter (implied, but not always actual).

The term 'Art' is a 19th century usage, implying the Fine Arts. Before the change of use, 'art' simply meant skill, and has done so for centuries, taking this sense from the Latin word ars. Until 1851, encyclopaedias and dictionaries explained 'art' as practice or doing.

To Sir Joshua Reynolds of the Royal Academy … the world of arts ranged from the 'Polite Arts', or the 'arts of elegance', which were the natural concern of top people, to the 'mechanick and ornamental arts'.

The Royal Society of Arts, founded in 1754, took its name from 'The Society for the Encouragement of Arts, Manufactures and Commerce' — a concern with all kinds of human ingenuity, not excluding the pictorial arts, but not exalting them above industrial and agricultural pursuits.

The Department of Science and Art was created in 1853. The term 'science' first appeared in government statements in 1852, when Queen Victoria committed her government 'to develop and encourage industry, art, and science' — a reference to those branches of study that relate to the phenomena of the material universe and its laws. Science referred to theory; art to practice. Science consists in knowing; art consists of doing.

Any art might have its own science (its theory), and vice versa. We can also speak of the art (practical aspects) of a scientific discipline — applied economics and economic theory.

Adapted from Burton (1999)

1.4 Linking science, technology, art and design in innovation

Figure 1 shows a framework for thinking about innovation that draws on the foundations both of science and technology and of art and creative practices.

The linking of scientific and technological aspects of innovation with the artistic and the creative, together with the enabling features of information and communications technology (ICT), has given rise to a very wide range of innovative products and services across all industries. It has stimulated growth in existing industries, stimulated the development of new ones, and led to fundamental change in others.

Creativity, established through art and design, is accepted as a major component of successful national innovation systems. The application of artistic and creative practices is a significant source of innovation and is generating substantial revenues and employment — and not only in what are termed the 'creative' industries.[4] Good design is a competitive differentiator in higher technology industries (motor vehicle manufacture, plastics, electronics, etc.) and a major source of competitive advantage and value creation in 'low technology' manufacturing industries (clothing and textiles, food processing, furniture, etc.).

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4   The ARC Centre for Creative Industries and Innovation defines the creative industries as covering advertising and marketing; film, television and radio; music and performing arts; software development and interactive content; and writing, publishing and print media. Further discussion on the creative industries is in Section 4.1.

Figure 1: Dimensions of innovation
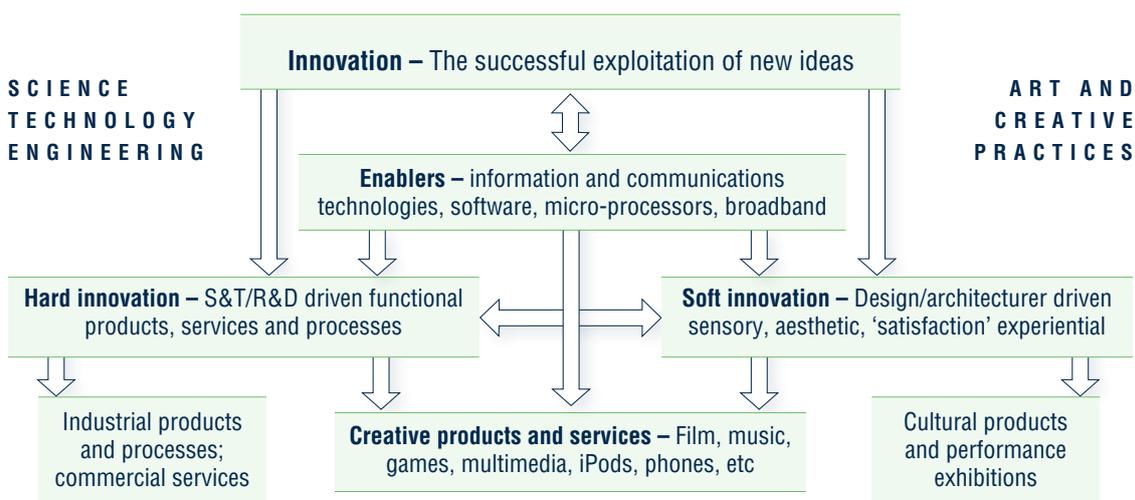
Source: Based on P. Stoneman (2007), An introduction to the definition and measurement of soft innovation, NESTA Working Paper, London.

Recent management thinking draws attention to the importance of artistic flows in business strategies, as well as in national and regional innovation systems. Davis and McIntosh (2005) note that sound and images are becoming as important as text for the way business is conducted and products and services are marketed. Sound and images carry emotionally richer communication than numbers and text. Creative artists and the consuming public have embraced digitised sound and images, while managers and administrators have been slower off the mark.

1.5 Innovation *and* design as key business drivers

Innovation is one of the distinguishing features of successful businesses. The other is marketing—seeking to create and service new customers. If businesses do not innovate and market, they very soon cease to exist—unless they operate as monopolies or depend on government grants and subsidies. Monopolies market to increase sales and customer reach, but they are rarely under pressure to innovate. Competition, increasingly from global sources, drives innovation at the enterprise level.

Policymakers have encouraged businesses to invest in R&D as a way of increasing the flow of new products to the market, introducing more efficient processes and developing more effective ways of doing business. In this way, it is expected that firms will become more productive, profitable and competitive, generating jobs and economic growth.

The commercialisation of research (whether undertaken in business, universities or public research organisations) has been seen as a major driver of innovation policies since the beginning of the technology boom in the mid-1990s. In practice, however, a great deal of research that is commercialised involves much more than scientific discoveries and technological inventions. For example, it can also involve licensing copyright in multimedia products developed through research in the arts, social sciences and humanities.

In the emerging global economy, it has become more difficult for businesses to compete on technology and cost alone. They must compete on 'non-price' factors, such as brand, reputation, product 'look and feel', and their ability to interact with customers. Design is a critical component of all the non-price factors that drive consumer purchasing decisions—and, ultimately, business success. Studies by the United Kingdom Design Council have shown that companies practising good design outperformed the *Financial Times* Stock Exchange Index by 200%.

Design covers a number of dimensions:

- *Industrial designers* design products for people to use. Their creative and practical input into the design and development of manufactured products provides the link between the manufacturer and the consumer.

- Industrial designers can be self-employed, or work in consultancies or for manufacturers. The areas they work in include research design; transport; electrical products; furniture; displays and exhibitions; and signage and packaging. Industrial designers often work in close association with other design professions.

- *Graphic designers* create visual solutions to communication problems. They use words, images and media to create messages from individuals or organisations. The messages can be conveyed by advertising, corporate identity, publishing, digital technologies and three-dimensional forms (packaging, such as swing tags, labels, boxes, containers, wrapping papers, carry bags and point-of-sale material).

In advertising, graphic designers prepare posters, brochures, pamphlets, catalogues, newspaper and magazine advertisements, and television and film graphics. In corporate identity, they design logos, symbols, colour and typography for stationery, documents, forms, uniforms, signage, promotional items and menus.

In publishing, graphic designers deal with print and digital publications such as books, magazines, annual reports, newsletters, newspapers, children's books, cards, calendars, diaries, websites and interactive multimedia (such as games, CDs and information kiosks).

- *Interior designers* design the inside of buildings and residences, usually in consultation with architects and building services engineers. They must take into account variables such as safety, ergonomics, proportion, space, colour, texture, light and sound. Interior designers can also be involved in exhibition design, set design for theatre, film and television, and the restoration of heritage interiors.

- *Architects* design buildings and spaces for functionality and artistic excellence.

However, one difficulty is that many people in business do not know how to work effectively with designers and other creative people involved in the practice of 'artful making' (Drucker 1999, Austin and Devin 2003).

The most recent review of innovation in the United Kingdom — *Race to the top: a review of government's science and innovation policies* (UK Treasury 2007) — acknowledged the strategic importance of design for innovation performance.

Why do science and technology businesses need design?

In his Treasury Review of science and innovation, published 5 October 2007, Lord Sainsbury of Turville put forward a range of policy proposals to boost the commercial performance of UK science and technology businesses (UK Treasury 2007).

Lord Sainsbury has argued that if the UK is to remain competitive in an increasingly global marketplace, design must be a strategic part of science businesses and of higher-education for the science and technology sector. He has proposed a new service to make design advice available to science businesses through universities. His review takes on ideas developed by the Design Council and the government has backed his recommendations with a pledge to invest £1 billion.

Lord Sainsbury recognises the need for a better understanding of the skills required to manage the design and operation of a UK science and innovation industry with global scope. He includes examples of how design has helped science businesses be more competitive and, following contributions from the Design Council, he makes recommendations about how design should be incorporated and expanded in science and technology higher education.

Source: http://www.designcouncil.org.uk/en/Live-Issues/
Can-design-make-science-and-technology-more-innovative

1.6 Research, development and design

The broad perspective taken by business has not always been shared by policymakers. The value for innovation of research outside science and technology domains has been largely overlooked—perhaps to the detriment of national and regional economic prospects. By focusing attention almost exclusively on investment in R&D as a proxy for innovation, and supporting scientific research and technology transfer, possibly at the expense of other areas of business innovation, government policy has often failed to support a large component of innovation activity.

In the United Kingdom, Europe, China, India, Singapore, Korea and New Zealand, policymakers are complementing R&D policies with policies oriented towards enhancing creativity and design. In the United Kingdom, the Design Council and the Cox Review of Design (Cox et al 2000) have been particularly influential. Creative inventions that combine design and technology are being increasingly recognised as key drivers of business success and economic development (Mitchell et al 2003). Recognising the importance of creativity, firms and policymakers are now giving higher priority to investing in 'talent' and skills as a base for innovation performance. Figure 2 shows a framework for addressing creativity and design in innovation.

Figure 2: Linking creativity and design to business performance
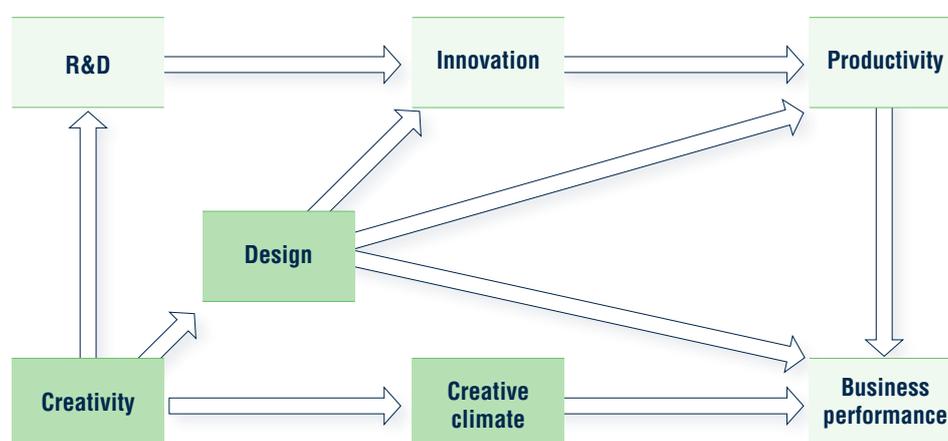
Source: Swann, P and Birke, D (2005) ' How do creativity and design enhance business performance? A framework for interpreting the evidence' DTI Think Piece, University of Nottingham Business School,

In this framework, the following definitions apply (DTI 2005, UK Treasury 2005):

- *Creativity* is the generation of new ideas—either new ways of looking at existing problems, or seeing new opportunities, perhaps by exploiting new technologies or changes in markets.

- *Innovation* is the successful exploitation of new ideas. It is the processes that carry them through to new products, new services, new ways of running the business, or even new ways of doing business.

- *Design* is what links creativity and innovation. It shapes ideas to become practical and attractive propositions for users or customers. Design may be described as *creativity deployed to a specific end*.

There is no single, authoritative perspective or definition of creativity. A seemingly simple phenomenon, creativity is in fact quite complex. It has been studied from the perspectives of behavioural psychology, social psychology, psychometrics, cognitive science, artificial intelligence, philosophy, history, economics, design research, business, and management. Studies have covered everyday creativity, exceptional creativity and even artificial creativity.

Although popularly associated with art and literature, creativity is important in many other fields, such as business, economics, architecture, industrial design, and science and engineering. The pursuit of creative ideas has also involved the development of 'creativity techniques' and the definition of industry sectors.

Discussions and assessments of innovation capability increasingly refer to 'research, design and development' (RDD) as a conceptual unit (see box).

Design contributes to productivity by improving process efficiency, and to business performance through branding and marketing by enhancing the aesthetic and symbolic appeal of products. Good design differentiates products and establishes brand premiums. Cities and regions, as well as businesses, set out to create 'brands'. However, a successful brand must be backed up by a reputation for quality, constancy, reliability—and innovation.

Some companies are not constrained by traditional notions and are adopting increasingly sophisticated approaches to innovation. For example, just over half the respondents to a recent Confederation of British Industry innovation survey agreed that the social sciences were just as important to innovation as the other sciences and technology; only 20% thought that all innovation depended on technological developments. Fifty-six per cent believed that innovation is always market driven (DTI 2005).

Research, design and development

Design is the 'missing' third component of R&D. It has tended to be considered very much as a peripheral activity. The position of design is not secured firmly in the R&D milieu and this could help explain why many innovations are conceived, but not commercialised in Australia. Failure in the innovation process in Australia occurs largely at the commercialisation stage.

Design is, in reality, a core element of R&D, a key part of the continuum, not merely a support activity, and this is worthy of recognition by industry and government. The R&D process is more correctly described as *research, design and development*. This redefinition has obvious implications for design industry policy, practice, financing, taxation and research funding.

While the Department of Industry, Science and Technology has accepted design as an important element in innovation, the linkage to R&D is not so well enunciated. Theme papers prepared by the department for a forum on Innovation in Industry, when identifying aspects of technological innovation, positioned design as an incremental rather than a competitive or strategic influence.

There is a requirement for design to be elevated to be a core element of the technological innovation process and, therefore, to emerge as a major source of business innovation and competitiveness.

Source: National Design Review (1995)

More recently, an Australian report on research and innovation systems in the production of digital content and applications (CIRAC–Cutler 2003) argued that the nature of R&D and innovation in the creative and content industries has not been closely examined—largely because those industries have tended to be at the fringes of national discussions about science and innovation policy and about related funding and industry programs.

Design also connects with the perceived value of *services*. Companies are looking to design services not so much according to what those services do, but according to the experience that they elicit from the people using them. Businesses are calling on a range of creative and innovative expertise, such as artists expert in the psychology of colour and architects who specialise in designing for people. In these respects, innovation is becoming a much more socially oriented activity, rather than a purely technological and functional one.

The economic and business significance of design was recognised by Australian Government ministers in the early 1990s, and was articulated in the 'Design Challenge' set out in the National Design Review (1995):
Australia needs to secure strategic advantage through providing innovative solutions to the needs and desires of customers here and overseas.
Design will be fundamental if Australia is to meet this national trade challenge because, as detailed in this study… it is Design that provides the commercial basis for creating and adding value, for enabling the successful commercialisation of innovations and, ultimately, for providing competitive advantage.
If Australia is to meet this economic challenge, designers and industry need to work together in productive partnership. The integration of Design into every aspect of creation of a product or a service is central to this.

Excitement over the promises of the 'technology boom' of the late 1990s was probably the reason that this message went largely ignored in Australian policy contexts until very recently. The Victorian and Queensland governments are now developing design-related innovation policies. New Zealand also has a well-developed design strategy (see box).

New Zealand's Better by Design Strategy

Design is under-used by New Zealand business. But the ability to create superbly designed products and services that command a premium price in global markets is not beyond our reach.

This was the conclusion from the Design Taskforce in 2003. The Taskforce (which consisted of designers, academics and business leaders) was asked by government to develop a strategy that would boost economic growth for New Zealand through the better use of design by our exporters.

The Taskforce pointed out that design was an area where New Zealand should have natural advantages because of our good education system, spirit of innovation, cultural diversity and sense of teamwork. Other countries such as the United Kingdom, Finland, Ireland and Hong Kong had taken a similar approach and had considerable success.

The Design Taskforce report, *Success by Design*, published in 2003, recommended a range of initiatives and programs be implemented to help New Zealand businesses become more design-capable. A $12.5 million budget over four years was approved by Cabinet, and early in 2004 a Better by Design team was established to deliver the program and promote the strategy to export-focused businesses and the design community.

The program was publicly kicked off in March 2005 at the Better by Design conference in Auckland. The Better by Design team sits within the Creative Industries team of New Zealand Trade and Enterprise.

Source: http://www.betterbydesign.org.nz/aboutbbd/background/

Available evidence suggests that the demand for design is growing, but it is also changing. It is shifting from a connection to product characteristics, such as packaging, graphics and logos, to the actual delivery of innovation, to establish brands and improve systems.

In the services sector, designers are working with users to create services that are more flexible and efficient and responsive to critical environmental factors, with sustainable solutions being designed into new products and services (DCCCS 2007).

1.7 Research and development funding for arts and creative practice

Much of the research that impacts on design, and the broader domain of arts and creative practices, occurs in art schools, schools of music, galleries, museums and theatres. However, funding for research in those institutions is not well established in public programs or effectively linked to innovation outcomes. On the other hand, exhibition- and performance-related innovation drives cultural institutions' strategies to build patronage and audiences.

Support for research in artistic and creative practices is beginning to emerge, but (at least in Australia) is not part of an overall R&D strategy aimed at achieving innovation outcomes. Other industries may have much to learn from arts and cultural institutions in building their 'customer' bases (audiences) with limited resources through the application of technology.

1.7.1 Australian Research Council and research metrics

The value and impact of research in the arts in our universities and colleges remains poorly understood. Applications for Australian Research Council (ARC) competitive grants in the area of creative arts are not numerous and have not increased in line with growth in the size of the creative arts discipline base in universities. In addition, the way the national education department registers research outputs has excluded all non-traditional, non-text-based activities. This systematic exclusion has had financial and, most importantly, hugely symbolic significance for what counts as research.

Much of the R&D in the arts is practice- and performance-based. It does not fit easily into the categories of 'basic research' or 'discovery/curiosity research', although by its nature it is researcher driven. The ARC is largely demand-driven and has not taken it upon itself to build up competitive capacity in early-stage research disciplines such as the creative arts. Building up that capability is a task for the universities that have taken over the arts colleges.

In the United Kingdom, the Arts and Humanities Research Council (AHRC) recognises that a great deal of high-quality research takes place outside universities, and that research in many areas of the arts and humanities is founded on the unique resources and expertise of the United Kingdom's museums, galleries, archives and libraries.

The AHRC funds practice-led research and applied research in which practice is an integral component. Research funding proposals must:

- include practice as an integral component (or theorise that practice), in relation to its research questions, issues or problems, its outputs and outcomes, and crucially its research methods or approaches, thereby generating new or enhanced knowledge and understanding in the discipline

- be undertaken with a specific view to generating outputs and outcomes with a defined application beyond the higher education sector (for example, new or improved systems, designs, artefacts, exhibitions, performances, events, products, processes, materials, devices, services, films, compositions, broadcasts, or policy guidance).

The AHRC expects practice-led research outputs to be accompanied by some form of documentation of the research process, as well as some form of textual analysis or explanation to support the researchers' position and to demonstrate critical reflection.

1.7.2 The Australia Council

The Australia Council for the Arts is the Australian Government's arts funding and advisory body. It undertakes arts research and policy development, and advises governments and industry on issues affecting Australian artists, such as taxation and insurance. It does not specifically fund research into the arts.

The council has set out to establish a coordinated approach to arts–science collaboration via its Synapse Art and Science Strategy (see box). A memorandum of understanding with the ARC enables the two councils to work together to support innovation in areas where Australia can be globally competitive and deliver benefits to the community.

Through its relationship with the ARC and other key organisations, the Australia Council intends to build research capability in the arts and grow recognition of and investment in emerging, cross-disciplinary areas of creative practice.

Synapse: a cross-disciplinary research framework

The objective of the Synapse program is to encourage creative and experimental collaborations between creative practitioners and scientists through:

- Australian Research Council Linkage Grant Industry Partnerships

- Synapse Residencies

- Synapse Database.

Critical to the success of Synapse has been the involvement of a range of key stakeholders, including the ARC, the Australian Network for Art and Technology and the Commonwealth Scientific and Industrial Research Organisation.

The Australia Council's Synapse research framework is intended to promote and grow existing support for research in the creative arts and improve research capability in cross-disciplinary areas. It will heighten awareness across the government, tertiary and industry sectors of the value and impacts of creative practice and arts-based research.

The Australia Council Visual Arts Board initiated the Maker to Manufacture to Market (MMM) program in 2005 as a strategic initiative. Based on findings from *Don't give up your day job*, (Throsby and Holister 2003), the program encourages Australian designers to commercialise a prototype product, take it to market and earn income.

To date, six Australian craft-design makers have received $30,000 each to develop their design prototype and take it to market. Recipients include designers of wallpaper, objects for interiors, tableware, street furniture and ceramic tiles. The MMM initiative aims to increase the engagement of Australian designers with the manufacturing sector, resulting in the production of more innovative products and their release into the local and global markets.

1.7.3   Other government support agencies and funding bodies for R&D

The Australian Film Commission, the Australian Broadcasting Corporation, and a number of state funding bodies have support and funding charters for the arts and creative practices. Those bodies generally have specific cultural objectives to fulfil, rather than industry development agendas.

1.7.4   Industry enterprise development programs

The Australian national and state governments fund a large number of enterprise development programs aimed at building entrepreneurial capability and commercialising ideas, inventions and new business concepts.

Most programs, such as the R&D tax concession, have a focus on *technical* innovation, which precludes support for commercialisation based on design and artistic practices unless there is a substantial ICT component.

Using the broader concept of innovation, businesses based on design and the application of creative practices should also have access to innovation support funding.

1.8 Conclusions

Arts and creative practices sit alongside science and technology in the innovation system. With the enabling attributes of ICT, arts and creative practices make significant contributions to innovation across all industries.

Design has become an accepted element of industrial and innovation policy in most of Australia's competitor nations. While there are initiatives in some Australian states, there is no nationally oriented design policy.

Available evidence suggests that the demand for design is growing, but is also changing. It is shifting from a focus on product characteristics (such as packaging, graphics and logos) to the delivery of innovation to establish brands and improve systems.

Good design is the best means to improve social, physical and economic wellbeing. In modern society, almost all human actions are affected by design decisions. Advanced economies depend on good design: badly designed products, systems and services seldom thrive in the global marketplace. Contemporary products are complex, and their design is inherently multidisciplinary and multisectoral.

In the services sector, designers are working with users to create services that are more flexible, efficient and responsive to critical environmental factors, with sustainability being designed into new products and services (DCCCS 2007).

Funding for R&D in design is fragmented and rarely designated as R&D. It sometimes gets 'under the radar' when included as an element of a funding proposal with a more technological component.

Enterprise development programs tend to be focused on technological developments. They address business concepts built around art and design where there is a strong technology component (such as in games development), but much R&D in arts and design is about presentation and performance. The inbuilt bias in R&D funding programs towards product- and process-based research places the arts and design sector at a disadvantage, limiting its access to funding for innovation.

Chapter 2

Creative industries and creative practices in the innovation system

While Section 1 argued that art and design provide important inputs into manufacturing and other goods-producing industries, this section examines the innovation role of the *creative industries*—a cluster of economic and industry activity built on the application of creative practices to produce value through expression and experience.

Particularly interesting is the way creative industries have developed and are evolving by exploiting innovations in the visual and performing arts through the application of digital technologies.

2.1 The creative industries

The creative industries are characterised by a business model in which ideas of expressive value are created and commercialised.[5] Those ideas can range from a pleasing song or appealing advertisement to the latest interpretation of Shakespeare or a new design for a car. Creative businesses create new insights, delights and experiences, add to our knowledge, stimulate our emotions and enrich our lives (Work Foundation 2007).

It is sometimes argued that creative businesses have their origins in a process of inspiration, iteration and experimentation, rather than in any codified body of knowledge, as would be the case for a biotechnology start-up company. Legally, their business models are based more on the right to copyright the ideas they originate, in contrast to the business models of manufacturers, who patent innovations because of the uniqueness of their function or purpose.

In practice, creative industries business activities do involve reference to a considerable body of knowledge and theory. Inspiration is quite often a response or reaction to what has gone before.

The emergence of the creative industries as an industrial force has been largely enabled by digital technologies, which have linked creative outputs and commercial opportunities. For many people, the challenge is to see creative output as both artistic and valuable in its own right, and as a commercially oriented activity that is valued by others. One does not necessarily compromise the other.

2.1.1 Scope

In Australia, the ARC Centre of Excellence for Creative Industries and Innovation (CCI) has done much work to define and select industry and occupational classifications to measure the scope of the creative industries (Higgs et al 2007ab).

The CCI identifies the creative industries in six segments:

- advertising and marketing

- architecture, design and visual arts

- film, television and radio

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5   This contrasts with other industries, in which business models are based on commercialising technologies that have material and functional value. Many new and successful business models are based on commercialising both technological and expressive value.

- music and performing arts

- software development and interactive content

- writing, publishing and print media.

These segments involve the input of knowledge from all branches of the sciences, including the social sciences, as well as the arts and humanities.

2.1.2 Economic significance

The CCI has produced evidence to suggest that the contribution of creative activity to the Australian economy is much greater than official statistics show, suggesting that there is greater potential for creative work to be recognised as part of the overall economy than is currently the case.

Around the world, there is a growing awareness of the economic significance of the creative industries. It has been estimated that the global market value of the industries increased from US$831 billion in 2000 to US$1.3 trillion in 2005. For example, the world market for mobile music is expected to reach US$6.4 billion by 2009 (NESTA 2006a).

The United Kingdom's National Endowment for Science, Technology and the Arts (NESTA) has argued that: *Policymakers from across national governments, and not just the traditional advocates for these sectors, need to concentrate on the opportunities and challenges facing these sectors from an economic point of view. (NESTA 2006a)*

In the United Kingdom, the estimated industry gross value added of the creative industries is 7.3% across 11 industry segments (Holden 2007).

The contribution of the cultural and creative industries to economic development is being acknowledged globally (see box). Some of this stems from the work of geographer Richard Florida (2002), which has a focus on the supply side, but there is a growing recognition of demand side factors.

European Capital of Culture

The recent competition to be European Capital of Culture 2008 has drawn attention to the economic impacts of cultural institutions. One of the short-listed cities, Newcastle–Gateshead, estimated that, if successful, it would attract some 4 million new visitors with £700 million to spend in the local economy, and generate 17,000 jobs along with £100 million more through conference business. These dividends would cascade throughout the whole region.

As part of its bid, Newcastle University planned a reconfiguration of its museums, gallery and other cultural outreach activities into its own Cultural Quarter.

The other five short-listed cities all provided evidence of the predicted economic impact of an 'urban renaissance' driven by cultural regeneration. They also demonstrated the benefits to the United Kingdom as a whole of cultural tourism.

The short-listed cities were all designated Centres of Culture by government to assist the development of appropriate programs and policies.

In Australia, the CCI has estimated the primary impact of the creative industries in both employment and value-added terms (Higgs et al 2007a):

- In 2001, the creative workforce, comprising about 437,000 people, was spread across the specialist creative businesses and in creative occupations in other businesses. It was equivalent to 5.4% of the total Australian workforce. Within that total, 300,000 people were employed in firms specialising in the production of creative goods and services, and 137,000 people worked in creative occupations embedded in other industries. When occupation in specialist creative businesses is broken down into creative

occupations and support occupations, it is apparent that there are more 'creatives' employed outside the cultural and creative industries than inside them.

■ During 2001, the value of salaries and wages of people in the creative workforce was almost $21 billion, or 7% of the earnings from all Australian employment. Between 1996 and 2001, the average annual growth rate of the creative workforce was 5%, considerably greater than for the total workforce (1.9%).

Creative businesses are more likely to be 'microbusinesses' than are businesses in the economy as a whole: 40% of GST-registered creative businesses are sole traders, compared to 35% across all industries.

2.2 The contribution of creative practices in other industries

While the economic impact of the creative industries defined by traditional measures appears to be relatively modest (although growing rapidly), the key point is that expressive value is becoming an important feature of many segments of the manufacturing sector (for example, food, textiles, clothing, other consumer products) and the services sector (including building and construction, transport, trade and business services).

The CCI's calculations indicate that people working in 'embedded creative occupations' (that is, people working in industries other than the specialist creative industries) accounted for 2% or more of total employment. The proportion of embedded employment exceeded 3% in communication services, finance and insurance, and government administration and defence.

Manufacturing has moved beyond a production- and sales-centric approach, dominated by semiskilled process (factory) workers and sales forces, to one built on high-level technical skills, creativity and design, engagement marketing, and customer service. Digital technologies and the internet allow for small-scale production and mass customisation (Howard Partners 2005a).

Australia has major commercial strengths in fashion, visual art and object art that are often overlooked in discussions of innovation. The production of original work is a significant aspect of the Australian craft-design field. There is an extensive system of private and public galleries that support, promote and collect this work. Moreover, one-off practice is vital for the development of designed works. Designers regularly cross the boundaries between production and research practice, to evolve their position in the cultural framework.

Object Australian Centre for Craft and Design

Based in Sydney, the Object Australian Centre for Craft and Design is developing and presenting Australian works in exhibitions that tour to national and international venues, in a strategy to promote Australian craft design practice to new audiences.

Freestyle: new Australian design for living is the most recent outcome of the strategy. The exhibition was on show in Sydney during the 2007 Smart Works exhibition and toured other major centres in Australia. An extensive website for ongoing interaction gives greater detail about the venues and the featured artists. The exhibition brought together the work and stories of 40 Australian designers from the fields of furniture, lighting, textiles, homewares, fashion, jewellery and accessories.

Handmade one-off and limited edition design objects are showcased alongside industrially manufactured items and prototypes—reflecting the breadth and nature of design excellence and innovation in Australia. This show toured international venues, as did *Global Local*, which went to London's Victoria and Albert Museum in 2005. These shows have provided a unique and timely overview of contemporary object design in Australia to new audiences.

Source: Freestyle website – http://www.object.com.au/pages/freestyle.html

Technology has enabled 'design-led' innovation in manufacturing — reflected in tools and techniques for modelling and scale-up (for example, stereolithography[6]) and computer-aided design (CAD) — and has enabled more effective collaboration between architects, designers, production workers and engineers.

The arts and creative practices are also a source of innovation in the services sector — reflected in value-added service offerings in transport, communication, tourism, sport and leisure.

2.3 The creative industries and the digital content agenda

The Creative Industries Cluster Study report (DCITA–NOIE 2002) reported that the production of digital content will be one of the major drivers of economic competitiveness in the coming decade and will make a major contribution to ensuring high levels of economic growth, a robust export capacity and a highly skilled workforce. The digital content industry is defined as covering the creation of digital content in the creative industries and in the wider professional service industries (for example, promotional material prepared by a law firm); it also includes distribution where value is created by circulating, transmitting or exhibiting digital content.

The report pointed out that digitisation is forging a new, wider and more complicated value chain for production, distribution and consumption of creative content. It pointed out that:

The original intellectual property in physical manifestations of content, or design, can be reformatted and embedded in a range of different applications, spawning a range of new services. Digital networking then allows these services to be accessed at a distance, even globally.

Simultaneously, the burgeoning impact of information technology on the whole services sector has emerged as a strategic and operational challenge for business and government. Capturing the economy wide benefits of ICT investment and profitable supply-side activity is now the declared goal of many governments worldwide.

The implications of these developments are that the boundaries between digital content, design, software development and services are blurring, and that content development is an input into *both* manufacturing and services sector innovation. For example, design has had an impact in enabling access to technological applications (see box).

Linking technology and design in industry

By making technology accessible to ordinary human needs, the designer can play a crucial and enabling role. Without this essential interface, technology is a source of frustration and alienation that leaves us longing for 'the good old days'. In a similar vein, Harkins argued that designers are 'humanizing the … technology, bringing meaning to the objects of our age'.

An increasing number of companies indeed invest in design to gain a competitive edge in the marketplace. 'Design-intensive' firms — often operationally defined as firms with relatively large design budgets — are not only found in 'user-driven' sectors where design has traditionally played an important role, such as fashion and furniture, but also in more 'technology-driven' industries.

An example of a technology-driven firm that nonetheless invests considerably in design is Apple, which had a huge commercial success with the stylishly designed iMac computer. Nokia is another example of a company that not only invests heavily in technology, but also in design and where this attention for design plays a key role in explaining the company's success.

http://www.premsela.org/_images/2007/00273.pdf

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6   Stereolithography creates three-dimensional objects using a computer-controlled laser to build up the required structure, layer by layer, from a liquid photopolymer that then solidifies.

Software, like cement, is everywhere. Software development is embedded in mobile phones, on home computers, in cars, aircraft, hospitals, factories, businesses, public utilities, financial systems and national defence systems. Software has become an increasingly critical component in the operation of infrastructures, cutting across almost every aspect of global, national, social and economic function. 'It is not possible to live in a modern society without touching, being touched by, or depending on software in one way or another'.[7]

The development and application of software is having a major impact in the creative content industries, as value chains restructure and the sources of economic value creation shift. The recorded music industry, as well as film and video production, is going through major restructuring as people access and download music files to computers and portable players. In that industry, value creation has shifted from the creators of content to the manufacturers of devices.

At the same time, however, technology is not necessarily a differentiator in many other industries—differentiation occurs in creative content and the ability to gain an audience as a basis for capturing advertising and transaction revenues. Innovation through imagination and ingenuity drawn from art and creative practices are central to business development and growth. Growth in the creative industries is founded in a range of skills and professions that link the creative arts, including design and architecture, to digital technologies.

The ability to digitally represent visual art and art objects expands markets and access to creative output. Digital representation and multimedia displays in libraries, museums, galleries and archives build audiences and interest in history, archaeology and anthropology, as well as making access to collections easier. In the United Kingdom and Europe, museums and art galleries are being refurbished and expanded, and auction houses are conducting record multimillion dollar sales. Those organisations have embraced digital content to enhance exhibitions, awareness and access.

The Creative Industries Cluster Study reported that the digital content and application industries are still heavily influenced by the structures of non-digital industries, from which they have evolved. However, new business models are emerging as digital content and application creation evolves and matures. Public policy is now moving beyond a focus on ICT and digital content as a stand-alone industry sector, to look at the applications of ICT across all industries.

2.4 The nature of the markets for creative output

Industry and innovation policy has moved away from a science-based 'linear flow' or 'supply push' view of technological progress to one that gives greater recognition to demand factors, or the satisfaction of what economists have traditionally termed 'wants'. A want can be expressed, implied or latent, waiting for an entrepreneur to see an innovation opportunity and take a risk by establishing a business and making investments to satisfy the want.

A report to the United Kingdom Department of Culture, Media and Sport found that current demand for creative output, and the desire to participate in producing and creating it, are on 'an extraordinary and unreported scale'. The demand underwrites the growth of the creative industries and provides a platform for a substantial international presence (Work Foundation 2007; see box).

Australia has many attributes similar to the United Kingdom's in the artistic, cultural and creative domain—although the scale and scope are less extensive. However, Australian society is well educated and increasingly affluent and new technologies are available, suggesting a similar demand trajectory.

Although much has been written about demand-driven innovation, a feature of the industries based on creative output is that demand is actually driven by supply.

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7   http://www.sandhill.com/opinion/editorial.php?id=169

> **Supply stimulates demand for creative output**
>
> Apple's iPod; video on demand; internet shopping; the personalised car; designer clothing; experience-intensive holidays; online banking; and many other forms of economic activity are supply responses to articulate, discerning, better educated, richer and more demanding consumers and citizen users. All are acts of innovative and creative origination anticipating, responding to or shaping demand from this new class of consumers. Importantly, there is an information technology-enabled 'iterative' relationship between consumer and producer, in which the knowledge offering is constantly being improved and changed by inputs from the consumer. In this sense co-production lies at the heart of the knowledge economy.
>
> *Work Foundation (2007)*

Consumers find it difficult, if not impossible, to anticipate the reward from a creative or cultural offering before they have experienced it. While many technologically complex products have this property, demand can often be assessed by reference to some objective criteria.

The demand for creative products is local, national and international. However, the market structure is complex, with many craft-based businesses relying on government assistance and subsidies for ongoing viability. Many entrepreneurs are not working full time, subsidising their work through part-time employment.

Some businesses are able to sell product for a higher price based on a reputation built up over many years, but only a few living artists have reached that status, with their working being collected in galleries and selling for high prices in the retail market. That level of achievement requires not only originality and quality, but also an effective arts entrepreneur (literary agent) who can attract the attention of reviewers and buyers and build links to them through formal and informal (social) networks.

Many businesses seek to mass produce items and sell for a low price. That approach is not sustainable over the longer term, as commodity-based manufacturers discover in a global market. Commodities approaches are easily replicated (or copied), and new entrants undercut existing providers.

A few businesses commit to creating a brand that is associated with quality and prestige. Successful manufacturing businesses have become 'brand managers', with manufacturing and service delivery operations outsourced or franchised under tight quality control and assurance arrangements.

Figure 3 illustrates the creative market structure.

Figure 3: Creative industries market structure

Quantity		
Expensive	**Creator** *Compete on reputation* *Value in name of author, artist creator-based businesses*	**Brand** *Compete on quality, image, style* *Design, ideas-based businesses (e.g. Apple, Nokia)*
Cheap	**Ideas, craft-based** *Little competitive activity* *Sentimental/leisure/lifestyle pursuits not seen as businesses*	**Commodity** *Complete on price* *Mass production-based businesses Little differentiation (e.g. Dell)*
	One	Infinite

Quantity

Source: Craig Bremner, School of Design and Architecture, University of Canberra.

The challenge for innovation policy is to transform ideas and craft-based businesses into larger, more viable and sustainable businesses built on the basis of brand, the reputation of creators and artists, or both.

Assistance and support through an innovation centre would provide the foundation for building skills and capabilities in this area.

2.5 Knowledge transfer in the creative domains

Meeting the demand for creative output can involve 'knowledge transfer' between cultural institutions and commercial and other users of the output. Such transfers have a direct and an indirect economic impact.

John Holden, of Demos, a British think-tank, has argued that public funding for culture feeds through into economic activity in the creative and other industries in a number of direct ways (Holden 2007):

■ Public agencies provide funding for projects, as well as commissioning and facilitating work within the creative industries.

■ There is a direct connection between subsidised theatre and successful film production.

■ Publicly funded theatre is a locus for experiment that sometimes translates directly into commercial culture.

■ People who spend much of their working lives in publicly funded culture are employed 'ad hoc' in the wider creative industries (for example, orchestral musicians play on film and advertising soundtracks and with pop and rock musicians).

■ Museums and galleries (which are not themselves included within definitions of the creative industries) provide a hugely important resource for designers, inventors and scientists. This reflects their role as 'knowledge repositories' in preserving physical and digital material.

■ Cultural organisations create markets for the creative industries through shops inside arts centres and museums, providing retail outlets for craft work and small-scale publishing.

■ Publicly funded cultural organisations act as brokers, bringing together practitioners from different sectors and helping to develop networks and practice.

■ Publicly funded cultural organisations act as a source of legitimacy for emerging creative talent and for creative industries' products (designer products are often displayed in galleries and museums, adding to their status as design objects as well as functional items).

■ The education programs of galleries, orchestras, theatres and museums help young people learn about different cultural and creative (including technological) forms, generating interest, enthusiasm and eventually a more creative workforce for the future.

■ Arts spaces provide cafes, bars, performance spaces, exhibition spaces, equipment rooms, rehearsal spaces, recording studios and projection rooms, often on a commercial basis, that enhance interaction and networking.

Quantifying the strength and overall impact of these mechanisms for knowledge transfer between public culture and commercial application would require further research. Just as policymakers continue to be concerned about the economic impact of basic research in science, they will require similar evidence for the creative industries. Nevertheless, it is apparent that investment in 'public culture' provides a stimulus in the domain of expressive value, just as investment in 'public science' provides a stimulus for the generation of new ideas in the science and technology domain.

2.6 'Public culture' as a platform for creative capability and innovation

The contribution of arts and cultural institutions, arts education and arts entrepreneurship in innovation systems is only beginning to be recognised. Cultural institutions have a direct impact in the creative industries, as well as in a broad range of industry segments.

A nation's public cultural institutions, including its libraries, museums, galleries, theatres and archives, have an important role in supporting the creative dimension of innovation. In addition, the nation's universities provide an important public culture dimension through their schools of visual and performing arts, architecture, design and music, as well as the cultural facilities and collections they own and manage.

Australia has an extensive public infrastructure of 'cultural capital' that has been accumulated over many years in museums, libraries, archives, galleries and performing arts centres. That cultural capital is a knowledge and creative resource for innovation across all industry segments, including the cultural and creative industries.

This section is specifically concerned with the role of public culture institutions in innovation, particularly in relation to R&D and knowledge transfer.

2.6.1 Libraries, galleries, museums and archives

In Australia, libraries, museums, galleries, and archives are not specifically funded for R&D, including creative development, despite their capacity to generate new knowledge about their collections and collection contexts.

However, most institutions have well-developed research programs. They require high-quality research to inform the interpretation and presentation of their collections, and they provide an important route for arts and humanities research to be communicated to a wider public. For example, the Australian War Memorial has a highly regarded capability in military history.

In Canberra, the national collecting institutions in the four collecting domains (archives, galleries, libraries and museums) have a major impact and influence on the development of the city's creative and innovative capability, particularly in the area of exhibitions and digital media (Howard Partners 2007). Similar influences can be found in state capitals and regional centres.

While considerable research has been completed in the professional fields aligned with each of the four collecting domains, there is little available that draws together the whole collections sector. For example, information is required about the sector's needs, about emerging trends and issues, about the major responsibility for digitisation of information and the preservation of digital content, and about the guidelines and standards that underpin sustainable development.

2.6.2 Universities

Universities are owners, patrons and agents in cultural life, as well as educational institutions that have a significant role in training and showcasing professional writers, visual and performing artists, filmmakers, designers, arts teachers, curators and administrators, and in the education of their audiences. They also undertake research in those areas.

In addition to research and education in the arts and design, the higher education institutions have an important part to play in supporting creativity and innovation through involvement in support for artistic and cultural activities:

■ as providers of cultural infrastructure and services

■ as key partners in the development of local economies and local or regional cultural institutions

■ as providers of skilled graduates with higher level knowledge and understanding in arts and humanities subjects

■ as specialist conservatoires in performing and visual arts.

A university community offers a wealth of cultural, institutional and recreational opportunities for social interaction, leadership and personal development. Universities support libraries, museums, archives, galleries and bookstores, and use those assets to hold performances (plays, music, readings, etc.). For example, the University of Melbourne is the owner of the Melbourne Theatre Company (see box) and the Ian Potter Museum of Art.

The University of Melbourne and the Melbourne Theatre Company

The Melbourne Theatre Company (MTC) is the oldest professional theatre company in Australia and a semi-autonomous department of the University of Melbourne. The company was established in 1953 as the Union Theatre Repertory Company, and was originally administered and directed by John Sumner. At that time there was no other professional theatre company in Australia — the theatre world involved amateur or imported productions.

Some of the notable early members of the company included Zoë Caldwell, Patricia Conolly, Noel Ferrier, Frank Gatliff, Barry Humphries, Reg Livermore, Monica Maughan, Frederick Parslow, Alex Scott and Frank Thring.

John Sumner was the driving force behind the MTC for 34 years, turning it into the nation's largest theatre company. In 1955, he directed the company's first Australian play, Ray Lawler's Summer of the seventeenth doll. He not only directed plays but was also responsible for developing the model on which most state theatre companies in Australia are now based.

In 2006, work started on the construction of MTC's own 500-seat theatre at Southbank. The company will continue to hire the Playhouse and the Fairfax Theatre at the Arts Centre, although on less frequently.

MTC has gone through many changes since its inception, but one constant is its relationship with the University of Melbourne.

In Melbourne, universities have also been active in creating and supporting 'cultural precincts' and cultural activities across the city — for example, University Square, Federation Square and the RMIT Design Hub on the Carlton and United Breweries site. Local governments have also supported the establishment of arts, design and creative hubs.

University-based schools and colleges of art, music and design have a growing role in innovation through education and training in areas that have direct commercial and business application. Start-up companies based on artistic and creative ideas emanating from current and former students in art, architecture and design schools, particularly when enabled by software and the capacity to create digital content, attract the interest of venture capital and other technology investors.

2.6.3 Public broadcasting

In Australia, as in Britain, public broadcasters' support for the arts to provide program content has been historically important in driving the adoption of new technologies. In turn, this has allowed mass scale in cultural products and services previously regarded as only available to social elites.

In radio, artists and producers saw opportunities and developed ideas for live performance, from talent shows and studio-based musicmaking to plays specially written for radio. The symphony orchestras were established to provide live and recorded classical music for Australian radio. The result was a massive adoption of radio right through the Depression of the 1920s and 1930s, providing a stimulus for a vibrant Australian electronics industry.

The 'killer application' (in 1980s terminology) was the music, the personalities and the strength of the storytelling for people unable to afford a theatre ticket.

The ABC (the Australian Broadcasting Commission, now Corporation) became the commissioner and distributor of much innovative artmaking in radio and television. With government funding for high-minded Reithian goals of public education and enrichment ('educate, inform and entertain'), the ABC drove skills and training for much of the commercial industry over three generations.

Similar forces were at work in commercial television, although in the very early days it was a maxim that Australian media licence owners could not afford to make their own drama. In practice and with time, the credibility of the television networks has been built on their Australian identity.

2.6.4 Public subsidies for film and drama

Australian content rules (adopted to implement high-minded policies of telling Australian stories in Australian voices), quotas for transmission and subsidy funding through the Film Commission and the Film Finance Corporation allowed the development of a commercial film production industry, including listed companies like Village Roadshow and Becker.

Australian Government and state government subsidies and local content rules have given film makers experience and incentive. For example:

■ George Miller's company grew on the back of the Australian content rules, before he began producing and directing international films such as *Lorenzo's Oil*, and allowed him to bring internationally financed films like *Babe* back to Australia to make.

■ The National Institute of Dramatic Art trained Baz Luhrmann, and then Opera Australia gave him a chance to produce in experimental studios and on the main stage of the Sydney Opera House.

In each case, cultural policy allowed rapid technological adoption, distribution and experimentation in the public and private sectors.

Advertising grew on the back of radio and TV: Australian creative talent spread internationally and produced some big creative careers, from film producer Phillip Adams to writer Peter Carey.

Chapter 3

Innovation policy for design and creative practice

Entrepreneurship and support for entrepreneurial initiatives have been a major focus of policy attention in the science and technology domains. Outside ICT-intensive activities, government support for new and emerging businesses based on the exploitation of ideas generated through artistic and creative practices has not been strong.

3.1 Policy contexts

The connection between design and creative practice and innovation is recognised internationally, and by several state and territory governments. An overview of national and international policy contexts is provided below.

3.1.1 Australia

Policies and programs that reflect these trends are not well developed in Australia. The role of design in driving innovation in manufacturing and services has been poorly recognised, as has the connection between art and design.

Policy roles and responsibilities are scattered across national ministerial portfolios and agencies:

- the Department of Innovation, Industry, Science and Research is responsible for the innovation and research aspects of the creative industries

- the Department of Broadband, Communications and the Digital Economy is responsible for the information and communications aspects

- the Department of the Environment, Water, Heritage and the Arts is responsible for the arts aspects, overseeing the functions of arts funding agencies and cultural institutions. It has an interest in digital content, but this does not extend to the creative aspects of multimedia innovations.

In 1995, the Australian National Design Review reported that the challenge facing Australian industry is to exploit its design potential in order to redress an unacceptable balance of trade performance. It concluded that:

whilst Australia has strong, capable and innovative manufacturers, service providers and marketers and many consumers recognise good design and this is frequently reflected in their choice of imported consumer products and brands over those produced in Australia. (National Design Review 1995)

This problem continues, but has perhaps become more urgent. Only the Victorian Government has developed a design strategy as part of its innovation agenda (DIIRD 2007).

The only Australian Government agency with a specific responsibility for design is IP Australia (formerly known as Australian Intellectual Property Organisation), which administers the legislation covering patents, trade marks and designs. The organisation or its predecessors have administered the Designs Act for 100 years (see box). The centenary Design Act celebrations have been low key, and do not appear to have embraced the broader R&D constituency.

One hundred years of designs registration

When thinking about Australian innovation, people often think about inventors, but the work of designers plays an equally significant role in our lives. From around the house and workplace to leisure and fashion, design is fundamental.

On 10 January 1907, a combination over-all garment by Albert Holdsworth became the first design to be registered in Australia.

Since then, more than 150,000 designs have been registered. Notable registrations include Primal Prawnstar, a fishing lure that mimics nature with flicking tails and lifelike swimming movements, the Albion Cricket Helmet, which is a fixture within the Australian cricket team, and the Speedo Fastskin suit, the streamlined full-body swimsuit that took the world by storm at the Sydney 2000 Olympics. Other notable registrations such as these have gone on to win Australian Design Awards.

Whilst patents and trade marks are well known terms, the registered design is the main game for designers. Design registration helps designers protect the visual appearance of a product but not how the product works.

This year, IP Australia, the federal government agency responsible for administering intellectual property rights in Australia, is celebrating the registered design by hosting some important events to mark this milestone.

Source: IP Australia

The Australian Government provides support for the Australian Design Awards, which are administered by Standards Australia. The awards have an important role in promoting Australian design nationally and internationally, presenting the best examples of Australian design and innovation, and showcasing the high quality of design expertise available to manufacturers in Australia and overseas.

Through the awards, Standards Australia aims to help the design industry set and maintain standards of design excellence. Since acquiring the program in 1991, Standards Australia has grown the awards to cover an increasing number of design disciplines.

A national interest program exists to raise the profile of professional design in Australia and its contribution in the development of globally competitive products. Standards Australia also delivers industry seminars on design and innovation, and supports national and international exhibitions and the student design awards.

The Design Institute of Australia, the design industry body represented in each state, performs a similar role without government subsidy.

Many industry organisations and professional organisations represent the arts and creative practices industries in various ways. Unlike most other industries, the creative industries have no peak body to represent their views and advise government on policies and programs to promote their development in a strategic and consistent way.

The arts and design sector is fragmented, with many small organisations working in their own domains. It is very difficult to obtain a 'big picture' of innovation throughout the sector.

3.1.2 International

The United Kingdom has led the world in its recognition of the importance of the creative industries and has made significant investments in their development (NESTA 2006a). The recent Cox Review of Creativity in Business addressed the question of how to exploit the nation's creative skills more effectively (UK Treasury 2005).

The United Kingdom has recognised that there are substantial competitive challenges to its pre-eminent position as an international centre for creative businesses. Other countries are implementing policies that are even more ambitious than Britain's.

The Design Council has been an important instrument for building capability in the United Kingdom's creative industries. The council has existed for more than 60 years, although over that time its remit and activities have changed substantially. It is currently focused on the following aims:

- influence national policy, making sure design is at the heart of government thinking

- direct a program of design support for United Kingdom businesses

- initiate new thinking on ways to design public services around the needs of people who use them

- run a program called 'Designs of the time' (Dott), which gets people involved in exploring how design can improve their lives

- provide the United Kingdom with authoritative design research, knowledge and signposting.

A new program, 'Designing Demand', has been recently initiated by the Design Council (see box).

The United Kingdom Design Industry Advisory Panel recently released a comprehensive development plan for building skills in the design industry (DCCCS 2007). This followed a major report from the Work Foundation for the Department of Culture, Media and Sport that identified issues and R&D needs for Britain's creative industries (Work Foundation 2007).

In the United Kingdom, a wide variety of schemes are available to support businesses in design innovation. Britain's nine 'regional development agencies' have identified more than 70 different initiatives that aim to link creativity, design and business in some way. Some are specialised, relating to particular local conditions and focusing on specific sectors.

Designing Demand

Designing Demand is a new design support program for United Kingdom businesses developed by the Design Council and delivered in partnership with regional development agencies to help businesses become more competitive, increase their profits and boost their performance.

Designing Demand is the only national design support program offering flexible, structured processes, including individual attention from expert Design Associates with extensive business experience. The program has been developed specifically to help small and medium sized businesses. However, within that sector of the economy, any type of company can take part, whether it is a start-up, and established business or an enterprise commercialising new technologies.

Other parts of Designing Demand are devoted to helping designers understand businesses' needs and issues, and to helping business advisers spot design opportunities for their clients

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New Zealand has launched a design strategy and is looking to breed a cohort of design-led firms—brand builders based on ideas grown in New Zealand.

The German Design Council (*Rat für Formgebung*) was founded as an initiative of the German Federal Parliament in 1953 to meet the business world's growing need for information about design. Today, the council is one of the world's leading competence centres for communication and know-how transfer in the design field. With competitions, exhibitions, conferences, consulting, research and publications, it offers perspectives for representatives of business and design disciplines.

The Swedish Industrial Design Foundation (SVID) was established to improve awareness in the private and public sectors of the importance of design as a competitive tool and to encourage the integration of design methodology into their activities. It was founded in 1989 by the Royal Swedish Academy of Engineering Sciences, the Swedish National Board for Industrial and Technical Development, and the Swedish Society of Crafts and Design.

At the time of its foundation, SVID's focus was on industrial design, but it now works across a much broader spectrum to demonstrate design as a force for development. Its target groups include industry and commerce, local government, designers, universities and colleges.

SVID is financed by the commissions it receives, primarily from the Ministry of Industry, Employment and Communications. In addition to the annual government commission, SVID runs projects funded by industry, regional bodies (such as county administrative boards and regional societies), and the European Union.

Eminent designer and consultant John Thackara, author of *In the bubble: designing in a complex world* (Thackara 2005) and participant in a Hong Kong design task force, has observed that 'what's impressive about emerging economies is not where they stand today, but the scale of their commitment to knowledge-intensive industries, including design, in the near future.'[8]

A view is emerging that technology cannot be the sole engine for innovation and that increased funding for basic research in the hard sciences is not enough. For example, the Indian Government released a national design policy in 2006. The plan includes a 'Mark of Good Design' that qualified companies can fix to the items they export. Only well-designed products that take the user, the environment, materials and ergonomics into account can carry the mark. The government wants to ensure that the words 'Designed in India' come to mean good value, just as the Woolmark has done for the wool industry.[9]

India is seeking to become a global design hub. Already, most of the major IT and technology companies are basing R&D centres in India. The government is currently rolling out design-led business and academic centres.

Taiwan has a robust design policy, supported by a growing number of design schools. South Korean students outnumber every other nationality in most graduate design programs in the United States, and Samsung is being seen as an upcoming innovator.

China is shifting its manufacturing base from OEM (original equipment manufacturer) to original design manufacture and brand-manufacturing operations, and Hong Kong set up a design task force in 2001. In the past 20 years, China has opened 400 specialist design schools to train designers and build design capabilities. The government wants to build on the expertise that China has established in manufacturing and technology, and turn it into new ideas and intellectual property that can be exploited to build Chinese brands.

Singapore has decided to create centres bringing business and design and creativity together. This follows and is similar to initiatives in Korea, Denmark and many other nations.

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8   Niti Bhan, Business Week, 27 December 2005.
9   The Design Policy Statement is at http://pib.nic.in/release/release.asp?relid=24647

3.2 Support for artistic and cultural entrepreneurship

Arts and cultural entrepreneurship has a long history. For example, Ambroise Vollard promoted the work of impressionist painters including Cézanne, Gaugin, Degas and Picasso, and had a decisive influence on modern art. He also became very wealthy, and generated substantial wealth for the artists (Rabinow 2006).

Australia also has a long history of arts entrepreneurship. The typical pattern of development in Australian creative industry has been growth propelled by the vision, capability and business acumen of a charismatic entrepreneur — for example, Hector Crawford, Reg Grundy and Rupert Murdoch.

There are large challenges in taking a start-up business to international growth and sustainability. However, with digital technologies, global businesses no longer have to 'be big to be global'.

Most Australian creative entrepreneurs earn low incomes and face many obstacles to generating income from their artistic and creative work. With 80% of professional practising artists now employed as freelancers or contractors, many are effectively operating as microbusinesses and working across multiple sectors, but without much external financial support.

In August 2004, the Australia Council adopted a plan to improve artists' incomes, in response to the findings of the most recent survey into individual artists' incomes and employment circumstances, reported in *Don't give up your day job* (Throsby and Holister 2003). The plan recognises the significant entrepreneurialism of creative practitioners, and identifies a lack of start-up capital and business development skills as barriers between many artists and business development opportunities.

The plan recommends pilot initiatives in creative industry development, two of which have already assisted artists to build pathways to commercialisation in high-growth areas: Maker to Manufacturer to Market, and Mobile Journeys. It also recommends investigation of industry assistance programs that might be promoted or adapted to assist artists.

Create + Accelerate — Support for creative enterprises and innovation

Create + Accelerate is a program of support to artists in building sustainable and rewarding creative careers. It will offer information and services to support the Australia Council's activity in the area of artists' earned incomes.

The core elements of Create + Accelerate are:

- access to information on existing industry assistance programs for creative industries, including an interactive 'money map'

- information about initiatives funded through the council's 2005–06 Strategic Allocations in the area of artists' earned incomes

- continued investigation of digital content distribution models for creative content and applications.

The Australia Council's remit does not extend to the 'design' industry, although a board for design and architecture has been mooted for some time.

In its report to the United Kingdom Department for Culture, Media and Sport in June 2007, the Work Foundation pointed out that building a business around the commercialisation of expressive value presents particular business challenges. Forecasting demand for a film, novel, painting or designer clothing, or the impact of an advertisement, a new computer game or a new design, is much more difficult than making predictions about products and services with more functional and tangible content (Work Foundation 2007).

To make matters more difficult, the 'creatives' (the 'talent') are often motivated by a desire to fulfil their art, and the creative process necessarily involves marrying and integrating diverse and sometimes very individualistic people into successful teams. Consequently, management challenges are particularly difficult.

In many ways, the challenge parallels those of a decade ago, when scientists and engineers were first encouraged to face commercial realities. Venture investors were not keen to support companies that simply wanted to do more R&D.

In the technology sector, the challenge was met mainly by emerging science and technology entrepreneurs, the venture capital asset class, and venture capital investors who saw innovation opportunities. Between them, they created business models that attracted the interest of investors, consumers and other end users. The problem was *not* resolved by turning scientists into entrepreneurs—although some individuals became very good at business building.

Technology entrepreneurship came into prominence with the technology boom of the late 1990s. In Australia, over the period from 1995–96 to 2003–04, a total of 226 venture capital fund managers invested in the Australian venture capital sector. Of those, 175 invested at the early stage (taken to include 'seed', 'start-up' and 'early expansion' stages) and allocated $1,528 million to 723 early stage companies. The highest proportions of investments were in the communications, health/biosciences, information technology and software, and business and financial services sectors (Howard Partners 2005b).[10]

Over the past two years, venture capital investors have been turning their attention to supporting creative ideas rather than patentable scientific discoveries and technological inventions. In many situations, such as Web 2.0-based developments, technology has become a commodity and 'a big idea can go a long way provided there is a rapidly growing audience' (Knowledge at Wharton 2007). When technologies can be acquired 'off the shelf', the main focus of investor attention is on growth through network effects, the potential to sell advertising and transaction revenue.

3.3 Issues to consider

The preceding discussion points to several important issues from an innovation perspective: policy development, intellectual property, and skills development.

3.3.1 Intellectual property issues

In an increasingly digital, communicative and networked environment, we need to manage copyright strategically, as it is critical to the success and competitiveness of Australia as a laboratory for innovation. That will mean reconstructing some of the key policies concerning information management in the publicly funded sector. Some of this work has already begun in such organisations as Geoscience Australia and the Australian Bureau of Statistics.

Almost everything communicated over the Web is copyright protected. In some cases, people will own copyright; in other cases, people want to use the copyright of others. Important questions about the obligation to share and the right to access and reuse copyright material need to be closely considered as part of the copyright law reform process.

Over the past five years, there has been much debate about the availability of academic publications (journal articles) through the internet. Many researchers want to have the fruits of their labour communicated to the broadest possible audience as soon as ideas start to emerge. This allows the serendipitous and collaborative dynamic of research to be activated instantaneously on a global scale. Allowing a much broader range of people to see and comprehend scholarly work enhances opportunities for feedback, improvement and genuine international collaboration.

As the focus moves from publications to data, the form and manner of compilation will attract copyright protection. There are questions about how such material can be better shared. Moreover, as much of this

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10   Investments in these sectors generally include a significant information technology and software component.

research output (copyright material) is publicly funded, the technologies at hand should be used to enable the wide dissemination of results.

While opening up data and publications will be an important part of the way forward, the key thing that both copyright and patent policy need to take into account is that knowledge production is no longer a linear and isolated process. New-generation Web 2.0 platforms like YouTube and MySpace have (re) introduced notions such as 'user-generated', 'peer-produced', 'distributed', 'social networking' and 'sharing', making it difficult to uniquely assign exclusive ownership and property rights.

These are matters both for government and for research organisations as they develop and review intellectual property policies.

3.3.2 Skills development

Public policy relating to the development of skills for innovation has had a focus on science and technology teaching, and a number of programs have been implemented to that end. However, there has not been an increase in funding for work focused on design methodology and tools—the building blocks of innovation. This lack of funding persists despite success stories in which design-led innovation has directly increased market share, grown new markets, added value to the bottom line, and raised the visibility of brands.

A survey by the Design Institute of Australia indicated that design graduates were inadequately prepared for participation in professional employment. Skills gaps were identified in production, work experience, business training, quality, and industry links. The institute sees a downward spiral of competence in the design profession as 'an inadequately educated generation mentors or trains another', directly affecting Australia's future commercial competitiveness.[11]

Notwithstanding Australia's emerging status as a knowledge economy, there is a shortage of people skilled and qualified in information management who are able to work in public culture institutions, such as national, state and corporate libraries (see box), and take on the non-technical (content) aspects of knowledge management. Knowledge management has suffered for many years from the mid-1990s view that it is an ICT domain and an ICT problem.

Skills for managing national collections

The Collections Council of Australia has produced detailed baseline information that draws attention to a shortage of available and suitable conservation/preservation workers in Australia. In particular, there is a shortage of professional and paraprofessional workers in traditional and emerging specialisations:

■ Most workers are required in areas where the item type is a 'carrier of information' (e.g. publications/ manuscripts, film, audio and sound recordings, paper based flat works and records) and also in areas such as collection maintenance, reformatting/copying, archival materials, paper – non-archival, electronic media, audio visual, books and photographs.

■ Significant numbers of workers are required in the still growing area of preventative conservation.

■ Small to moderate numbers of highly specialised workers are required in a range of specialised areas.

There has been a sharp drop in Bachelor level qualification requirements—coinciding with preferences for more postgraduates and paraprofessionals. The survey identified a need for more preservation/ conservation businesses to be established.

Collecting institutions would like to spend less time on administration and more time on preventative conservation as well as more time on 'whole of collection care', instead of exhibition planning and treatment. They would also like to spend more time on original research based on their collections.

CCA (2006)

11 David Robertson, *Artichoke*, 20, 2007

Governments and businesses are keen to establish knowledge exchange networks, but there is a shortage of people who can work as 'interpreters', 'translators' and 'brokers' in this environment. The challenge of translating knowledge generated through research into knowledge that is applicable in workplace environments is a major one.

In the performing arts sector, specific decisions to build a skills base through the National Institute of Dramatic Art, the Australian Film, Television and Radio School, the National Institute of Circus Arts, the Australian Youth Orchestra, the National Ballet School and the Indigenous dance school have been the base on which Australia's capability in the creative and cultural industries has been built.

The major problem for performing arts organisations at the present time is creating pipelines for faster development of their very talented theatre directors, writers and designers. In the current environment, there are few opportunities for the talented to move to the main stage of theatre production or commercial film release. Policy should be directed towards supporting mid-sized companies able to develop seasons of work and touring over an extended planning cycle. This need parallels the need for innovation policy to support those companies with demonstrated potential and an emerging track record (in scale-up and proof-of-concept stages), while also supporting smaller-scale initiatives that are testing and experimenting with ideas.

There is a strong argument for greater emphasis in art and design schools on teaching arts entrepreneurship, in the same way that technology entrepreneurship is being taught in engineering faculties and business schools.

3.3.3 Policy frameworks

The failure of the Australian Academy of Design in 1999 has adversely affected the design industry's ability to have a voice in national innovation policy. Arguably, this has been a major handicap to Australia's innovation performance as other countries move ahead in design-oriented innovation.

Major faults in the policy framework include the following:

- From an innovation and intellectual property perspective, responsibility for registered designs is covered by the Department of Innovation, Industry, Science and Research and IP Australia, but responsibility for the creative and commercial aspects of design is not well covered.

- The Department of the Environment, Water, Heritage and the Arts has responsibility for cultural activities, including film, but does not address industry development and innovation in the broader creative industries.

- The Australia Council does not have a board for design and architecture.

- Public policies relating to the development of arts and cultural institutions do not have a specific innovation component, and people in the sector do not necessarily see the connection with innovation policy. After all, innovation is something they have to do continuously to attract and retain audiences (customers). As argued in this paper, the flow-through effect from support for public art and culture to innovation and entrepreneurship is similar to the flow-through from public science to science and technology innovation.

An innovation policy focus on public support for the arts and creative practices will provide the basis for developing strategies to address 'system failures' and for developing options for funding support. There are clear market failures in the sector, particularly in relation to R&D and enterprise development (for example, in bringing innovative design and creative concepts to market).

3.4 Recent developments

The recently released report from the Cultural Ministers Council—*Building a creative innovation economy: opportunities for the Australian and New Zealand creative sectors in the digital environment* (CMC 2008)—notes that, while many government agencies and private businesses have adapted to new technologies, the challenges and opportunities presented by the digital environment do not appear to have been taken up so readily across the creative sector.

The report considers that this is partly because the high-capacity digital infrastructure needed by the sector is not yet widely available, but also because understanding of new technologies and training in them are lacking in many creative organisations and enterprises. It identifies opportunities for the creative sector in the digital environment in creative, cultural and commercial dimensions. Realising opportunities will depend on increased access (by creative producers, customers and audiences alike) to digital infrastructure, as well as the sector's technical capability.

The report has identified key priorities across all jurisdictions for enabling the creative sector to take full advantage of opportunities in the digital environment:

- increased access to digital infrastructures—especially broadband—for producers and users of creative and cultural digital content and services

- simpler copyright provisions and a more holistic approach to intellectual property management throughout the sector, which will maximise the sector's ability to exploit digital content across a range of existing and emerging digital platforms

- business skills training, particularly for small creative enterprises, where the creative talent of the enterprise is also likely to be the business manager

- a strategic approach to brokering partnerships between the creative sector and the education sector to facilitate greater collaboration across the sectors and improve market research and consultation

- programs and funding models that increase the commercial potential of creative enterprises and organisations, according to geography, demography and the characteristics of the local creative sector.

Building a creative innovation economy aims to raise awareness about the many challenges and opportunities which the digital environment has to offer the creative sector. It also demonstrates that the digital environment has a growing need for creative digital content in order to be viable into the future.

Public release of the report is intended to stimulate discussion and enable cultural ministers to pursue a range of practical measures to strengthen the prospects for the creative sector in the digital environment and continue the further development and growth of the 'creative innovation economy'.

3.5 Conclusions

The role of art, design, culture and creative practice in stimulating innovation is gaining increasing recognition in innovation systems thinking. Art and culture were previously assumed to cater for personal enjoyment and satisfaction, not to be drivers of innovation and economic prosperity.

There needs to be a greater recognition of the role of design and creative practice in innovation systems, including in public policy and publicly funded programs.[12] Particularly important is the need to give arts and cultural institutions greater recognition and support for their role in the national innovation system, as well as in regional innovation systems where there are strong creative industry segments.

In particular, there should be a greater acknowledgment of the design and creative practice sector's contribution to the economy, the integrated nature of innovation (particularly the co-dependency between 'science' and 'design') and the centrality of design and creative practice to product development.

Australia is too small and too price-sensitive for market forces to operate effectively in the design and creative practice sector. Australian operators must also design for the global market, which requires design and production of a high quality. To get this happening, government assistance and support are essential: without that support, innovative and talented designers and creative practitioners will depart, along with the potential for innovation in Australia.

The innovation aspects of design and creative practice continue with an arts and cultural policy focus. It is vital that effective links be established between innovation policy and arts and cultural policy to build a strategic approach to policy and program development in design and creative practice. Those links would ensure a coordinated and strategic approach to the development of Australia's innovation potential in an environment in which demand for goods and services is related to aesthetic as well as functional appeal.

To this end, design and creative practice expertise and capability should be included within Innovation Australia, and design and creative practice should be included within the ambit of the *Industry Research and Development Act* 1986. Innovation Australia is able to engage in activities that support its decision-making and advisory functions. It should be tasked by the minister to examine ways in which design can be incorporated into the programs it oversights and to identify gaps that need to be addressed.

There is also a need for a robust national policy focus that covers the processes for policy formulation, implementation and review. To this end, the final section of the report recommends the formation of a National Council for Design and Creative Practice.

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12   In this context, design and creative practice includes architecture and a range of artistic practices adopted and applied in business, government and the community.

Chapter 4

A National Council for Design and Creative Practice

Design and creative practice can play a vital role in strengthening the economy and improving society. Australia needs a national policy and strategic body for design and creative practice to promote their use throughout industry, government and the community.

The objectives of the Australian design and creative practice sector are not well defined—reflecting differences in state perspectives and the interests of various professional design and creative practice bodies. Research organisations also tend to take a different perspective on design, with different emphases on the artistic and industry contributions.

The sector is fragmented and lacks leadership at a national level: this severely limits its capability to develop an industry and innovation focus and project its potential internationally. There have been some major achievements, such as PTW's iconic swimming venue for the 2008 Beijing Olympics—the 'Water Cube'. Billabong (in clothing) and Fosters and Jacobs Creek (in beverages) are international brands.

But much more can be done to promote our ability to deliver aesthetic value in products and services over and above the merely functional. We need to move beyond the Hills Hoist and the Victa lawnmower as icons of Australian innovation—innovations that have been long superseded. There is a need to combine science and engineering excellence with excellence in design and creative practice to attract and retain buyer enthusiasm and commitment.

A National Council for Design and Creative Practice would aim to help Australia's businesses to become the world's best users of design, supported by the most skilled and capable design and creative professionals. As with the United Kingdom's Design Council, this work could be divided into a number of areas:

- influencing national policy and ensuring that design and creative practice are at the heart of government thinking in innovation policy

- delivering design and creative practice support programs for Australian businesses, particularly small and medium enterprises

- initiating new thinking about ways to design public services around the needs of the people who use them

- running programs to get people involved in exploring how design can improve their lives

- providing government with authoritative design research, knowledge and signposting.

The council should be tasked with a role to establish connections and linkages between innovation policy and arts and cultural policy—but without one dominating the other.

Membership of the council should be drawn from leading professionals and practitioners in the area of design and creative practice, academics with international reputations and connections, and officials from both the innovation policy and the arts and cultural policy agencies.

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