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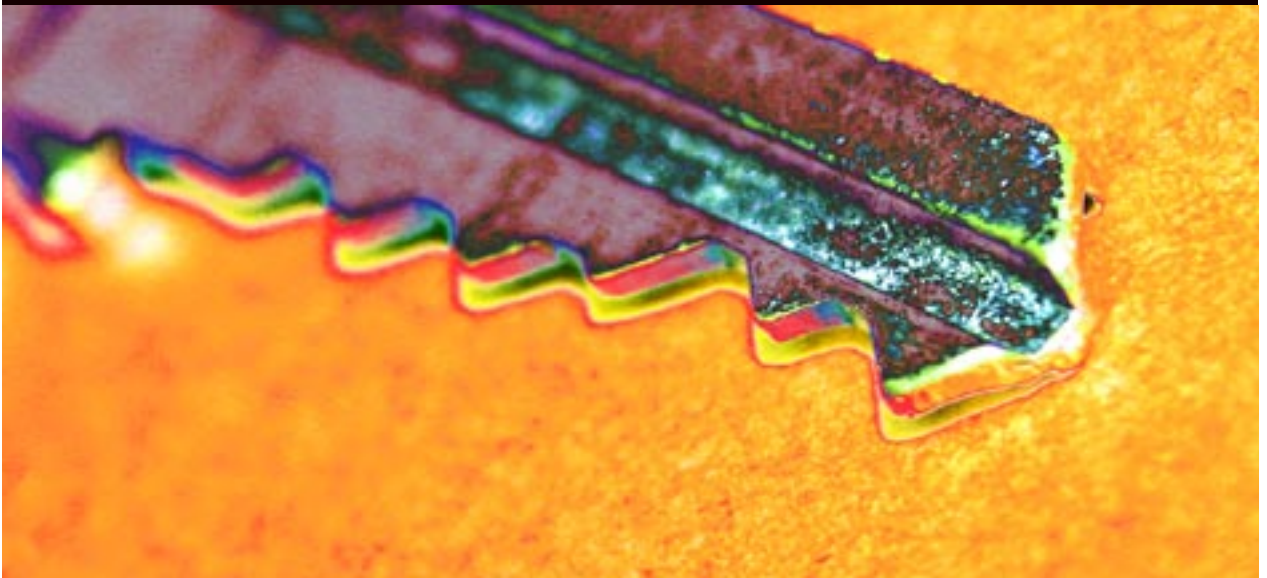
**Department of Communications,
Information Technology and the Arts**

UNLOCKING THE POTENTIAL

Digital Content Industry Action Agenda

Strategic Industry Leaders Group report to the Australian Government

November 2005



The Digital Content Industry Vision

To achieve a sustainable and internationally competitive Digital Content Industry which doubles in value to \$42 billion by 2015

Ministers' joint statement

We would like to congratulate the Digital Content Industry for its initiative and commitment in completing the Action Agenda report, and express our appreciation for its work in producing this strategic development plan.

Industry commitment is a key theme of any action agenda. It is the Digital Content Industry itself that can deliver on the potential of a sector that is growing exponentially and transforming the way we live and work. In fostering leadership and drive from within, action agendas have become a key element of the Australian Government's industry strategy.

The Digital Content Industry Action Agenda contains significant commitments by the industry to realise its future growth. New digital platforms and services are emerging and the rapid consumer adoption of broadband, 3G mobiles, digital television and radio provide exciting industry development opportunities.

The industry's commitment to take action itself provides a good platform for the Australian Government to develop a broader Digital Content Strategy. The ultimate aim is to generate the growth of an Australian Digital Content Industry that will provide opportunities across the entertainment, health and education sectors and deliver the world excellent Australian products and services.

This national objective was acknowledged at the recent meeting of the Online and Communications Council, where Australian, state and territory governments agreed to assist with implementing the Action Agenda.

We look forward to working closely with the industry through the implementation phase of the Action Agenda.

The Hon Ian Macfarlane MP

Minister for Industry, Tourism
and Resources

Senator the Hon Helen Coonan

Minister for Communications,
Information Technology and the Arts

Chair's statement

The Digital Content Industry in Australia is at a critical phase in its development.

While it is the fastest growing sector globally, its rate of growth here is outpaced by other countries. The Action Agenda was initiated to identify opportunities for and threats to its growth, and devise strategies to take our industry forward and make it a major contributor to the Australian economy.

I would like to thank the members of the Strategic Industry Leaders Group and its committees for their hard work in progressing the Action Agenda, and to acknowledge industry members who contributed their views throughout the process.

The Action Agenda is now ready for implementation. I encourage all industry members to work together to achieve our shared goals and vision.

Tom Kennedy

Chair
Strategic Industry Leaders Group

Background to the Action Agenda

An action agenda is a means by which selected industries develop strategies for growth, agree on priorities and make commitments to change. While the Australian Government provides secretariat and other support through an active partnership with the industry, the focus is on the actions industry itself can take to achieve its objectives.

The Digital Content Industry Action Agenda had its origins in 2001, with the recognition by the Australian Government that digital content and applications would become increasingly important, both in economic terms and as a means of expressing our unique cultural identity.

Between 2001 and 2004, the Government carried out the Creative Industries Cluster Study, which consulted more than 150 key organisations and industry leaders. This study provided company, sector and industry-wide research on the scope, scale and dynamics of the Digital Content Industry in Australia. In 2004, the Government committed to the development of a comprehensive Digital Content Strategy, which would be informed by the strategic directions identified through an Action Agenda.

The Action Agenda was developed by senior industry leaders through the Strategic Industry Leaders Group (SILG). Membership of this group (see Appendix A) was announced by the then Minister for Communications, Information Technology and the Arts, the Hon Daryl Williams MP, on 8 June 2004.

SILG resolved to form four working groups to involve wider industry representatives and investigate key areas where opportunities for and barriers to growth had been identified. These key areas were: investment; exports and international engagement; research and development; and skills and training. Intellectual property and statistics and standards were common issues considered by each group.

This report sets out the strategic priorities for each of these key areas, based on consultations with almost 50 key industry organisations and other stakeholders. The industry will now work with Government to execute the Implementation Plan outlined in Chapter 6.

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Executive summary

The key role of digital content in driving competitiveness

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 important because:

- it is economically significant, with estimated worth of \$21 billion, almost 3.5 per cent of Australia's GDP, and employs about 300,000 people;
- it is a high growth industry, growing faster worldwide than other economic sectors;
- the economic multipliers arising from the Digital Content Industry are significant, being higher than for most other categories of economic activity; and
- it has major implications for productivity growth in many important industries beyond the core Digital Content Industry itself. Digital content and technology is becoming an important input to other industries and an enabler which helps transform the way they do business.

The industry covers a wide span of diverse sectors. Australia's Digital Content Industry comprises three sectors: core production (41 per cent), embedded production (51 per cent) and distribution (9 per cent).

The *core production* sector of the industry involves the creation of digital content by firms and individuals in the creative industries.

However, the industry also includes the creation of digital content, using creative skills, within the wider professional service industries (i.e. *embedded production*). Examples include the creation of web pages and advertising material in-house by a law firm or an educational institution, the production of training programs using games technology in Defence, or the use of visualisation data in mining or architecture.

Finally, a large amount of digital content activity occurs in the key area of *distribution*, where value is added by circulating, transmitting or exhibiting digital content.

The Digital Content Industry overlaps with broader cultural and creative industries which recognise digital content as an important cultural resource that can be made accessible to all Australians, particularly in regional and remote areas.

The industry is significant, both in its own right, and for its impact in wider industries. While it is characterised by a plethora of micro firms and sectors, there is a need to achieve critical mass to maximise its potential impact.

What is the Digital Content Industry?

The Digital Content Industry encompasses the production and marketing of film and television programs in the form of digital and interactive TV; online games; re-usable electronic education content; the marketing and supply of the holdings of museums, galleries and libraries in digital form; the Internet-based publishing of music, text, films and games; and the development and marketing of software, games, and online services that create digital media and visual effects, or help to manage and publish them. Mobile delivery and content is becoming increasingly important.

The Digital Content Industry spans the applications and services components of the ICT industry on the one side and the traditional film, entertainment and cultural industries on the other, overlapping key areas of both. Important areas of digital content activity also occur within other industries, particularly service industries, such as health, education and architecture. The overlap with the cultural industry, and the importance of this as a rich source of content, means that the Digital Content Industry has an important relationship to Australian culture and Australian content.

Growth and size

The Australian Digital Content Industry is estimated to produce output worth \$21 billion, almost 3.5 per cent of Australia's GDP (compared with the UK and US, where GDP shares are conservatively estimated at 5 per cent and 7.8 per cent respectively) and employs about 300,000 people.

Globally, the media and entertainment sectors have been forecast to grow at an average annual rate of 7.3 per cent, from \$1.8 trillion in 2005 to more than \$2.4 trillion by 2009. Many of these sectors are driven by digital content already, such as the Internet, games, and business information. Recorded music and television are moving to the digital phase rapidly.

By comparison, in Australia, if policy settings are left unchanged, the digital content industries are projected to grow by no more than a modest annual rate of 3.8 per cent (\$18 billion in 2003–04 to \$29 billion by 2014–15) or even to regress in the face of global competition.

The impact of the Digital Content Industry extends across the economy. While the core production of the industry is the creation of digital content in the creative industries, the Digital Content Industry reaches far beyond this, encompassing the creation of digital content within wider production and professional service industries and the distribution of digital content.

Worldwide, the digital content sector is growing faster than other economic sectors, but the rate of growth in many other countries is higher than it is in Australia. In the UK and US, average annual growth rates for the creative industries have consistently been more than twice that of the economy at large. Australia's competitive position in the global marketplace will be diminished unless we attain a growth rate which matches the high rates of our competitors. This means we need to sustain a higher growth rate for this industry than the growth rate of the Australian economy overall.

The key issues

The Strategic Industry Leaders Group has identified six key issues that need to be addressed in order to make the most of the opportunity offered to Australia by the Digital Content Industry at this critical stage in its evolution.

Stimulating market interest in investment

The most significant issue facing the Australian Digital Content Industry is the reality that, despite evidence of commercial potential, it is not currently competitive in attracting investment capital. The Digital Content Industry needs to raise investors' awareness about the industry and to examine ways to make the industry more attractive to investors.

Higher levels of private investment in the Digital Content Industry are needed to ensure a viable industry for the future. Viable digital content investment structures will flow on to benefit other screen-based industries.

Confronting the challenge of international competition

As mentioned above, globally, the media and entertainment sectors have been forecast to grow at an average annual rate of 7.3 per cent.¹ Australia's main international digital content competitors have identified digital content industries as important contributors to high levels of growth in their economies and have developed extensive programs, including regulatory, funding and tax measures, to help build their digital content industries. International competition is expected to intensify.

While the potential for developing export markets for the Australian Digital Content Industry is very high, and some sectors

such as games are focused almost exclusively on exports, the industry's main market remains domestic.

In the preferred future identified by the Digital Content Industry, where a range of strategies is implemented to overcome industry barriers and to take advantage of existing strengths, the industry's best case projections indicate the Australian Digital Content Industry is expected to grow between 5.9 and 6.3 per cent annually, with output increasing to between \$36 billion and \$37.6 billion by 2014–15, placing it ahead of industries such as agriculture and communications. Under this projection employment in the Digital Content Industry would grow from the current estimate of 300,000 to between 447,000 and 461,000. Under this scenario, the trade deficit in digital content would decrease from \$1 billion to \$0.2 billion.

In contrast, as noted above, if policy settings are left unchanged in Australia, a 3.8 per cent rate of growth between 2005 and 2015 is projected. Without policy intervention in the face of global competition, this represents regression. Given the importance of this industry to other economic sectors, such a scenario has implications for the economy as a whole.

Rectifying disadvantage created by the historically based analogue/digital distinction

Historically, Government has developed a range of regulatory and industry support mechanisms to foster the development of older, more established content production and distribution industries, particularly in film, television, radio and publishing. These traditional or 'analogue' content industries operate within complex regulatory and investment

frameworks. With the evolution of content production and distribution using newer digital technologies, regulatory and industry support mechanisms are faced with greater challenges in accurately reflecting the dynamics and breadth of the contemporary production and distribution of content.

Recognising digital content as a general purpose technology for the 21st century

Like ICT generally, digital content and applications have the characteristics of a 'general purpose technology', which has broad use across many industries and can assist productivity growth in many important industries beyond the core digital content production industry itself. These technologies are applicable to virtually any economic activity, and have the capacity to transform those activities by improving efficiency or creating opportunities for new systems and business models. In a similar way, electric power was one of the significant general purpose technologies of the early 20th century, which is now so universal and embedded that it is difficult to understate its connection to economic wellbeing.

Filling skills gaps in a leading edge industry

Despite a large supply of skilled graduates from over 320 university and vocational education training courses, the expected 20,000 graduates are not industry ready. Industry is trying to fill the gap, but without an overall framework for accreditation or support that sufficiently recognises industry-based training. The government attaches high priority to addressing chronic skills shortages because of their threat to

productivity and economic growth. In the context of a rapidly growing industry, which is important to the productivity of many other industries, the issue of skills and training is even more acute.

Building a total industry from a fragmented base

Despite its high potential, the Australian Digital Content Industry is operating as a mix of sectors in the process of rapidly becoming an industry. These sectors, such as games, animation, film and post-production and mobile content, are working in relative isolation from each other, despite shared market interests, investment, research and development and skills needs.

There is also potential for wider cooperative activity and partnerships to enhance synergies between the Digital Content Industry and other industries.

Strategies for growth, key recommendations and proposed solutions

The Leaders Group has outlined detailed solutions for growing the industry in Chapter 3. The priorities are summarised below.

Investment and investment frameworks

To overcome the deficiency in investment, a concerted effort by industry in partnership with government is required. Industry is initiating an Investment Scoping Forum, to bring together industry bodies and firms with investors and other investment groups to examine pressing investment issues. Industry has also contributed to the Government's Venture Capital Review, through input to a submission provided

by the Department of Communications, Information Technology and the Arts. Industry is also seeking to ensure that digital content is not excluded from available industry support mechanisms.

In order to grow, the Digital Content Industry needs regulatory and investment frameworks that operate under technologically neutral principles, and encourage interoperability, innovation, investment and competition.

Exports

A high priority is to define an Australian strategic international trade framework for the Digital Content Industry, commencing with mapping key export opportunities and seeking enhanced support for existing export support schemes.

This needs to be built on by establishing industry-based market liaison officers, possibly within industry associations, to focus on all international aspects of opportunities in digital content, through trade shows and other events.

Delivery of timely market intelligence which can facilitate the building of a continuing presence in overseas markets is a major area which also needs to be developed.

Skills and training

It is essential to build stronger linkages between industry and the skills and training sector. The key to maintaining world best practice is to encourage opportunities for applied learning and the dissemination of that learning through workplace-based training schemes.

It is also important to achieve greater recognition of, and much faster accreditation for, industry-based training activity, and to demonstrate and promote

the feasibility of successful models to the Digital Content Industry, education and government for use nationally.

Research and development (R&D)

Critical initiatives proposed in the R&D area involve establishing a mechanism for industry to work with the R&D institutions on priority setting. Many current R&D initiatives in this area have limited industry involvement, access and expertise. Industry also requires more rapid access to research, which could be achieved, for example, through embedding researchers in industry or linking to groups of firms. Finally, it is important, in collaboration with industry associations, to raise Digital Content Industry awareness and use of government R&D programs.

Intellectual property, statistics and standards

Underpinning the areas discussed above are a number of longer-term issues which need to be addressed. One is ensuring that the intellectual property framework, which is essential to the growth of this industry, continues to keep abreast of technological changes affecting the way that intellectual property is created and disseminated. It is also important that the framework is well understood by industry. The other issue is the critical need to establish mechanisms to collect timely and accurate statistics to enable business planning by industry and strategic monitoring and planning by government.

Continuing the momentum— building a coordinated approach

To overcome fragmentation and address the key issues constraining the industry from achieving its potential, industry associations and other industry stakeholders have signalled their interest in working cooperatively on the shared positions outlined within the Action Agenda, while individually retaining the ability to progress sector-specific issues of importance.

The Digital Content Industry welcomes the acknowledgement by Australian, state and territory government ministers that the Digital Content Industry needs to be strengthened, and the agreement by the Ministers' Online and Communications Council to consider ways to assist the Digital Content Industry Action Agenda implementation plan.

The Digital Content Industry recognises that it is critical for the industry to build partnerships to ensure that the challenging task of implementation will be a success. The recommendations for action have been tested through broad consultation with industry and government, and provide a strong basis for the future growth of the Australian Digital Content Industry.

Measures identified will allow the growth of globally competitive Australian companies, help innovation and productivity growth from this industry flow across the economy, develop a skilled workforce for both this industry and the wider economy, and have a major impact on the balance of trade in digital content and services.

Summary of key recommendations—the four essential areas

Investment

- Initiate an Investment Scoping Forum, to bring together industry bodies and firms with investors and other investment groups to examine the investment issues, and to help develop mechanisms to support investment, innovation and early stage support in the Digital Content Industry.
- In order to grow, the Digital Content Industry needs regulatory and investment frameworks that operate under technologically neutral principles, and encourage interoperability, innovation, investment and competition.

Exports

- Work towards the establishment of a cross-sectoral Australian Digital Content Industry market intelligence network to build a trade framework and advance firms' export capacity.
- Define an Australian strategic international trade framework for the Digital Content Industry, commencing with mapping key export opportunities, seeking enhanced engagement with existing export support schemes and focusing on all international digital content opportunities, including trade shows and other events.

Skills and training

- Achieve greater recognition of, and much faster accreditation for, industry-based training activity.
- Demonstrate and promote the feasibility of successful industry-based training models or exemplars to the Digital Content Industry, education and government for use nationally and to support employer involvement.
- Improve linkages between industry, education, TAFE, universities, Innovation and Business Skills Australia (IBSA) and training providers, commencing with a roundtable discussion on industry-based training models.

Research and development (R&D)

- Establish mechanisms for industry to work with R&D institutions on priority setting.
- Investigate mechanisms to achieve more rapid access by industry to research, for example, through embedding researchers within industry.
- In collaboration with industry associations, raise awareness and increase utilisation of government R&D and non-R&D programs that foster innovation by digital content firms.
- Progress longer term issues relating to intellectual property (IP), statistics and standards.

1. Paths to success: key findings

The creation of effective, innovative and commercially successful digital content, in all its forms, will be one of the major drivers of economic competitiveness across all economic sectors in the next decade. Australian digital content producers have a major contribution to make in ensuring high levels of growth, a robust export capacity and a highly skilled workforce.

The Digital Content Industry encompasses the production and marketing of film and television programmes in the form of digital and interactive TV; online games; re-usable electronic education content; the marketing and supply of the holdings of museums, galleries and libraries in digital form; the Internet-based publishing of music, text, films and games; and the development and marketing of software, games and online services that create digital media and visual effects, or help

to manage and publish them. Most recently there has been a large growth in the development of mobile content.

The Digital Content Industry spans the applications and services components of the ICT industry on the one side and the traditional film, entertainment and cultural industries on the other, overlapping key areas of both. Important areas of digital content activity also occur within other industries, particularly service industries, such as health, education and architecture. The overlap with the cultural industry, and the importance of this as a rich source of content, means that the Digital Content Industry has an important relationship to Australian culture and Australian content.

The Digital Content Industry is important because:

- it is economically significant—it has an estimated worth of \$21 billion, almost 3.5 per cent of Australia's GDP, and employs about 300,000 people;

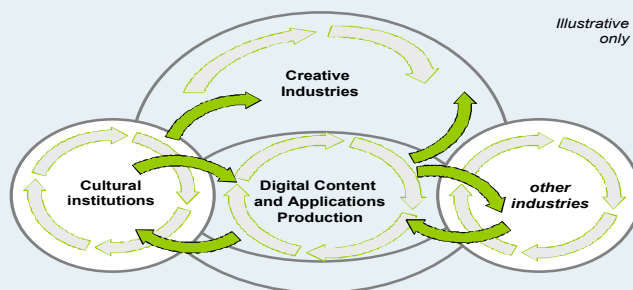


Figure 1: Digital Content Industry linkages

Source: Cutler and Co and Queensland University of Technology, *Research and Innovation Systems in the Production of Digital Content and Applications*, 2004

- it is a high growth industry, growing faster worldwide than other economic sectors;
- the economic multipliers arising from the Digital Content Industry are significant, being higher than for most other categories of economic activity; and
- it has major implications for productivity growth in many important industries beyond the core Digital Content Industry itself. Digital content and technology is becoming an important input to other industries and an enabler which helps transform the way they do business.

However, the rate of accelerated growth of this industry in many other countries is even higher than it is in Australia. It is not enough to maintain parity of growth comparable with growth in other areas of the Australian economy. Without a rate of growth that outstrips other economic sectors, Australia's competitive position in the global marketplace will be diminished.

The Digital Content Industry has identified six key issues which need to be addressed through targeted partnerships in order to make the most of the opportunity offered to Australia by the Digital Content Industry at this critical stage in its evolution.

1.1 Stimulating market interest in investment

The most significant issue facing the Australian Digital Content Industry is the reality that it is not currently competitive in attracting investment capital. The Digital Content Industry needs to raise investors' awareness of the industry and

to examine ways to make the industry more attractive to investors. It is critical for the future of a viable industry for higher levels of private investment in the Digital Content Industry to be achieved. By comparison to investment in underlying technical infrastructure, and the structures in place internationally, investment in digital content development, production and distribution in Australia is limited and uncoordinated. The Digital Content Industry is experiencing significant difficulty in attracting development funding, venture capital, project finance and enterprise investment in order to grow. Mechanisms to support the critical phase of prototype and proof-of-concept development appear to be a particular gap.

To overcome this deficiency, a concerted effort by industry in partnership with government is required as a matter of urgency. Industry is initiating an Investment Scoping Forum, to bring together industry bodies and firms with investors and other major investment groups to examine the situation collaboratively and to look at ways of removing impediments, stimulating growth and encouraging investment in the sector. In considering sources of investment for the Digital Content Industry, foreign direct investment and business partnerships with foreign companies are sources which have the potential to provide not only capital but also technical and business skills, technology transfer, access to larger projects and access to new markets. Invest Australia, the Australian Government's inward investment agency, plays a significant role in attracting and facilitating productive investment in the ICT sector, including the digital content industries.

Industry is reviewing the available investment incentive measures to ensure that the Digital Content Industry is aware of them, and that program marketing includes the industry. The Digital Content Industry will support program agencies in raising awareness of existing programs and avenues of partnership with or support by government, such as Commercial Ready, the Industry Cooperative Innovation Program and COMET, including support opportunities for SMEs and start-up companies.

1.2 Confronting the challenge of international competition

Globally, the media and entertainment sectors have been forecast to grow at an average annual rate of 7.3 per cent, from \$1.8 trillion in 2005 to more than \$2.4 trillion by 2009.² Many of these sectors are already driven by digital content, such as the Internet, games, or business information. Recorded music and television are moving to the digital phase rapidly. Chapter 2 of this report outlines how international competitors in this area, particularly Canada, Singapore, New Zealand and Ireland, have identified and targeted Digital Content Industries as of strategic importance for high levels of growth in their economies, according support for them a high priority and developing extensive programs, including regulatory, funding and tax measures, to help build their digital content industries.

For Australia, a preferred future has been identified by the recent *Australian Digital Content Industry Futures* report by the Centre for International Economics. With the implementation of a range of policies to overcome industry barriers and to take advantage of existing strengths, the Australian industry is projected to

grow between 5.9 and 6.3 per cent annually. This would mean output would increase from \$18 billion to between \$36 billion and \$37.6 billion by 2014–15, placing it ahead of industries such as agriculture and communications.³

Growth projections are based on measures taken to substantially improve competitiveness by:

- supporting and retaining creative talent;
- engaging with the investment sector and working to remove investment impediments;
- expanding capacity;
- improving commerciality of the industry at large;
- strengthening industry linkages; and
- effectively developing channels to markets, especially export markets, which are vital to attract investment to digital content production.

The ‘best case’ projection in terms of trade outcomes results in a reduction in Australia’s trade deficit for digital content from \$1 billion in 2002–03 (the year for which the most recent data is available) to \$0.2 billion.⁴

By comparison, if policy settings are left unchanged, the Australian industry is projected to grow at most at only a modest annual rate of 3.8 per cent between 2005 and 2015, or even to regress without policy intervention in the face of global competition.⁵ With the importance of this industry to other economic sectors, reflected in the industry multiplier of 1.58, measures to support growth in the Digital Content Industry will have important implications for the economy as a whole.⁶

Australia is at a critical crossroad. It can do nothing in the area of digital content and continue to be a net importer of much of its educational, cultural and entertainment content. Alternatively, industry and government can work together to become a major exporter of creative digital content.

This would mean that Australia would have a strong local Digital Content Industry interacting with other industries to maximise synergies.

The commitments made by industry in this Action Agenda are an essential first step in Government considering its commitments to a broader Digital Content Industry Strategy.

1.3 Rectifying disadvantage created by the historically based analogue/digital distinction

Historically a range of regulatory and industry support mechanisms have been developed by Government to foster the development of older, more established content production and distribution industries, particularly in film, television, radio and publishing. These traditional or 'analogue' content industries operate within complex regulatory and investment frameworks.

With the evolution of content production and distribution using newer digital technologies, the existing regulatory and industry support mechanisms have ceased to accurately reflect the dynamics and breadth of the contemporary production and distribution of content.

In order to grow, the Digital Content Industry needs regulatory and investment frameworks that encourage

interoperability, innovation, investment and competition, and which operate under technologically neutral principles.

Noting the economic benefits generated by deregulation in Singapore and program support structures in Canada, the UK and New Zealand, the Digital Content Industry considers that there is a pressing need to update existing program and industry support structures for traditional or 'analogue' industries to encourage digital production and distribution. The Digital Content Industry is concerned that in order to achieve commercial outcomes, regulatory, tax and industry assistance structures, should, at a minimum, not disadvantage 'digital' compared to 'analogue'. This concern to achieve a broad agreement on a principle of technological neutrality is particularly acute in the screen production, post-production, broadcasting and games sectors.

This would require a review of such existing programs and the development of proposals to redefine or augment programs so that they are adjusted to the new circumstances of the industry.

1.4 Recognising digital content as a general purpose technology for the 21st century

Like ICT generally, digital content and applications have the characteristics of a 'general purpose technology', a technology which has broad use across many industries, and which has major implications for productivity growth in many important industries beyond the core Digital Content Industry itself. 'General purpose technologies' are technologies that are applicable to virtually any activity, and have the

capacity to transform those activities by improving efficiency or creating opportunities for new ways of doing things. In a similar way, electric power was one of the significant general purpose technologies of the early 20th century. Its use is now so universal and embedded that it is difficult to understate its contribution to economic wellbeing.

Digital content, whether applications or services, is fast becoming omnipresent. Personal services provided online, such as banking, travel bookings and real estate, are widespread. Many other industries are planning their future directions to adapt to the expected massive growth of digital content within the home environment, which will transform products and technologies used every day for the home office, entertainment and security.

More broadly, the health industry is recognising the benefits of digital content in relation to remote diagnostic work and the education sector is increasingly delivering curriculum services online. The mining, architecture and spatial industries have been transformed by the visualisation capability that digital content provides.

As explained in Chapter 2, the high level of the industry gross value added multiplier for digital content (the flow-on effect of activity in the Digital Content Industry into other industries) estimated at 1.58, compared to around 1.28–1.29 for other major industries such as agriculture, mining and manufacturing, also provides a strong argument that support for activity in the Digital Content Industry will yield superior flow-on benefits for the rest of the Australian economy.⁷ For this reason, support for this industry needs to be seen in terms of the substantial

benefits of productivity and economic growth for the wider economy, rather than just the core Digital Content Industry.

1.5 Filling skills gaps in a leading edge industry

The large number of graduates trained by some 320 courses allied to the Digital Content Industry are not industry ready when they finish their courses. New courses responding to the rapidly changing needs in the industry take around five years to be developed and accredited, by which time industry has moved on. In response, industry is trying to train people itself, but without an overall framework for accreditation or support that sufficiently recognises industry-based training. The government attaches high priority to addressing chronic skills shortages because of their threat to productivity and economic growth. In the context of such a rapidly growing industry, which is important to the productivity of many other industries, the issue of skills and training is even more acute.

The global market in digital production in the screen sector is growing quickly in capability and appetite. Talent and skill are very mobile. When Australia has the opportunity to produce world class work, it attracts world class workers to the project. Many Australian companies currently employ staff from around the world, with one drawing staff from 20 countries.

A simple solution is to invest in training structures in the workplace, with experts freed up for periods within or between projects, to participate in delivering an onsite curriculum. Talent in the industry is mobile, but if Australia can win world

class projects, local talent will have a greater tendency to stay in Australia, while moving around from company to company. As result, the spill-over training benefits will be dispersed widely, for the benefit of the industry. If the industry is healthy and growing, the smaller companies will grow and will derive the benefit of the training capacity and commitments of the larger companies.

It is important not to miss the opportunity to use this world class talent to benefit and increase local skills and knowledge. The key to maintaining world best practice is to encourage opportunities for learning and the dissemination of that learning through workplace-based training schemes which are built on successful industry models.

1.6 Building a total industry from a fragmented base

Despite the high potential of the Australian Digital Content Industry, it is operating as a mix of sectors in the process of rapidly becoming an industry. Significant Digital Content Industry sectors, such as games, animation, film and post-production and mobile content, are working in relative isolation from each other despite shared market interests, investment, research and development and skills needs.

The sectors share similar business models and investment needs, and other areas of difference are diminishing due to technological convergence. Convergence will make almost all production and distribution digital, and multiple use of content material across formats is becoming routine. Many productions now consist of the website, the film, the game and the music recording.

In Australia, technology issues have focused on infrastructure, and a cohesive approach to content will help unlock these significant investments. Yet investment in digital content production, development and distribution in Australia appears uncoordinated and less than optimal. The lack of domestic investment in digital content is a significant barrier to realising substantial export market opportunities.

The industry is significant, both in its own right, and for its impact on wider industries. However, it is characterised by a plethora of micro firms which makes it difficult to achieve critical mass and to maximise its potential impact.

There is also potential for wider cooperative activity and partnership to utilise synergies between the Digital Content Industry and other industries.

In order to overcome this fragmentation, existing industry associations and other industry bodies need to work cooperatively on higher level issues where there are, or could potentially be, shared positions, while still retaining the ability to progress sector-specific issues of importance.

2. The Digital Content Industry: its size and reach

2.1 The size and reach of the Digital Content Industry

The Digital Content Industry encompasses high value digital products and services which are being developed across film, games, broadband, mobile content, broadcasting and ICT sectors.

Its worth in Australia is estimated at \$21 billion, almost 3.5 per cent of Australia's GDP, and it employs about 300,000 people.⁸ On a global scale, the total value of the media and entertainment sectors is estimated at \$1.8 trillion.⁹ Many of these sectors are driven by digital content already, such as the Internet, games, or business information. Others such as recorded music and television are moving to this phase rapidly. Australia has an estimated 1.2 per cent share of the global market. Australia had an annual trade deficit in this sector of about \$1 billion in 2002–03, the year for which most recent data is available.

The Digital Content Industry is complex and its range extends across the economy. While the core production of the industry is the creation of digital content by firms and individuals in the creative industries, the industry reaches far beyond this.

The industry also includes the creation of digital content, using creative skills, within the wider professional service industries, for example the creation

of web pages and advertising material in-house by a law firm or an educational institution, production of training programs using games technology in Defence or use of visualisation data in mining or architecture.

Finally, a large amount of digital content activity occurs in the key area of distribution, where value is added by circulating, transmitting or exhibiting digital content.

An important recent study of the Digital Content Industry by the Centre for International Economics characterised these three sectors as *core production*, *embedded production* and *distribution*. The study estimated that by value of output generated, 41 per cent of the sector is attributable to core production, 51 per cent to embedded production, and 9 per cent to distribution.¹⁰

The media, marketing and advertising industries were early adopters of digital content, commissioning digital content firms to design campaigns that mix traditional and digital techniques to generate enhanced returns extending beyond sales of traditional products. These sectors, working closely with digital radio, digital television, broadband and wireless providers, are at the forefront of digital consumption trials to 'monetise content' using models of subscription, product placement, advertising, and tracking systems to harvest market intelligence.

2.2 Growth rates

The digital content industries, on a global level, constitute a high growth sector, in many comparable countries growing faster than the rest of the economy.

In the UK and US, average annual growth rates for the creative industries have consistently been more than twice that of the economy at large. This translates directly into jobs and wider economic growth.¹¹

However, Australian rates of growth are consistently lower. As indicated in Table 1 above, the Digital Content Industry's value was 3.3 per cent of Australia's GDP in 1999–2000. Comparison with the UK and US, where GDP shares were 5 per cent and 7.8 per cent respectively, shows that there may be potential for the sector in Australia to be significantly larger.

2.3 The importance of the industry to other industries

As mentioned earlier, a large proportion of digital content production occurs in other industries. On top of this the effects of core digital content production reach across the economy in a very direct way. The digital content industries are highly effective at adding value to other industries. This is indicated by a measure called the gross value added multiplier, defined by the Australian Bureau of Statistics as the proportionate increase in the total 'value add' across the economy from an increase in the level of demand for goods and services in a specific sector. The higher the multiplier, the more substantial the impact in other sectors

	USA	UK	Australia	Singapore
	2001	1997–8	1999–2000	2000
Percentage of GDP	7.8	5.0	3.3	2.8
Average annual growth rate (per cent)	3.2	6.0	4.8	13.4
Percentage of national employment	6.0	5.0	4.0	3.4
Currency	USD	STG	AUD	S
Value added (billions)	708	113	19	4.8
Exports (billions)	89	10.3	1.2	4
Ratio of exports to domestic value added	.13	.09	.06	.83

Table 1: International comparisons: the creative digital industry

Sources: *Singapore Creative Industries Development Strategy 2002*, Creative Industries Research and Applications Centre, Queensland University of Technology, and Cutler and Company; and Higgs and Kennedy, 'From cottages to corporations: building a global industry from Australian creativity', in *The Creative Industries Cluster Study*, Vol. 3, 2004, p. 138.

The creative digital industry has a significantly higher multiplier than almost all the other sectors. The only sector with a higher multiplier is education. Both sectors are key drivers for the knowledge economy and are strongly interconnected.

Like ICT generally, digital content and applications have the characteristics of a 'general purpose technology', a technology which has broad use across many industries, and which has major implications for productivity growth in many important industries beyond the core Digital Content Industry itself. General purpose technologies are technologies that are applicable to virtually any activity, and have the capacity to transform those activities by improving efficiency or creating opportunities for new ways of doing things. In a similar way, electric power was one of the significant general

purpose technologies of the early 20th century. Its use is now so universal and embedded that it is difficult to understate its contribution to economic wellbeing.

At the most basic level, images, music, sounds or text produced by the Digital Content Industry are widely used by other industries. Digital content producers also function extensively in their specialist roles within other industries, for example web designers working in Defence or games developers applying their technology to training functions.

Accelerated development of ICT hardware and software is also driven by its cutting edge application by Digital Content Industries, with digital content producers pushing applications to the limits of their functionality. As a result, for example, faster computers are produced to support larger, more complex games and other applications,

Industry	Average Gross Value Added Multiplier
Agriculture	1.28
Mining	1.28
Manufacturing	1.29
Property and Business Services	1.42
Education	1.97
Creative Digital Industry (estimated)	1.58

Table 2: Gross value added multiplier of selected industries

Source: Higgs and Kennedy, 'From cottages to corporations: building a global industry from Australian creativity', in *The Creative Industries Cluster Study*, Vol 3, 2004, p. 138, derived from ABS input-output multiplier data.

and companies such as Intel design and produce new types of chips to support more advanced content applications and services, such as sound delivery.

A good example of this is the development of the digital home. The household is expected to be a key site for the next generation of digital content activity. According to the *Smart Internet 2010* report published in August 2005, the typical Internet-connected Australian home has two separate networks:

- entertainment devices such as radio, television, VCR and DVD, with services delivered via cable, satellite or analogue modes; and
- computers and other computing devices which communicate using digital transmission over phone lines or cable lines.

Smart Internet 2010 notes that these networks will soon come together:

...the tools are emerging to deliver 'smart' multimedia content, with managed access rights, where several digital items such as music, video, images and text are packaged together. These content forms will be available not necessarily through a computer as we know it today but will become widely available to offices and homes.¹²

Developments such as this, which occur across several industries, will rely on the production of high quality content to drive them.

Research and development activity within the Digital Content Industry also flows through to other industries. Visualisation software standards established in the Digital Content Industry have been adopted more widely across other industries. Many widely used applications, such as Photoshop,

were developed by the Digital Content Industry and then adopted across the economy. In a similar way, facial feature-mapping application developed for the virtual character Gollum in *Lord of the Rings*, was adopted by a Perth hospital and used in reconstructing the faces of children after surgery for cancer.

The Centre for International Economics produced the report *Australian Digital Content Industry Futures* for the Digital Content Industry in 2005. Follow-up analysis by the Centre produced some useful and informative quantitative working data on the extent of digital content activity in other economic sectors.

For example, digital content activity appears to be particularly significant in one of the fastest growing sectors of the economy, 'property and business services'. Property and business services cover services such as accounting, advertising, architecture, business, cleaning, commercial art and display, commercial property operation and development, computers, engineering, packing, employment and staffing, data processing and information storage and retrieval, legal services, marketing and market research, pest control, surveying, technical, secretarial, security and investigative services other than police, as well as machinery, motor vehicle and equipment hire, and scientific research. Approximately 12 per cent of businesses in the sector are identifiable as digital content businesses and 14 per cent of the value added in the sector is generated by digital content businesses.

In 'cultural and recreational services', as would be expected, the proportion and value added of digital content businesses is also high. Cultural and recreational services include film, video,

radio, television, sound recording, performing arts, museums, libraries, studios and venues, parks and gardens, sport, recreation and gambling; and cover activities such as production, exhibition and services. Approximately 9 per cent of businesses in the sector are identifiable as digital content businesses and 10 per cent of the value added in the sector is by digital content businesses.

Because much of the digital content activity in these sectors will be undertaken *within* larger companies which are not mainly digital content businesses, these figures are likely to significantly underestimate the extent of digital content activity in all sectors.

Consequently, in education, approximately 5 per cent of businesses are identifiable as digital content businesses and 5 per cent of the value added in the sector is by digital

content businesses. In ‘manufacturing’, approximately 4 per cent of businesses in the sector are identifiable as digital content businesses and 5 per cent of the value added in the sector is by digital content businesses. However, these figures reflect the limitations of available data, and therefore should be viewed only as a general indication.

2.4 Australian company profile¹³

Digital content firms are active in a range of areas, with the most important outlined in Figure 2 below.

Significantly, nearly half of all companies in the Digital Content Industry have been in operation before the recognised arrival of the World Wide Web. Of those companies, nearly a quarter had operated for more than 21 years.

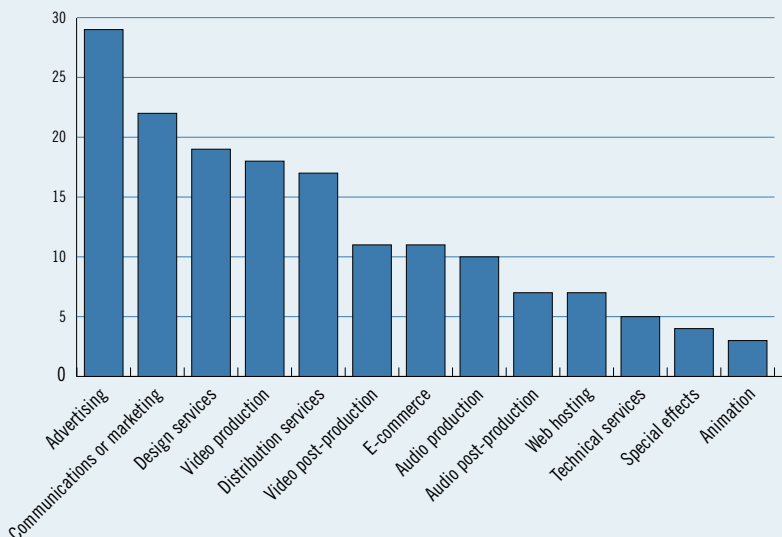


Figure 2: Digital Content Industry—main activities undertaken

While the average turnover for a business in the Digital Content Industry is just under \$3 million per annum, 61 per cent of all businesses turn over less than \$5 million.¹⁴

Despite a small number of larger companies, the industry largely comprises a plethora of micro firms. The average number of full-time staff employed by companies in the Digital Content Industry is 22. While companies operating for six or fewer years have an average full-time staff of 15, those in business for 21 or more years have an average of 36 staff. In addition, there are typically a further 10 staff employed part time, with older, more established entities above average here as well.¹⁵

2.5 Attracting investment

OECD member countries, including Australia, have been encouraged to implement policies to advance investment in new technological infrastructure, content and applications.¹⁶

Infrastructure investment has featured prominently in Australian government and private sector activities over the past decade, and it remains a critical need for many regional and metropolitan areas. However, there is growing recognition that consumer and business support for new technology infrastructure relies on providing access to high quality digital content.

Yet investment in digital content production, development and distribution in Australia appears limited. The lack of domestic investment and foreign direct investment in digital content is a significant barrier to realising substantial export market opportunities. Australia's competitiveness in digital

content production and distribution is inhibited by a shortage of a wide range of forms of investment.

Resourcing content ventures

In Australia, early digital content activities were being resourced largely with the support of profit margins derived from traditional market models. Australian business enterprises operating in the digital content sector universally report limited access to external investment opportunities to grow their firms, with only 11 per cent of companies identifying external investors as a source of funds; and only 10 per cent accessing any form of government support (despite the average company operating for over a decade).¹⁷

The prediction marketers, such as IDC and PriceWaterhouseCoopers, are forecasting substantial revenue growth in the content component for emerging products and services delivered across broadband, wireless and mobile content over the next five years.

International investment frameworks

A globally recognised challenge for the Digital Content Industry is that old business models do not automatically apply to the emerging digital markets. In recognition of this, investment and incentive structures accessible to the Digital Content Industry have been prevalent in developed markets like the US, UK, wider Europe and Canada for some time.¹⁸

In addition to general business support frameworks, a range of commercially focused Digital Content Industry investment schemes have been established throughout Europe and the UK over the past five years, including Helsinki-based Creative

Industries Management venture capital fund, Ready4Growth and DreamLab Invest, Culture Finance North-West and the Advantage Creative Fund.¹⁹

In the digital content global marketplace, Australian industries are competing with ventures supported by these international frameworks.

2.6 Export performance and potential

The Australian Digital Content Industry is most competitive in its home market. In 2002–03, for example, exports produced by the Australian Digital Content Industry made up a relatively small amount of the proportion of total value added by exports.²⁰ A major recent survey indicated that, of Australian companies selling products and services overseas, exporting typically accounted for about 18 per cent of their turnover. Few companies (2 per cent) exported exclusively. Most companies (58 per cent) indicated exporting accounted for 10 per cent or less (with 40 per cent of companies indicating that exporting accounted for 5 per cent or less).²¹

Exporting digital content is a dynamic exercise. The characteristics of the export markets and purchasing priorities shift across platforms and technologies—from CD-ROM to web to interactive television to broadband fibre to wireless and mobile, all within the past decade. Because digital content increasingly plays an important role in wider industries, digital content exports are linked closely to achieving export success across other areas of the economy, from architecture to agriculture.

The 2005 Global Outlook Survey by Austrade provides a snapshot of strategic market opportunities. In brief, the survey mapped ICT-related trade opportunities for digital content, games, eGovernment, eLearning, eSecurity, electrical/electronics, IT consulting, multimedia, smartcards, mobile and wireless, intelligent transport systems and nanotechnology. Ten countries ranked digital content amongst their highest ICT trade-related priorities.

Building familiarity with, and support to expand, niche export market opportunities is an important determinant for a successful export strategy. The recent roadmapping study of the Australian Interactive Media Industry Association suggested the sector in which a company operates is a key determinant of export propensity.

The games industry, for example, earns almost all of its revenues from exports. This is increasingly true of the eLearning sector, which is particularly focused on the UK market and where a major tranche of Government expenditure on eLearning products and services was recently announced.²² A House of Representatives Committee found that it is likely that the Australian animation industry derives much of its income from exports and co-productions, with only modest support from licence regulations and subventions from public funds.²³

A consistent presence in overseas markets pays off. The games industry reports the value of business expected in the next two years as a result of leads generated at the major international trade event, E3, is estimated at AU\$92.4 million; this represents a 38 per cent increase on 2004 figures.²⁴ Australian location promotion company AusFilm is also active in promoting

the world class product provided by Australian digital content firms in digital post-production, visual effects and animation, including through a US office.

Trade agreements and the film co-production treaty frameworks offer potential to support digital activities, with particular opportunities emerging in Asia. Digital Content Industry representation in official trade delegations in order to build relationships is also yielding results.

The competitiveness of the Australian Digital Content Industry is shaped by factors including awareness, demand, culture, time zones, cost drivers and intellectual property protection. Australian strengths include cultural and linguistic affinities with the US and UK, competitive salaries and wages, and strong intellectual property protection regimes.

Time zone differences make it more difficult for Australian firms to collaborate (via remote networking technologies) with their North American and European counterparts but facilitate communication with their Asian customers. The geographical distance to overseas markets and potential collaborators continues to be a concern for some industry stakeholders. While some transactions can now be undertaken electronically, negotiations often have to be undertaken face-to-face in order to develop trust amongst participants.

2.7 Skills and training challenges

The capacity of Australian digital content industries to deliver world class products and services to the global market depends on effective training to build a highly skilled workforce which can underpin sustainable business growth.

The Digital Content Industry has analysed skills and training issues affecting the industry, through working group deliberations and commissioned research which profiles the 320 courses currently offered nationally through universities, TAFE and private providers in digital content related areas of film and television (136), interactive media (80), games (12) and animation (28).²⁵

This research highlighted concerns that training is not targeting skills gaps within the industry, particularly to meet future growth markets in eLearning, architecture, planning, health, mobile content and games despite enrolments. Enrolments in university courses for creative arts (estimated at 15,000 in 2004) and information technology (estimated at 11,000 in 2004) contrasts with the VET sector where (in 2003) multimedia related training accounted for around 70 per cent of 5,700 VET sector enrolments.

Despite this infrastructure, many Digital Content Industry organisations are required to maintain internal training structures to ensure graduates and employees contribute the competitive skill sets required, such as sound technical, creative, marketing, business/team and project management skills. As software products change approximately every nine months, industries are seeking the necessary technical and creative skill sets, as well as essential problem solving skills and the ability to adapt quickly to the dynamic technology.

To keep pace with technological change and changing market demand, industry-based training structures are frequently resourced outside the accredited skills and training frameworks, which cannot respond rapidly enough to changes in technology and industry practise.

Skilled workers need to be highly mobile between firms as work is predominantly project-based and the industry draws employees from diverse areas where technical 'literacy' is high, including the entertainment, biotech, architecture and aerospace fields.

2.8 Research and development capabilities and activity

Australia has internationally recognised industry strengths for building an effective innovation research and development system for the Digital Content Industry across areas such as:

- the computer games industry;
- film post-production and animation networks;
- audio and media technology companies working with digital radio, broadcast, mobile/wireless and broadband platforms;
- university research in animation, digitisation, standards and visualisation; and
- leading cultural institutions.

In this sector, even comparatively small companies with fewer than 10 employees usually dedicate staff to work full-time on research and development. The 2005 roadmapping study by the Australian Interactive Media Industry Association and a wide range of partners²⁶ observed that, at the small to medium firm level, internal development of intellectual property assets within companies is more likely to result in improved 'processes and tools' and less likely to directly lead to ongoing revenue streams. To extend revenue-based activity the barriers for

firms to commercialise R&D and generate revenue from digital content products and services need to be reduced.

While some digital content firms are accessing the R&D tax concession, only a small proportion appear to be accessing the range of programs available.²⁷

Australian R&D frameworks

According to latest figures available from the Australian Bureau of Statistics, total expenditure on R&D in Australia by universities, Australian and state governments and the private non-profit sector was \$5.5 billion in 2002–03. Of this, \$370 million was for ICT R&D.²⁸

Supported by the Government's *Backing Australia's Ability* policy, Australia's science and innovation systems are competing on international terms. A total of 72 Co-operative Research Centres (CRCs) are located throughout Australia, in a program attracting more than \$9.6 billion since it was established in 1990.²⁹ In 2005, \$24.4 million was also provided to establish 11 Australian Research Council Centres of Excellence, including one allied to the digital content and creative industries.³⁰ Total investment in these Centres between 2005 and 2009 is expected to reach \$122 million.³¹

The role of the National ICT Centre of Excellence (NICTA) includes assisting the development of SMEs and working with industry networks. The Australian Government has committed \$380 million to NICTA to 2011.

The Digital Content Industry notes that relevant work is also being undertaken by the Smart Internet CRC and the Australian Centre for Interaction Design CRC.

While there are significant public resources committed to digital content R&D, the Digital Content Industry notes that it is important for the industry to work with public institutions to help them link effectively with the very different structures, priorities and timelines of the Digital Content Industry. In this respect the Digital Content Industry faces similar challenges to those faced by a range of technology and intellectual property oriented industries.

The Digital Content Industry notes that the focus of public sector research bodies is on longer term education and research issues. The Digital Content Industry believes greater priority should be given to shorter time frame, product realisation research that is of greater interest to SMEs. There are important pockets where R&D of significant value to the Digital Content Industry is being undertaken.

As SMEs predominate in the Digital Content Industry, there is currently limited capacity to sustain and commercialise R&D or effectively sustain collaborative activities within and outside the industry. There is still a need for further development of partnerships which can productively combine partners' respective strengths.

There is evidence that more technology-oriented companies in the sector, in particular in the visual effects, post-production and interactive media industries, engage in substantial product-related R&D, and utilise the R&D tax concession extensively. They rely on this concession to develop intellectual property, and consequently find it difficult to collaborate with R&D institutions that do not allow them to own part of the intellectual property produced through the collaboration. Part ownership

of intellectual property commensurate with the firm's investment is a criterion for eligibility for the R&D tax concession.

2.9 Intellectual property

A wide range of organisations are engaged in providing services to improve intellectual property management, from industry associations, specialist university centres, cooperative research centres and commercial IP management service providers through to the Australian Copyright Council. Despite the range of service providers, the Digital Content Industry considers that effective IP management is still an issue to be addressed for maintaining value and growth in the industry.

Recent developments promoting greater awareness of effective ways to manage IP include the following.

- The publication, *Copyright and Cultural Institutions: Guidelines for Digitisation*, which was published by the Centre for Media and Communications Law (CMCL) and the Intellectual Property Research Institute of Australia (IPRIA) in August 2005, provides advice on copyright and digitisation issues to cultural institutions.³²
- Alternative licensing approaches to IP, such as Creative Commons,³³ provide information, tools and tutorials to help in publishing work online.
- IPAustralia, the Australian government agency responsible for granting rights in patents, trademarks and designs, offers the book *IP Toolbox: Using Intellectual Property in Your Business* for sale on its website, which provides comprehensive, easy-to-understand

insights into how to identify, protect, and benefit from intellectual property in your business.³⁴

- A whole-of-government approach to the management of IP by government agencies is being developed as a result of the Australian National Audit Office's (ANAO) 2004 report titled *Intellectual Property Policies and Practices in Commonwealth Agencies*. This will assist agencies in interpreting and applying existing government policies as they relate to IP, including providing opportunities for Australian business to commercialise IP developed as a result of government IT procurement projects, where appropriate. As part of this process, an *IP Better Practice Manual* is being prepared and is expected to be released in mid 2006. This will also incorporate a revised version of the *Commonwealth IT IP Guidelines*, which were published by DCITA in 2001.
- The Coordination Committee on Science and Technology is establishing a Working Group to look at impediments to research collaboration, including intellectual property management.
- Based on a report by the industry training advisory body, Innovation Business Skills Australia Ltd. (IBSA), the current national Training Packages Framework offers two VET courses that are focused on the delivery of copyright management training.³⁵

The Digital Content Industry notes that a comprehensive range of reviews are scheduled to report shortly on significant copyright issues.

2.10 Statistics and standards

The Digital Content Industry appreciates the work undertaken in the area of statistics and standards, including:

- the Queensland University of Technology Mapping project, which is building an enhanced statistical base for this emerging part of the economy using data from all available sources;
- the AIMIA Roadmapping project, published in July 2005, which has established a framework for reporting across the digital content sector on the characteristics of firms and their markets;
- the Digital Content Industry Futures Report, which was commissioned to establish a framework for measuring the contribution of the Digital Content Industry directly and through its linkages to other sectors of the economy; and
- the Digital Content Industry skills report, which was commissioned to review available statistics and frameworks for developing a strategic approach to training and development across the industry.

In addition to the direct contribution to the Action Agenda process, the results from each of these projects will help support sectoral development.

Consistency with international systems and approaches is paramount as this industry is working in the wider context of global markets. International research and statistical frameworks relevant to the Digital Content Industry are also being developed through the WTO, OECD, UN bodies and other international standard-setting agencies.

In the area of standards, the Digital Content Industry notes that the Australian Government and industry are working on standards and interoperability issues at all levels. However, in developing content for use across multiple platforms, the Digital Content Industry is concerned to identify strategically important industry standards in key areas and their promulgation—particularly in the broadband, broadcast and wireless industry.

The Digital Content Industry notes that the European Commission under its i2010 initiative³⁶ will also seek to establish a comprehensive approach for effective and interoperable digital

rights management and would encourage Australia to consider a similar strategic approach.

2.11 International comparisons—frameworks of government support

Internationally, the level of recognition and program support for the Digital Content Industry is extremely high. The capacity for economies to diversify their exports by supporting the Digital Content Industry has been well recognised by our trading partners. A

Country	Digital content policy/program
EU	eContent (plus) programme/eEurope Action Plan/High-Level Group on DRMs/6th Framework Programme (IST)/Directive on re-use of public sector information/Audiovisual Policy €149m
Ireland	Strategy for the Digital Content Industry in Ireland/Digital content steering group
Italy	eContent Policies and Actions Plans/Interministerial Commission on digital content in the Internet era
Japan	Promotion policy for content business in Japan/Information and Communications in Japan, Building a new Japan-based Information Society
Korea	New Growth Engine: Digital Contents Industry Broadband IT Korea 2007/IT 839 Strategy/Digitization of Public Information Resources
New Zealand	Government's Growth for Innovation Framework/R&D Strategy for creative industries
Norway	Norway's Strategy for Electronic Content/Public sector information programmes
UK	Digital Strategy March 2005/Creative Industries Taskforce/Digital Content Forum
United States	New Generation of American Innovation (Promoting Innovation and Economic Security through Broadband Technology)/ Universal Service Program with the Schools and Libraries Program

Table 3: Selected, existing OECD country policy initiatives for digital content

Source: Adapted from OECD Working Party on the Information Economy, *Digital Broadband Content*, 2005, p. 8

snapshot of selected, existing OECD country policy initiatives for digital content provides a useful sample.

Many of our trading partners, such as Canada, Korea, Singapore, Ireland, Europe and the UK, have also committed substantial support to developing their digital content industries.³⁷ Some of this is captured in the above table.

New Zealand

New Zealand has developed an integrated strategy to build its Digital Content Industry, allocating \$24 million in seed funding over four years to support broadband development. To unlock New Zealand's stock of content and provide seamless, easy access to the information that is important to communities, businesses, and cultural identity, New Zealand aims (by December 2006) to develop and launch a National Content Strategy, develop an online Cultural Portal, implement a National Digital Heritage Archive and digitise existing content and develop new content through a Community Partnership Fund worth \$20.4 million over four years.

Singapore

The Connected Singapore Media 21 blueprint launched in March 2003 is worth \$100 million over five years. Singapore's Digital Exchange is part of the overall blueprint. The aim of the Digital Exchange strategy is to position Singapore as a global distribution hub for the processing, management and distribution of digital assets. Digital assets refer to any content, service and resource that can be digitised. These will include content such as films, video, music, games and software applications.

Leveraging on Singapore's excellent international telecommunications connectivity, pro-business environment, and established legal and financial frameworks, the Digital Exchange strategy will create a new source of growth and extend Singapore's hub status in the digital medium. The target is to increase the value of digital transactions through Singapore from the current S\$150 million to S\$500 million (AU\$118 million to AU\$393 million) by 2006.

Singapore's Media Development Authority (MDA) has begun a number of programs under its Media 21 blueprint to encourage the development of content for broadband, television and film. There are a number of broadband content programs such as:

- *Digital Content Development Scheme*: a seed fund which aims to support the development of innovative ideas and concepts into real content products;
- *Digital Technology Development Scheme*: supports the development of original and innovative products or processes that lead to tangible outcomes such as investment for new products, introduction of new services or adoption of new technology; and
- *Digital Broadcasting Development Fund*: supports the development of original, innovative and high-quality digital broadcasting content and services for digital TV.

Canada

Canada has a comprehensive range of programs which support Canadian digital content production. Whenever there is a sale or transfer of ownership of a media, broadcast, or broadcast distribution enterprise in Canada, the Canadian

Radio-television and Telecommunications Commission (CRTC), the regulatory body that governs television and telecommunications in Canada, requires the purchaser to contribute 10 per cent of the gross sale cost of the transaction to a benefits package for the industry. The rationale is to ensure corporations contribute to content production.

There are now approximately 19 different private funds in Canada, each contributing to content genres (e.g. documentaries, drama, new media), with different kinds of contributions (e.g. development loans, grants, equity financing or inexpensive interim financing).

For example, when Canada's largest telecommunications company, Bell, took over the largest private TV station four years ago (with a purchase price of CAN\$2.3 billion), \$230 million was contributed back to the independent content creation industry in a variety of programs, including research, mentorship, development and television production. All benefits packages must be approved by the CRTC so there are safeguards to prevent misuse. The Bell Fund contributes grants to new media production which has a convergent relationship with a TV program. The Bell Fund alone currently distributes CAN\$6 million per year in grants to content production.

Canada also has a tax credit system to support the television and film industry, at both federal and state levels. Producers receive a tax credit based on a percentage calculated on Canadian talent (i.e. labour) in the budget. The federal rate is 48 per cent, while individual states vary. The industry nets about 12–15 per cent of total budget from federal level, and a little more

from the state (province) in which the program is produced (i.e. a further 15–20 per cent of the budget). Tax credits are available to both Canadian and foreign producers to provide incentives for the media production industries.

Korea

Korea's strategic programs to promote digital content exports include Localisation Strategies for Promising Export Content; Platform Conversion and Device Optimisation for Export (legal services and testbed parks for online game export); a points system for Overseas Marketing; Scholarships for Export of Digital Content; Marketing Meetings through GPP (Global Publishing Post); and participation at World Class Digital Content Trade Shows.³⁸

Korea has also released its 8:3:9 Strategy, which introduces a series of platforms, services and content forms in a cohesive strategy to encourage investment in three essential networks. The focus is on establishing infrastructure from which digital content platforms, markets and content forms can be created. These include Digital Content & SW Solutions, Next Generation Mobile Communications Devices, Home Network Devices and Telematic Devices. A key focus for the Korean strategy is the digitisation of government-owned archives, in combination with strategies to encourage their use by the private sector.

Ireland

Ireland has transformed the Irish industrial landscape into a knowledge economy, turning what was once an agricultural and manufacturing based economy into the fastest growing economy in Europe by a focused strategy to support high technology

industry, particularly ICT and the Digital Content Industry. This strategy combined culture and creativity with technology, in developments such as the Dublin Digital Media District.

The expected outcome of the overall strategy of Enterprise Ireland,³⁹ the national industry development agency, is to maximise export sales through the utilisation of applied research, technology and innovation while ensuring economic development is achieved in a regionally balanced fashion. Enterprise Ireland's targets and evaluation measures include:

- €3 billion new export sales over the three years from 2005 to 2007;
- doubling to 1050 the number of firms engaged in meaningful R&D (in excess of €100,000) by 2010;
- supporting the creation of 210 new high potential start-up companies nationwide by the end of 2007; and
- driving export readiness by implementing productivity and competitiveness improvement projects in more than 300 firms by the end of 2007.

European Union

On 1 June 2005 the European Commission issued the strategy *i2010—A European Information Society for Growth and Employment*, which noted that new content creation, services and business models are driving growth and jobs. The strategy is based on the growth of Western European online content markets being expected to triple by 2008 (with the consumer part growing tenfold) from a current base already accounting for 8 per cent of the European Union's GDP.⁴⁰

In line with the Commission, the European Investment Bank (EIB) recently launched the *Innovation 2010 Initiative*,⁴¹ announcing that its support for targeted sectors would amount to well over €50 billion by the end of 2010. This strategy is based on a €17 billion initiative, launched in 2000, which diversified funding from primarily infrastructure to investment in all phases of the innovation process.

For European Union members, a range of national strategies and investment schemes to promote digital content industries have been in place over the past five years, including Helsinki-based Creative Industries Management venture capital fund, Ready4Growth and DreamLab Invest, Culture Finance North-West and the Advantage Creative Fund as profiled in the UK National Endowment for Science, Technology and the Arts 2005 report, *Creating Value*.⁴²

3. The next steps: strategies for growth

The first chapter highlighted the key issues the Digital Content Industry considers need to be addressed as a matter of priority. These include:

- overcoming the sector's *fragmented response* to the global challenge;
- boosting national *investment and competitiveness*; and
- targeting *capability gaps* in core areas.

In order to achieve growth across the industry, a number of initiatives are needed in the areas of investment, exports, skills and training, and research and development; as well as some longer term, underlying work in the area of intellectual property, and statistics and standards.

3.1 Investment

Issues

- The Australian Digital Content Industry (DCI) is non-competitive in attracting investment capital.
- Higher levels of private investment in the DCI need to be achieved.
- By comparison to investment in underlying technical infrastructure and structures in place internationally, investment in digital content development, production and distribution in Australia is limited, uncoordinated and inconsistent.
- The digital content sector is experiencing significant difficulty in attracting development funding, venture capital, project finance and enterprise investment in order to grow.
- The investment sector has limited knowledge of the potential of the DCI.
- Mechanisms to support the critical phase of prototype and proof-of-concept developments are a particular gap.

Proposed solutions

- Initiate an Investment Scoping Forum, to bring together industry bodies and firms with investors and other investment groups to examine the investment issues and to develop a capability map for the DCI to help inform potential investors about opportunities, and to help develop mechanisms to support investment, innovation and early stage support in the DCI.
- In order to grow, the DCI needs regulatory and investment frameworks that encourage interoperability, innovation, investment and competition, and that operate under technologically neutral principles.

In order to grow, the Digital Content Industry needs to work closely with governments to ensure that regulatory and investment frameworks supporting traditional or 'analogue' content industries operate under technologically neutral principles to achieve commercial outcomes. Regulatory, tax and industry assistance structures, at a minimum, should not disadvantage 'digital' production methods compared to 'analogue'. This concern is particularly acute in the screen production, post-production, broadcasting and games sectors.

In the broader context, the Digital Content Industry recognises that there are a number of other processes dealing with cultural, economic and sectoral issues associated with digital content that Government may take into account in its commitment to preparing a Digital Content Strategy.

Government programs and initiatives are considered further in Chapter 4.

Australia has an important core of expertise to promote. An effective and commercially accessible investment environment for the Digital Content Industry is important for building confidence and establishing pathways to growth in new domestic and international markets.

Australian digital content companies have a very good track record in providing critical content inputs to profitable international digital content ventures. International markets are also seeking to increase the range and scope of partnerships with Australian firms to utilise Australia's expertise with digital content.⁴³

However, the limited domestic investment currently available prevents Australian digital content firms taking a stake in capital returns to be generated from the final products and services that they have assisted to develop after they enter global markets.

Without capital resources to bring to the table with their expertise, Australian firms are often limited to developing content on a 'fee-for-service' model. As the returns are captured by other economies this means that the benefits of Australian innovations and Australian value-added content contributions to digital products and services are being undervalued. At the micro level, this fuels a cycle for Australian firms trying to grow, to retain their creative talent and underscores a persistent historical deficit in the content trade balance.

The Action Agenda is seeking to reverse these trends. In the short term, the Digital Content Industry's objective is to facilitate significant and ongoing industry growth by aligning identified opportunities and needs with investment priorities. Areas with demonstrated export potential, such as electronic games development, are experiencing significant difficulty in attracting capital. The launch in late 2005 of the Electronic Games Investment Fund, a pooled development fund targeting \$5 million in investment capital, is an important development to support, especially as a way of helping to establish domestic investor confidence.

Independent Australian investors have reported their willingness to share the risk and reinvest beyond one-off projects. However, no licensed innovation investment fund or pre-seed fund managers appear to be working consistently with the industry, so the

industry is concerned to raise awareness, build a track record and promote a stronger investment environment.

As recognition of the growth potential of the digital content sector progresses, the Digital Content Industry is concerned to highlight the need for the industry to continue to work cohesively in building, and expanding, investor familiarity and confidence about commercial opportunities and generate new capital investment for export ventures.

Commencing with a contribution to the Australian Government Venture Capital Review, through input to the submission by the Department of Communications, Information Technology and the Arts, the Digital Content Industry has sought to engage in processes to identify measures that could improve the investment environment.

To facilitate growth of Australia's Digital Content Industry, a range of measures are necessary, particularly to support any broader strategies to improve access to early stage finance, including:

- improving the information environment and addressing investor perceptions about risk and potential returns (e.g. at a high level it is important to build consistent and internationally consistent frameworks around the measurement and value of digital content);
- helping digital content firms become investment ready and investment literate. This is particularly required to help the industry identify and address key weaknesses in the process of attracting investment, such as the inability to accumulate sufficient intellectual property with commercialisation potential to be attractive to venture capitalists;

- educating investors to support the industry;
- identifying potential avenues where digital content proposals can access seed funding (e.g. to progress proof-of-concept proposals and build commercialisation rates); and
- identifying investment sources to back the industry and enhance returns for Australian firms participating in development and production, licensed production, marketing and distribution activities for digital content.

The Digital Content industry is considering ways to establish an industry-led mechanism to address investment issues. The first step to address the issues in more detail is an Investment Scoping Forum, to bring together industry bodies and firms with investors and other investment groups (such as the Australian Venture Capital Association Limited, key large finance industry bodies, small capital fund managers and angel investors) to address the issues raised in more detail. These organisations have been approached informally to gauge interest, and planning for the Forum is underway.

Industry capability map for investors

As an overarching investment attraction initiative, the Digital Content Industry notes that a key development strategy employed by many industries to raise their profile and bring fragmented capabilities together is the concept of a capability map. The Digital Content Industry recommends that a central component of the Action Agenda strategic implementation plan be the framing of a Digital Content Industry capability map for potential investors.

Some Australian industries have developed capability maps around a key objective such as informing potential investors about opportunities. A capability map can highlight areas where an influx of capital or other resources (such as management expertise or infrastructure) could generate significant commercial expansion.

For example, the Australian forest products industry produced an industry guide in 2003 identifying generic strengths in the Australian industry, information on industry participants, areas with potential for export growth, and government initiatives to support investment. Similarly, the nanotechnology industry worked with Invest Australia to produce a second edition of its capability map (*Invest Australia, Australian Nanotechnology: Capability and Commercial Potential*) in 2005.

The development of a digital content capability map for potential investors in consultation with the venture capital community would be a worthwhile activity. It could explore generic industry strengths, skills and technology clusters, areas of export potential, key players and industry bodies, and government incentives and the regulatory environment.

Another resource to aid investment would be a guide for digital content sector small and medium sized enterprises (SMEs) on attracting venture capital or other forms of finance. Such a guide would identify pathways for commercialising innovations and emerging technologies in the sector. While some good courses already exist for this, there is a problem in that the kinds of characteristics venture capitalists look for may not be easily delivered by the Digital Content Industry. For this reason, any resource developed

in this area should help demonstrate to digital content companies, strategies by which they can make themselves more attractive to investors, rather than merely outlining what is required.

Resources may also need to identify factors preventing expansion in individual businesses, opportunities for industry clustering to share expertise and capabilities, and advice on navigating through the cycle of private equity or 'angel' investment, venture capital, and initial public offering. Such a resource could catalogue government incentive programs, map out regulatory factors like intellectual property protection, and provide advice about business planning and sources of expert advice.

3.2 Exports and international engagement

Issues

- Exporting SMEs experience difficulties in maintaining an ongoing presence in export markets.
- Fragmentation across the industry is limiting capabilities to increase digital content exports.
- Firms are seeking more guidance in becoming export ready and scaling up their operations.
- Firms and the sector generally lack timely intelligence about overseas markets.
- The growing international market in new areas of digital content production, such as mobile, design, architectural services, eLearning and games, offers important opportunities which need to be taken up.
- Overseas markets are seeking a more strategic relationship with the industry.

Proposed solutions

- Define an Australian strategic international trade framework for the Digital Content Industry, commencing with mapping key export opportunities, seeking enhanced engagement with existing export support schemes and focusing on all international digital content opportunities, including trade shows and other events.
- Review the process and development of current and future co-production mechanisms to cover digital content, where appropriate.
- Work towards the establishment of a cross-sectoral Australian Digital Content Industry market intelligence network to build a trade framework and advance firms' export capacity.
- Join with other industries to address shared issues related to treatment of export income.

The Digital Content Industry is arguably the first 'born global' industry where content to provide products and services may be assembled from multiple market sources across the world. While the industry has overcome time, transport and geographical constraints to conduct trade across national borders, the capacity to increase Australia's share of trade in the global market is reliant on building industry capabilities and extending working partnerships in

areas of expertise. Without a strong local industry, it will not be possible to achieve a vibrant export industry.

Building export culture

A fundamental commitment to build an export culture is present at the firm level. Companies consider 'better access to export markets' would most assist them to grow their organisation and this position is essential to achieving long-term viable and sustainable domestic

industries. Firms that are exporting were found generally to employ more people and have a higher turnover, particularly for those in the \$1 million to \$5 million turnover bracket.⁴⁴

Existing arrangements provide an opportunity for Australian industries to extend trade and form partnerships, but can be enhanced if Australia defines and presents its own strategic international trade framework.

There may be considerable gains available by adapting existing mechanisms. The international co-production treaty framework has significant government to government status. The mechanism has evolved to support the mutual recognition of co-investment commitments in cultural projects for film industries. However, there is evidence that firms are seeking a similar structure to underpin 'economic co-productions' as a streamlined approach to facilitating cross-border and co-investment ventures in projects generating shared economic benefits in terms of skills and industry development.

However, such a mechanism is not a panacea for industry—the relevance of such co-productions is limited to projects that leverage off existing media forms. While this is significant and offers many opportunities for Australian companies it could, if implemented without other mechanisms of support, compromise other emerging Digital Content Industry sectors.

At the Australian Government level, the Export Market Development Grant (EMDG) scheme performs an essential role, and one the Digital Content Industry supports with vigor. In 2003–04, EMDG grants provided \$5 million to 87 businesses in the Australian film,

animation, special effects and electronic games industries. The Digital Content Industry notes that Government has announced the EMDG Review outcomes and would welcome the opportunity to provide input to future reviews.

In addition, Australia stands at the forefront of technological innovation in post-production and is capitalising on that internationally through the development of export markets. For example, part of the business of Australian digital effects firms is servicing the needs of clients in Japan and North America undertaking television commercial production in and for those markets. Asian feature filmmakers have also been attracted to Australia by the quality of the work that Australian firms undertake.

Australian firms are confident that with an investment in appropriate research tools they stand to contribute substantially to the expanding market for 'non-voice' content in mobile phone applications.⁴⁵

To be internationally competitive, the Digital Content Industry is concerned that more cohesive strategies and support frameworks need to be formulated to deepen exporting capabilities. To build on areas of success to date, Australian digital content industries need to develop a strategic export framework, underpinned with support to extend market linkages and expand on successful ventures.

On a firm and sectoral basis, industry players are accessing partnership avenues with Australian, state and territory governments to promote the export potential of niche markets.

The Digital Content Industry would encourage these efforts to be harmonised into a cohesive strategic approach.

Key industry associations, such as the Australian Interactive Media Industry Association (AIMIA), have established Trade Start partnerships with Austrade and employ two staff to facilitate Australian firms to develop their export product. In a wider context Austrade's commitment to locating ICT specialists in key markets provides a special alliance opportunity for building up a necessary framework of knowledge and expertise around a profile of Australia's digital content export capabilities. These arrangements provide an opportunity for Australian industries to extend trade and form partnerships, but can be enhanced if Australia defines and presents its own strategic international trade framework.

Development of a comprehensive strategy to promote Australian Digital Content Industry activity to the international marketplace may start with establishing an overview of opportunities via trade show, conference and market options but will need to be sustained by:

- building a map of specific market intelligence; and
- providing a focused communications network across the industry.

While immediate work can progress around identification and prioritisation of emerging markets, the development of support mechanisms which are appropriate to industry requirements, including improved market intelligence specific to the Digital Content Industry, and enhanced access to existing support mechanisms for global marketing are considered critical first steps.

To achieve this, priority should be given to structured access to international market intelligence through industry-based market liaison officers to focus on all international aspects of opportunities in digital content, not just export, and to help digital content firms become export ready.

The Digital Content Industry research concludes that a successful export culture also needs to be based on effective marketing, quality in service delivery and ensuring investments in overseas promotion are based on calculated returns for exported products and services.

3.3 Skills and training

Issues

- Limited industry leadership and direction for skills and training.
- Industry is supporting its training needs with on-the-job training without the support of accredited frameworks, as training mechanisms available through existing skills and training schemes are inflexible.
- Training needs to target the skills gaps.
- Insufficient supply of high quality industry-ready graduates.

Proposed solutions

- Achieve greater recognition of, and much faster accreditation for industry-based training activity.
- Demonstrate and promote the feasibility of successful industry-based training models or exemplars to the Digital Content Industry, education and government for use nationally and to support employer involvement.
- Improve linkages between industry, education, TAFE, universities, Innovation and Business Skills Australia (IBSA) and training providers.

Domestic industries recognise the need to sustain substantial and ongoing investments in training to remain competitive. Flexible training is an essential resource to both workers and industry. The Digital Content Industry is seeking greater recognition of, and in particular, faster accreditation for, the industry-based training activity that it is undertaking. It has been suggested that increased use of internship programs, and graduate placement programs within industry, need to be accompanied by improvements in accreditation for these activities.

At the top end of the skills market, new professional development and advanced-level training opportunities are anticipated following the announcement of \$9 million over three years to the Australian Film Television and Radio

School to deliver digital interactive and multiplatform production courses, establish a national Screen Business Skills Centre and, during 2005, open a Laboratory for Advanced Media Production. Other important components include the Academy of Interactive Entertainment and the Australian Games Innovation Centre (AGIC), which are also working with games and animation sectors, and XmediaLab, which has been operating for two years and has successfully expanded into overseas markets.

However, while invaluable, there remains the broader issue of industry-wide training. At present, most of these programs are aimed at improvements in design, animation

and visual effects, but industry has also indicated a pressing need for improved supply of technical resources.

Models enhancing industry linkages

In addition to the core skills and training frameworks, the Digital Content Industry supports localised initiatives that are linking training into industries, as models for national expansion. Examples include the following.

- Internship support schemes—Film Victoria manages a model media internship scheme assisting graduates gain experience in commercial studio environments. AIMIA is trialling an internship program with the University of Technology Sydney (UTS) which it aims to extend to other institutions in 2006 following an evaluation process. AIMIA is currently developing a separate graduate placement program, for trial in early 2006.
- Industry apprenticeships—the NSW Film and Television Office Digital Effects Trainee Scheme has provided additional industry-ready professionals for the sector, and has provided a model for several initiatives in the sector. However, resource constraints have kept the number of apprenticeship placements well below demand and industry capacity, and the program is currently restricted to design and animation skills.
- The Games Developers' Association of Australia has also worked closely with the TAFE system to design and assist in the delivery of a graduate certificate; and the Academy of Interactive Entertainment (AIE) undertakes placement of students with companies to work on games code for 6 weeks as part of their training. A number of companies have hosted students.

These models have been established with limited ongoing resources or are operating in only selected regional or sectoral environments.

While tertiary level and postgraduate training structures are an important basis for Digital Content Industry employment, the most immediate concern for industry action is building a robust interface with vocational training structures and expanding successful models for enhancing flexible learning structures within organisations.

Industry leadership is required for the digital content skills and training agenda to address immediate needs and follow through on a long term and strategic framework.

Improved communication and linkages are critical for ensuring that training resources are well targeted and that the available training is relevant to Digital Content Industry development. Better linkages need to be established between key industry employers, industry associations, education, TAFE, universities, AFTRS, training providers and the training advisory agency, Innovation and Business Skills Australia (IBSA). It is important for industry to engage with existing and developing programs as they attempt to address issues raised in this report. This is particularly the case with initiatives to revise training packages and build in greater flexibility; moves to build continuous improvement into training packages, as well as new initiatives to incorporate employability skills in all training packages.

Convergence across sectors and growth in emerging markets, such as interactive television, broadband and mobile content, offer new career paths

across diverse industry sectors. Skills and training need to be oriented to areas where jobs growth is occurring. IBSA's recently integrated training responsibilities spanning ICT, arts and culture, film, television, music and multimedia sectors provides a broad platform to assist the Digital Content Industry to address its needs. It is important that this develops with a speed that reflects the rate of change in the industry and the timelines for

implementation of the Action Agenda outlined by the Digital Content Industry. Establishing pilot schemes may be a useful way to implement changed approaches in a timely fashion.

3.4 Research and development

Issues

- Limited capacity of firms and the sector as a whole to commercialise R&D and generate revenue from digital content products and services.
- Lack of adequate mechanisms to seed innovative digital content projects with significant commercialisation potential including production of prototypes and 'proof-of-concept' projects.
- Prospects for enterprise growth in the sector will be constrained until R&D capabilities are addressed.
- Rate of change in digital content industries is not addressed by current institutional R&D structures, which take too long to develop research to the point of commercialisation.
- Disruption of old media models.
- High R&D need.
- Supply oriented rather than demand oriented—there needs to be a balance.
- Focused towards education, rather than industry. Low level of industry engagement with publicly funded research sector (NICTA, CSIRO, CRCs, universities).

Proposed solutions

- Establish a mechanism for industry to work with R&D institutions on priority setting.
- Investigate mechanisms to achieve more rapid access by industry to research, for example, through embedding researchers within industry.
- In collaboration with industry associations, raise awareness and increase utilisation of government R&D and non-R&D programs that foster innovation by digital content firms.
- The Digital Content Industry notes the value of the R&D tax concession.

The Digital Content Industry is seeking to establish a mechanism to work with R&D institutions on priority setting and investigate mechanisms to achieve more rapid access by industry to research, for example, through embedding researchers within industry. R&D institutions have expressed interest in working with the Digital Content Industry and improving communications to address the longer term objectives of institutions and the shorter term objectives of industry.

International experience suggests that the model whereby companies engage with institutions is only part of the solution to R&D in the digital content sector. Placing researchers from these institutions into firms ('embedding' them) is another approach that is used by major US universities and corporations. ARC Linkage grants provide a possible mechanism for the Digital Content Industry to commission research tasks for research degree students that will provide these students with skills and experience of direct relevance to research tasks undertaken in the industry.

The Digital Content Industry also supports an increased role for the Digital Content Industry in partnership with Australia's R&D powerhouses, through a re-appraisal of the way in which those organisations engage with industry and treat intellectual property. The Digital Content Industry proposes this in order to:

- promote digital content firm involvement in research, development, trial and commercialisation initiatives;
- disseminate important content-based research findings to Australian industry; and

- facilitate new revenue streams for Australia's digital content from R&D through licensing and commercialisation into global markets.

In particular, the Digital Content Industry encourages conducting more project-based activities relevant to SMEs with Australia's R&D institutions, where business helps drive R&D opportunities and priorities. As a first step, industry is keen to establish a mechanism to build working relations based around industry outlooks and priority setting.

The risk of isolating R&D activity from industries whose livelihood depends on recurrent innovation and cutting edge expertise to compete in the world market is 'to weaken the innovation base and the future competitiveness of the economy'.⁴⁶

3.5 Intellectual property

Issues

- Low levels of industry knowledge about managing intellectual property.
- The importance of effective intellectual property management to build revenue in firms.
- Insufficiently developed mechanisms for accessing Crown IP for exploitation.

Proposed solutions

- Identify and develop ways that firms can strengthen their protection of intellectual property, particularly by incorporating skills in identifying, managing and commercialising intellectual property into training frameworks.
- Engage with work occurring in the area of alternative approaches to intellectual property licensing, such as Creative Commons.
- Develop ways of improving access to Government intellectual property for commercial exploitation by digital content firms to encourage innovation.

Developing the efficient operation of copyright industries in the online environment has been a priority since 2000, when the Government introduced Digital Agenda copyright reforms.

Improved information and research into the management and use of digital copyright content will make an important contribution to efficient industries. A wide range of studies have been undertaken on these issues and there is a strong body of ongoing research in Australia and internationally, particularly in the areas of eLearning and digital rights management.

The Digital Content Industry has determined that, in the context of the Action Agenda's primary role to focus on measures to support industry development, the most significant intellectual property issues relate to:

- improving awareness about intellectual property management; and

- promoting mechanisms to support the Digital Content Industry in using its intellectual property to generate revenue streams.

Measures to promote intellectual property management underpin each strategy to advance industry development skills, research and development, investment and export.

The Digital Content Industry has concluded that there is a strong need to identify existing and potential training that incorporates skills related to identifying, managing and commercialising intellectual property, which is central to this industry. In particular, training needs to deliver skills for managing and licensing content across multiple platforms.

The Digital Content Industry has raised the issue of developing ways of streamlining use of Government IP for commercial exploitation by digital

content firms. In addition to seeking greater industry involvement in the commercialisation of IP derived from Government IT procurement under the framework of the *Commonwealth IT IP Guidelines*,⁴⁷ the Digital Content Industry commends initiatives promoting a greater engagement with the Digital Content Industry.

The Copyright Law Review Committee released a report on Crown Copyright in 2005. The committee was specifically charged with the task of conducting an inquiry into the appropriateness of Crown copyright provisions under the *Copyright Act 1968*, Crown ownership of copyright, and the interaction between government ownership of copyright and competition policy. The committee acknowledged the usefulness of the *Commonwealth IT IP Guidelines* and

mentioned the Government's 2004 policy statement in *Strengthening Australian Arts*, which said that government copyright material wherever appropriate should be made available to businesses that have the capacity to use the IP to create employment and commercial opportunities for Australians. A whole-of-government approach to the management of IP by government agencies is currently being developed, which will result in an IP Better Practice Manual.

As noted earlier, the Digital Content Industry is aware that a comprehensive range of reviews are scheduled to report shortly on significant copyright issues.

3.6 Statistics and standards

Issues

- There is a lack of timely and relevant statistics that accurately define the industry for business planning and strategic development.
- Industry needs to work with other statistics stakeholders to better define the benchmarks and information it requires.
- Australia needs to ensure it is adopting internationally recognised standards.

Proposed solutions

- Continue assessing existing statistical frameworks describing the industry, to improve measurement of the digital content area (e.g. size, growth, employment, investment profile, export performance and production of outputs, such as visual effects and television commercials, including related data on scale of uptake of relevant devices).
- Explore research opportunities to generate data to reduce the current high risk profile for investment in digital content activity.
- Identify opportunities to support industry surveys across the sectors on a regular basis to identify a benchmark in relation to people employed, roles and current gaps/projected growth areas followed by regular surveys to assess changes and requirements over time.
- Identify strategically important industry standards in key areas and encourage their wide dissemination e.g. in the broadcast and wireless industry.
- Support industry involvement and collaboration in the formulation of next generation standards and the development of consensus around them.

Statistics

A workable, widely endorsed and internationally consistent definition for the Digital Content Industry is the subject of considerable and ongoing research investment occurring across a range of projects and programs.

Within Government, the Australian Film Commission (AFC) performs a leadership role in research and statistical frameworks relating to the film and screen production industry, in close collaboration with industry and the

Australian Bureau of Statistics. While the AFC has understandably had a focus on screen-based media, it has recently been a participant in the Australian Interactive Media Industry Association *Digital Content Industry Roadmapping Study*, which generated valuable knowledge of sectors of the industry not previously captured by AFC studies.

The Australian Electrical and Electronic Manufacturers' Association also plays a key role in collection of data on

the level of uptake of devices and other hardware related to Digital Content Industry development.

The Digital Content Industry notes that the Cultural Ministers Council Statistics Working Group has expressed interest in being informed about Digital Content Industry research. The Working Group could assist as part of their responsibility for managing a national statistical research program on the Digital Content Industry, based on the nationally recognised framework for Culture and Recreation Statistics used by the Australian Bureau of Statistics National Centre for Culture and Recreation Statistics.

In relation to statistics, the Digital Content Industry encourages an approach of working at two levels:

- promoting benchmarking activities to discern the critical data that firms need to operate and grow in the digital content sector; and
- supporting longer term research projects which advance the capacity to effectively define the Digital Content Industry in a manner which is consistent with national and international frameworks.

The Digital Content Industry believes that statistical analysis of the digital content sector in collaboration with relevant stakeholders should also encompass companies working in non-screen media and interactive advertising.

Standards and interoperability

Open and interoperable standards, multi-platform delivery and interoperability between devices are of paramount importance to the future of the Digital Content Industry. While recognising the limited role that small economies

can play in setting standards, the Digital Content Industry supports Digital Content Industry involvement and collaboration in the formulation of next generation standards and the development of consensus around them.

In order to access valuable content, a common approach is needed which supports an open and interoperable digital rights management environment including the development of mechanisms to prevent content hacking and protect home networks.

Delivering content and services through multiple delivery channels in order to communicate with consumers accessing numerous types of terminals, raises a host of political and regulatory problems. Since such multimedia terminals, content and services blur the lines between traditional telecommunications services and broadcast services, aspects of current regulatory frameworks may need to be adapted to reflect this new environment.

An example of how various levels of interoperability are being addressed is the eEurope2005 Action Plan, which is based on the following principles.⁴⁸

- All platforms should be open and interoperable in order to facilitate circulation of content and services.
- Content providers and aggregators should be able to provide the same content over different access infrastructures.
- Convergence on a commercially agreed, common set of open industry standards is key to the rapid take-off of networked homes, offices and public places.

An open standards based interoperability framework which is developed in keeping with international trends will promote vendor choice, innovation and value.

4. Continuing the momentum: partners in implementation

Development of the Action Agenda has been a detailed process of research and consultation, involving industry and government, both at national and state and territory level. On the basis of this work the Digital Content Industry has developed a comprehensive framework and specific proposals for supporting this strategically important industry at a critical point in its development.

The opportunity is here for industry to develop its approach to priorities and implement the Action Agenda. To take account of the scope and scale of activities, the next steps involve follow-up liaison between industry and relevant government bodies, at the national, state and territory level. Nevertheless, with the framework in place, industry has the capacity to advance its vision for the future of the Australian Digital Content Industry.

A number of options for an organisational framework to undertake the implementation process were considered:

- a successor to the current Leaders Group, comprising a mixture of industry associations and chairs of the Leaders Group working groups;
- industry associations, getting together as a roundtable, along the lines of the National ICT Alliance model;
- consultation with industry, about how to proceed with the implementation;

- the Online and Communications Council (an Australian, State and Territory Government Ministerial Council), as a partial coordination and consultation body, especially to engage industry across states and territories, with an enhanced focus on industry development of content.

The Digital Content Industry considers that the most effective option for implementation is a mix of industry leaders, building on the work to date of the Leaders Group, for continuity, and working with industry associations to progress the recommendations, as appropriate. Implementation should be undertaken in consultation and liaison with industry, states and territories through a public consultation process and through the involvement of the Online and Communications Council as required.

Industry associations, such as the Australian Electrical and Electronic Manufacturers' Association (AEEMA), the Australian Interactive Media Industry Association (AIMIA) and the Games Developers Association of Australia (GDAA), provide an established and relatively cost-effective mechanism to work nationally with stakeholders and provide continuity for the implementation process. The industry associations provide a reliable mechanism for targeting support to assist the implementation of the Action Agenda, particularly in the areas of export and skills and training.

Given the economy-wide impact of the Digital Content Industry, and its strategic importance for economy-wide productivity and growth, at all levels from national to regional, it is appropriate that the approach for implementing the Action Agenda is both whole-of-industry and whole-of-government in nature.

Following acceptance of the framework of the Action Agenda recommendations and strategic implementation plan, the Digital Content Industry proposes a series of public consultations in each state and territory to outline the high-level plan objectives and to develop a detailed strategy for each jurisdiction.

Engagement with complementary government and industry initiatives

The Action Agenda process has identified a range of complementary initiatives for assisting the development of the Digital Content Industry in the context of the broader economy, which may help with implementation of some of the recommendations of the Action Agenda. These encompass various policy frameworks; frameworks for cooperation between Australian, state and territory and local government; industry initiatives and frameworks; and available programs of support.

4.1 Australian Government initiatives

Australia's Strategic Framework for the Information Economy 2004–2006

As the Australian Government's peak information economy policy document, the *Strategic Framework* provides the policy leadership and

national direction to address new challenges to Australia's position as a leading information economy.

In the communications and media sector, a broad range of global content-based and export-oriented goods and services are developing, including interactive multimedia, digital film and television, computer and online games, educational content production, digital publishing and online music. However, the strategy notes that the market for cultural content cannot develop ahead of broadband rollout; yet at the same time broadband development is hindered by limited availability of content. Broadband and digital content policies are addressing this nexus.

Strategic Priority 1 seeks to 'ensure that all Australians have the capabilities, networks and tools to participate in the benefits of the information economy'. Content is addressed specifically under Strategy 1.3 seeking to 'promote investment in broadband infrastructure, content, capabilities and networks in regional areas and in key industry sectors'.⁴⁹

With the Action Agenda report completed, it may be appropriate to frame a new strategy within the updated Strategic Framework for the Information Economy, in relation to digital content and eCulture initiatives. There is a range of areas suitable for inclusion, to indicate where government and industry are working together on content issues (e.g. eLearning, eHealth) to improve productivity, increase access and take advantage of industry development opportunities.

Within the current Strategic Framework for the Information Economy, issues relevant to the Digital Content Industry

tend to be focused around broadband. However, the scope of the Digital Content Industry is broader than this, as it includes film, games, broadband, mobile content, broadcasting and ICT sectors.

Since the last Strategic Framework for the Information Economy, Government has also developed a National Digital Collection Strategy to facilitate increased coordination between cultural agencies in undertaking online activities, and an extensive range of eCulture initiatives were recently documented as part of the ICT Stocktake for Australia's report to the World Summit for the Information Society (WSIS).

The Digital Content Industry supports working to advance this policy framework and extend its scope to areas beyond broadband, to develop a market for cultural content for Australian firms to promote take-up of available infrastructure opportunities.

Working Group on the Role of Creativity in the Innovation Economy of the Prime Ministers Science, Engineering and Innovation Council

The Working Group on the Role of Creativity in the Innovation Economy established under the auspices of the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) is finalising a report on ways that creative industries leverage creativity in the innovation process for competitive advantage in the Australian context.⁵⁰ The working group has expressed support for progressing work on the Digital Content Industry Action Agenda, noting it may inform Government's commitment to a comprehensive Digital Content Strategy.

The Digital Content Industry notes that the PMSEIC Working Group may identify complementary initiatives and opportunities relevant to digital content. In particular the Digital Content Industry supports the working group's proposal that the current innovation policy framework be extended to take account of creativity and creative industries.

Information and Communications Technology (ICT) Skills Foresighting Group

On 21 February 2005 the Minister for Communications, Information Technology and the Arts, Senator Helen Coonan, announced the formation of the ICT Skills Foresighting Working Group.

The working group is liaising with the Department of Communications, Information Technology and the Arts on examining trends and future developments of Australia's ICT sector and their implications for ICT skills development. This includes a review of skills demand, the fit between industry skill needs and existing training, and possible options for better meeting the future skill needs of industry. This also includes examining re-skilling of ICT workers as an important priority. DCITA is working closely with the Department of Employment and Workplace Relations (DEWR) and the Department of Education, Science and Training (DEST) on the project.

The Digital Content Industry notes that the ICT Skills Foresighting Group Secretariat has commented on the potential linkages with the Action Agenda priorities in the area of skills and training.

In progressing Action Agenda commitments to establish a round table discussion between industry and

education sector representatives, the Foresighting Group Secretariat has been consulted and invited to provide input.

4.2 Intergovernmental collaboration

National Broadband Strategy Implementation Group (NBSIG)

The Australian Digital Content Industry, supported by good network infrastructure, targeted connectivity funding initiatives and accelerating take-up, is well placed to prosper in the future. Broadband presents new opportunities in the manipulation, use, sharing and delivery of digital content.

The implementation of the *National Broadband Strategy* is being overseen by the National Broadband Strategy Implementation Group (NBSIG). Three working groups have been established under the NBSIG: one with a focus on measuring progress and outcomes from the Strategy; a second to focus on 'next generation networks'; and a third focusing on digital broadband content.

The scope of the Digital Content Working Group is to 'identify the opportunities and mechanisms to stimulate the supply and effective use of high quality and relevant Australian digital content that will drive the demand for broadband services'. The investigations are designed to complement existing activities and processes established at national, state/territory and local government level. The three key sectors to be examined by the digital content working group are:

- cultural digital content—libraries, museums and beyond;
- government digital content—education, health and other services; and
- industry and broadband content—producers, distributors and technology.

The first yearly update from the NBSIG covering its activities and progress against the key performance indicators was released in early 2005 and is published at www.dcita.gov.au/_data/assets/pdf_file/23714/NBSIG_Yearly_Update_2004.pdf

According to Nielsen//NetRatings, as at August 2005, 59 per cent of Australian home Internet users are using broadband. This trend is consistent with recent surveys including:

- the latest data from the Australian Competition and Consumer Commission, which showed that total broadband subscribers had increased by 108 per cent to 2,183,300 in the year to June 2005; and
- the May 2005 Sensis eBusiness Report, which shows that 63 per cent of Internet-enabled small businesses now have a broadband connection.

This needs to be qualified by recognition that many of the broadband connections in Australia are relatively low speeds, such as 256kbps. On the plus side, the new connections at this low level are rapidly being upgraded to high-quality broadband, and there is reason to be more optimistic about Australian broadband from 2008 onward. Small business take-up of broadband has grown vigorously according to Pacific Internet Broadband Barometer, with an estimated 52 per cent of Internet-enabled small businesses using 256kbps or better connections at July 2004. This

represents a 29 per cent increase over the past two years, largely as a result of increased availability of ADSL services.

In June 2005 DCITA commissioned a consultancy to look at the issues arising from the development and use of digital content by government. The report resulting from the consultancy, *Driving Demand: Government, Broadband and Digital Content*, has been finalised and will be considered by the Digital Content Working Group at its meeting in October 2005. The report explores the potential of digital content to enhance delivery of government services and the specific needs of areas or sectors.

The Digital Content Industry notes that work progressed through NBSIG and its digital content working group can provide a significant range of practical opportunities for advancing the growth of Australian digital content industries—particularly as it applies to government use of broadband content. The Digital Content Industry encourages the formation of strategic linkages between the implementation plan for the Action Agenda and the forward program for NBSIG.

Online and Communications Council— ICT Priorities

The Online and Communications Council, chaired by the Minister for Communications, Information Technology and the Arts and with representation from Australian, state, territory and local governments, agreed at its meeting in August 2005 that a key issue was to consider priorities for building and maintaining a sustainable, competitive and world-class ICT capability in Australia.

The Council was briefed on the Digital Content Industry Action Agenda within the context of general ICT priorities and agreed to collaborate on strengthening the digital content sector by, for example, helping industry to implement the Digital Content Industry Action Agenda.

The Digital Content Industry notes the Council decision provides a significant opportunity for the Action Agenda implementation plan to be developed with input from each jurisdiction. The Digital Content Industry will therefore encourage a consultation process as part of its implementation plan to facilitate national industry engagement with the support at all levels of government.

Cultural Ministers Council

While the Digital Content Industry overlaps both the ICT and cultural sectors, there is scope for creative industries and digital content to be specifically taken into account in the Cultural Ministers Council initiative relating to a forward National Agenda. At its August 2005 meeting, the Council agreed, as a first step, to establish a working group of senior officials to:

- clarify issues common to all jurisdictions;
- identify opportunities for collaborative action; and
- scope the format of a possible national agenda for the arts.

In a similar way to the involvement of the Online and Communications Council in this area, the Digital Content Industry commends consideration of ways to strengthen the Digital Content Industry by this Cultural Ministers Council working group.

4.3 Industry frameworks and initiatives

Australian Screen Council

Public consultations have been under way to form an Australian Screen Council (ASC), with the aim of establishing a cohesive voice on behalf of the screen production industry. The draft mission is:

To unite the Australian screen production industry around a mission to increase the net returns to the Australian screen industry and enhance its cultural contribution to the Australian and international communities.

An ASC working group was formed, which includes a range of industry bodies. Further information, including terms of reference, is available at: www.australianscreencouncil.org/about.html

The Leaders Group has undertaken detailed discussions with representatives of the ASC working party and notes that the organisation, when formed, could assist with implementation of Action Agenda priorities, provided it remains broadly representative of the Digital Content Industry stakeholders and the priorities set out in the Action Agenda. The Leaders Group recognises that the ASC is an evolving organisation and, in its early formation, may not be able to address many of the specific issues raised by the Digital Content Industry Action Agenda, but dialogue is continuing.

National ICT Alliance

The leading industry bodies working across the information industry meet regularly under the auspices of the Information Communications (ICT) Alliance. The purpose of this informal alliance, established in 2001, is to

ensure the industry and its people play a key role in shaping national information policy. Its mission is to:

Provide a forum where industry organisations representing the Australian information and communication technology industries and the interests of ICT professionals can meet, as required, to exchange views and discuss initiatives to advance promotion and development.

The Australian Electrical and Electronic Manufacturers Association currently provides the Secretariat, and the Alliance is currently chaired by the Internet Society of Australia. Fourteen organisations, spanning all sectors of the ICT industry, are represented in the alliance.

Further information about the National ICT Alliance, including terms of reference, is available at www.nictia.org.au.

The Digital Content Industry has undertaken detailed discussions with representatives of the National ICT Alliance and notes the interest of Alliance members to assist with the implementation of Action Agenda priorities.

Services Roundtable

The Services Roundtable is an umbrella body representing the services sector in Australia, such as financial services (banking, insurance, securities), professional services (accounting, legal, engineering, architectural), health service providers, export education services, environmental services, energy services, logistics, tourism, information technology, telecommunications, transport, food distribution, standards and conformance, audio-visual, media, entertainment, cultural and other business services.

The roundtable provided representation on the Leaders Group and input to its deliberations. It has expressed strong interest in ongoing involvement with the implementation of the Action Agenda, linking it with shared issues in the services sector.

Further information about the Services Roundtable is available at: www.servicesaustralia.org.au/

4.4 Harnessing available resources

The Action Agenda process has identified a range of potential resources and programs available to assist individual firms and industry sectors. Key program examples are outlined below.

Investment and commercialisation programs

There are a number of Australian Government investment and commercialisation programs, administered by AusIndustry, which are relevant to the Digital Content Industry, as follows.

- Industry Cooperative Innovation Program (ICIP) is a merit-based grants program aimed at encouraging business-to-business cooperation on innovation projects that enhance productivity, growth and international competitiveness in Australian industries. The program focuses on meeting strategic industry needs, such as those identified through Action Agendas, and supports projects which deliver industry-wide benefits. Several priority cooperative innovation activities have been identified by the Digital Content Industry including: capability mapping, development of Digital Content Industry research priorities for the public research sector, and investigations to improve the efficiency of the venture capital market for the industry.
- Commercialising Emerging Technology (COMET) has funding of over \$100 million until 2011 to support small firms in the commercialisation of their innovations.
- Commercial Ready has funding of more than \$1 billion until 2011 for expenditure on eligible activities involving any or all of the following activities, provided they are carried out in Australia: research and development; proof-of-concept activities, and/or early stage commercialisation.
- The Pre-Seed Fund was established with over \$100 million in capital, with an Australian Government contribution of around \$72 million and the remainder from other investors. Fund managers invest in projects or companies spinning out from universities or Australian Government research agencies and provide management and technical advice to assist in the commercialisation of the R&D activities.
- The Innovation Investment Fund (IIF) Program is designed to promote the commercialisation of Australian R&D, through the provision of venture capital to small, high-tech companies at the seed, start-up or early expansion stages of their development. The Australian Government is investing about \$221 million, with the private sector contributing around \$137 million. There are nine licensed private sector Innovation Investment Funds with between \$30 million and \$50 million to invest.

The Digital Content Industry has sought advice on the level of engagement by the industry in the investment programs as well as the R&D tax concession. On the basis of current research, programs could experience increased Digital Content Industry takeup with dedicated promotion.

According to industry consultations, smaller investment programs established by state governments that are accessible to the Digital Content Industry, such as the Digital Investment Fund and the 'Cashflow Extension Initiative' administered by Film Victoria, and several support programs of the NSW Film and Television Office, have contributed to a useful extent. Nevertheless, there is considerable room for governments as a whole to address innovation more broadly and to focus on supporting digital content production.

Through the Department of Communications, Information Technology and the Arts, the Digital Content Industry contributed to the recent Department of Industry, Tourism and Resources review of the venture capital industry which assessed the impact of recent reforms, including to Australia's venture capital tax laws, and the contribution of the industry to the national economy.⁵¹ The Digital Content Industry undertook research into overseas models and further discussions with stakeholders and early stage investment companies. These discussions will inform the Action Agenda commitment to implementing the Digital Investment Forum discussed in Chapter 3.

An extract from the Venture Capital submission is at Appendix E.

Export and trade programs

Austrade has produced a useful survey of overseas markets which have strong potential for export of ICT industry products, including digital content. It also manages a range of programs in this area. Australian Government export and trade programs, administered by Austrade, which are relevant to the Digital Content Industry include the following.

- Trade Start is a national network of export assistance offices, partnerships between Austrade and a range of local private and public sector organisations throughout Australia. Austrade and TradeStart offer a package of free services through the New Exporter Development Program (NEDP) which is designed to assist small and medium sized Australian companies develop their business overseas and make their first export sale.
- The Export Market Development Grants (EMDG) scheme is aimed at encouraging small and medium sized Australian businesses to develop export markets by reimbursing up to 50 per cent of export promotion expenses above \$15,000 incurred in the previous financial year.

The Digital Content Industry supports the ongoing enhancement of Trade Start, the New Exporter Development Program and the Export Market Development Grants Scheme for digital content industries, noting that through the Trade Start scheme, two officers attached to the Australian Interactive Media Industry Association (AIMIA) are resourced to offer export support.

The Digital Content Industry notes that with additional funding committed to the Export Market Development Grants scheme over the three years to 2006–07,

increased applications by the Digital Content Industry should be encouraged. In 2003–04, EMDG grants totalling \$143.8m were paid to small and medium sized Australian businesses under the scheme. This included \$5 million in grants to 87 businesses in the Australian film, animation, special effects and electronic games industries combined.

Advanced Networks Program

The Australian Government's \$60 million Advanced Networks Program (ANP)⁵² supports three projects—CeNTIE, GrangeNet and m.Net—to develop, trial and demonstrate advanced experimental networks, and to support R&D using the networks as testbeds for innovative applications.

The Government's investment is being supplemented by over \$120 million in cash and in-kind contributions by the consortium members of the three projects. Over \$47 million is being invested in advanced network infrastructure, including nearly \$25 million of Australian Government funding. The remainder of the funding supports e-Research and the development of new leading edge broadband applications. To date, funding for content has been relatively limited.

At the network level, the ANP has already delivered major innovations, such as building the first very high capacity (10 gigabits per second) network in the southern hemisphere and a patented new technology for traffic management on long-haul optical networks.

In relation to innovation, CeNTIE in particular has worked with the film post-production industry to build an advanced high speed network linking the industry cluster in Sydney. This network allows companies to test collaborative,

parallel work processes similar to those used overseas. The project has also demonstrated a collaborative editing application between post-production houses in different parts of Australia.

While these infrastructure developments have relevance and value to the Digital Content Industry, the Digital Content Industry considers it is important to build on the significant infrastructure development to date with a balanced approach to development of content.

The Digital Content Industry notes that there have been some proposals which move in this direction, including the following:

- A consortium including m.Net corporation is currently seeking support for a proposal for exploring mobile content development models. m.Net, in collaboration with the Australian Interactive Media Industry Association, has sponsored the production of mini-series, short films in multi-episode format, designed specifically for delivery to advanced mobile phones.
- CeNTIE has developed a browser for video content, used to mark up video in the same way that text is currently marked up for Internet browsing. A mobile phone version has been trialled on m.Net's network.
- GrangeNet has provided high speed networking for the FilmEd project, aimed at developing and demonstrating technical and financial models for providing the tertiary sector with high speed access to the wealth of high quality and unique film and video content within Australian moving image archives.

5. Conclusion: a cohesive response to the global challenge

The impact of the Digital Content Industry extends across the economy. While the core production of the industry is the creation of digital content in the creative industries, the industry reaches far beyond this, into other economic sectors.

Worldwide, the Digital Content Industry is growing faster than other industries, but in other countries the rate of growth is higher than it is in Australia. Our global competitive position will diminish unless Australia's Digital Content Industry can match the high rates of its competitors.

To achieve this growth, this report makes recommendations for action covering investment, exports, skills and training, and research and development; as well as some longer-term, underlying actions in the area of intellectual property, and statistics and standards.

These actions address the key challenges facing the Digital Content Industry:

- overcoming the sector's *fragmented response* to the global challenge;
- boosting national *investment and competitiveness*; and
- targeting *capability gaps* in core areas.

They will help Australia grow high income and high skill employment, improve the balance of payments, and improve the efficiency of the economy more broadly.

The SME profile of the industry provides a challenge in terms of overcoming fragmentation and addressing common barriers and issues in areas such as investment, exports, skills and R&D.

Our trading partners and competitors in Korea, Canada, UK, Europe and elsewhere have developed frameworks that recognise the contribution digital content can make to innovation, productivity and economic growth. In implementing the Action Agenda, the Australian Digital Content Industry aims to sustain linkages with complementary economic, social and sectoral policy and program initiatives to achieve the industry's development goals and contribute to growth across the economy.

The Digital Content Industry is demonstrating leadership in framing a cohesive response to the current global challenge and in harnessing capabilities in order to be competitive. However, to realise the potential of the industry, a cooperative and strategic effort by both industry and government will be required. The industry is at a critical point where it can either stagnate or grow. Decisions taken by industry and government today will have profound impacts on both this industry and the economy as a whole. The Digital Content Industry has produced the report of the Digital Content Industry Action Agenda to contribute to an informed and productive response to this global challenge.

6. Implementation plan

Urgent priorities

RECOMMENDATION	RESPONSIBLE	TIMEFRAME
Investment		
<p>Initiate an Investment Scoping Forum, to bring together industry bodies and firms with investors and other investment groups to examine the investment issues and to develop a capability map for the Digital Content Industry to help inform potential investors about opportunities, and to consider mechanisms to support investment, innovation and early stage support in the Digital Content Industry. It would be desirable to involve educational sector bodies active in digital content production.</p>	<p>Industry</p>	<p>Scoping forum held and further follow up in first 6 months after completion of Action Agenda report</p>
<p>In order to grow, the Digital Content Industry needs regulatory and investment frameworks that encourage interoperability, innovation, investment and competition, and that operate under technologically neutral principles.</p>	<p>Industry and Department of Communications, Information Technology and the Arts</p>	<p>Discussions already under way, with target of urgent introduction in first year of Action Agenda implementation</p>
Export		
<p>Define an Australian strategic international trade framework for the Digital Content Industry, commencing with mapping key export opportunities, seeking enhanced engagement with existing export support schemes and focusing on all international digital content opportunities, including trade shows and other events.</p>	<p>Industry and trade stakeholders</p>	<p>Discussions to commence once Action Agenda report completed, with target of introduction in second year of Action Agenda implementation</p>
<p>Review the process and development of current and future co-production mechanisms to cover digital content, where appropriate.</p>		
<p>Work towards the establishment of a cross-sectoral Australian Digital Content Industry market intelligence network to build a trade framework and advance firms' export capacity.</p>		
<p>Join with other industries to address shared issues related to treatment of export income.</p>		

RECOMMENDATION	RESPONSIBLE	TIMEFRAME
Skills and training		
<p>Achieve greater recognition of, and much faster accreditation for industry-based training activity.</p>	<p>Industry, education and government stakeholders</p>	<p>Within first 6 months of adoption of Action Agenda</p>
<p>Demonstrate and promote the feasibility of successful industry-based models or exemplars to the Digital Content Industry, education and government for use nationally and to support employer involvement.</p>		<p>Pilot schemes established within first 6 months of Action Agenda implementation phase</p>
<p>Improve linkages between industry, education, TAFE, universities, Innovation and Business Skills Australia (IBSA) and training providers.</p>		
Research and development		
<p>Establish mechanisms for industry to work with R&D institutions on priority setting.</p>	<p>Industry and R&D stakeholders</p>	
<p>Investigate mechanisms to achieve more rapid access by industry to research, for example, through embedding researchers within industry.</p>		
<p>In collaboration with industry associations, raise awareness and increase utilisation of government R&D programs by digital content firms.</p>		
<p>The Digital Content Industry notes the value of the R&D tax concession.</p>		
Partnerships		
<p>Industry will work to establish greater liaison and cooperation between Digital Content Industry bodies, especially industry associations, in order to produce a unified approach and industry voice on top level issues.</p>	<p>Industry</p>	<p>Interim arrangements need to be established within first 6 months of Action Agenda implementation phase</p>

The Digital Content Industry also identified a number of longer term recommendations in areas which are related to broader underlying infrastructure.

RECOMMENDATION	RESPONSIBLE	TIMEFRAME
Intellectual property		
<p>Identify and develop ways that firms can strengthen their protection of intellectual property, particularly by incorporating skills in identifying, managing and commercialising intellectual property into training frameworks.</p> <p>Engage with work on alternative approaches to intellectual property licensing, such as Creative Commons.</p> <p>Develop ways of improving access to Government intellectual property for commercial exploitation by digital content firms, to encourage innovation.</p>	<p>Industry, education and government stakeholders</p>	
Statistics and standards		
<p>Continue assessing existing statistical frameworks describing the industry to improve measurement of the digital content area (e.g. size, growth, employment, investment profile, export performance and production of outputs, such as visual effects, television commercials, including related data on scale of uptake of relevant devices).</p> <p>Explore research opportunities to generate data to reduce the current high risk profile for investment in digital content activity.</p> <p>Identify opportunities to support industry surveys across the sectors on a regular basis to identify a benchmark for people employed, roles and current gaps/projected growth areas, followed by regular surveys to assess changes and requirements over time.</p> <p>Identify strategically important industry standards in key areas and encourage their wide dissemination e.g. in the broadcast and wireless industry.</p> <p>Support industry involvement and collaboration in the formulation of next generation standards and the development of consensus on them.</p>	<p>Industry and statistics stakeholders</p>	

Endnotes

- 1 *Australian Entertainment and Media Outlook 2005–2009*, PriceWaterhouseCoopers.
- 2 *Australian Entertainment and Media Outlook 2005–2009*, PriceWaterhouseCoopers.
- 3 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005 and updated industry data. Available at: www.thecie.com.au/publications/CIE-digital_content_industry_futures.pdf.
- 4 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005, pp 45–47.
- 5 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005, p. 30, pp. 33–34.
- 6 'From cottages to corporations: building a global industry from Australian creativity', in *The Creative Industries Cluster Study*, Vol. 3, 2004, pp. 138–41.
- 7 'From cottages to corporations: building a global industry from Australian creativity', in *The Creative Industries Cluster Study*, Vol. 3, 2004, p. 138, derived from ABS input–output multiplier data.
- 8 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005, p. 7, and subsequent updated working paper.
- 9 *Australian Entertainment and Media Outlook 2005–2009*, PriceWaterhouseCoopers.
- 10 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005, and updated industry data. Report available at: www.thecie.com.au/publications/CIE-digital_content_industry_futures.pdf
- 11 'Research and Innovation Systems in Production of Digital Content', in *The Creative Industries Cluster Study*, Vol. 3, 2004, pp. 35–36. Available at: www.cultureandrecreation.gov.au/cics/Research_and_innovation_systems_in_production_of_digital_content.pdf
- 12 *Smart Internet 2010* Report by Smart Internet CRC, p. 42, available at: [www.smartinternet.com.au/SITWEB/publication/files/274_\\$\\$\\$_14049/Smart_Internet_2010.pdf](http://www.smartinternet.com.au/SITWEB/publication/files/274_$$$_14049/Smart_Internet_2010.pdf)
- 13 Based on Australian Interactive Media Industry Association *Digital Content Industry Roadmapping Study*, 2005. Available at: www.aimia.com.au/i-cms_file?page=1455/Digital_Content_Roadmapping_Study_FINAL_AIMIA_Version.pdf

- 14 Australian Interactive Media Industry Association *Digital Content Industry Roadmapping Study*, 2005. Available at: www.aimia.com.au/i-cms_file?page=1455/Digital_Content_Roadmapping_Study_FINAL_AIMIA_Version.pdf
- 15 The Gist, *AIMIA profiling study*, a component of the Australian Interactive Media Industry Association *Digital Content Industry Roadmapping Study*, 2005, pp. 13–14.
- 16 OECD Council on Broadband Development recommendation to OECD, February 2004 in 'Summary and conclusions', Digital Broadband Content Panel Report, OECD Working Party on the Information Economy, 3 June 2004.
- 17 Australian Interactive Media Industry Association, *Digital Content Industry Roadmapping Study*, 2005.
- 18 DCITA submission to DITR Venture Capital Review, June 2005.
- 19 www.nesta.org.uk/assets/pdf/CreatingValueFullReport.pdf
- 20 Centre for International Economics, *Australian Digital Content Industry Futures*, 2005, p. 8.
- 21 Australian Interactive Media Industry Association, *Digital Content Industry Roadmapping Study*, 2005.
- 22 Australian Interactive Media Industry Association, *Digital Content Industry Roadmapping Study*, 2005.
- 23 *From reel to unreal: future opportunities for Australia's film, animation, special effects and electronic games industries*, House of Representatives Standing Committee on Communications, Information Technology and the Arts, pp. 23–24.
- 24 www.gdaa.com.au/features/E32005report.html
- 25 Buchan Consulting, *Analysis of Skills and Training Issues Affecting the Digital Content Industry*, June 2005
- 26 Including Animal Logic, Fibre Pty Ltd, Massive, Content Strategies, The Performance Technologies Group, Sixty40, Handshake Media Pty Ltd, the Australian Film Commission, the Queensland University of Technology, the University of Technology Sydney, the Department of Communications, Information Technology and the Arts and the Screen Producers Association of Australia.
- 27 Around 69 clients (or 1 per cent) of some 5,500 clients that registered for the R&D tax concession in 2003–04 were based in the culture, recreation and other services sector, including firms working in education (27), film and video (9), radio and television (5).
- 28 Available at: www.dcita.gov.au/_data/assets/pdf_file/10451/Overview_of_the_Australian_ICT_Industry_02-03.pdf
- 29 Available at: https://www.crc.gov.au/Information/ShowInformation.aspx?Doc=about_programme&key=information-about-programme&Heading=Aboutper cent20theper cent20Programme

- 30 www.arc.gov.au/grant_programs/cultural.htm
- 31 www.arc.gov.au/grant_programs/2005_coe_funding.htm
- 32 Emily Hudson and Andrew Kenyon, *Copyright and Cultural Institutions: Guidelines for Digitisation*, Centre for Media and Communications Law (CMCL) and the Intellectual Property Research Institute of Australia (IPRIA), University of Melbourne, 2005. See also *Communication in the Digital Environment: An empirical study into copyright law and digitisation practices in public museums, galleries and libraries*, Emily Hudson and Andrew T Kenyon, Centre for Media and Communications Law and Intellectual Property Research Institute of Australia at the University of Melbourne. Refer www.ipria.org. Information about the copyright management guidelines launched is available from www.law.unimelb.edu.au/cmcl/publications/guidelines.html
- 33 creativecommons.org/worldwide/au
- 34 www.ipaustralia.gov.au/toolbox
- 35 Copyright courses are CUFADM02A Address copyright and CUSADM08A Address copyright requirements in *Identifying the Link between the Digital Content Industry and National Training Packages*, Innovation Business Skills, Innovation and Business Skills Australia (IBSA), January 2005.
- 36 Available at europa.eu.int/information_society/eeurope/i2010/docs/communications/com_229_i2010_310505_fv_en.doc and europa.eu.int/information_society/eeurope/i2010/benchmarking/index_en.htm
- 37 'From cottages to corporations: building a global industry from Australian creativity', pp. 138–41, in *The Creative Industries Cluster Study*, Vol. 3, 2004. pp. 135–36 (also at www.cultureandrecreation.gov.au/cics/Access2Markets_FP.pdf)
- 38 OECD summary, June 2004.
- 39 See www.enterprise-ireland.com
- 40 'i2010—A European Information Society for growth and employment', Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, 1 June 2005, citing European Information Technology Observatory (EITO) 2005.
- 41 Refer to www.eib.eu.int/site/index.asp?designation=i2i and www.eib.eu.int/Attachments/thematic/innovation_2010_initiative_en.pdf
- 42 www.nesta.org.uk/assets/pdf/CreatingValueFullReport.pdf
- 43 Austrade Overseas Post Survey 2005.
- 44 Australian Interactive Media Industry Association, *Digital Content Industry Roadmapping Study*, 2005.
- 45 ICIP Project proposal MNET 2005.

- 46** DCITA Submission to House of Representatives Inquiry into Pathways for Science and Technology Innovation, May 2005. Available at: www.aph.gov.au/house/committee/scin/pathways/subs/sub87.pdf
- ABS data on expenditure on R&D carried out by Commonwealth, state and territory government organisations in 2002–03 indicates it was \$2,482m, a 5 per cent increase on expenditure in 2000–01 (Research and Experimental Development, Government and Private Non-Profit Organisations, Australia, 2002–03 (8109.0)).
- 47** www.dcita.gov.au/ip/commonwealth_it_ip_guidelines/the_commonwealth_it_ip_guidelines
- 48** *Interoperability is Paramount* by Mark MacGann, Director General European Information, Communications and Consumer Electronics Technology Industry Associations (EICTA) in eEurope2005. Available at: www.europe2005.org/publication.html and portal.etsi.org/eEurope
- 49** The *Strategic Framework* is available at: www.dcita.gov.au/__data/assets/pdf_file/20457/New_SFIE_July_2004_final.pdf (pp. 10 & 18 are referenced specifically).
- 50** Information about PMSEIC is available at www.dest.gov.au/sectors/science_innovation/science_agencies_committees/prime_ministers_science_engineering_innovation_council/default.htm and the Inquiry into Links between Creativity and Innovation is profiled at: www.chass.org.au/news/items/180705.htm
- 51** minister.industry.gov.au/index.cfm?event=object.showContent&objectID=C5625B74-65BF-4956-B1784E98C2F578FB
- 52** DCITA Submission to House of Representatives Inquiry into Pathways for Science and Technology Innovation, May 2005.

Appendix A: Strategic Industry Leaders Group membership and meetings

Strategic Industry Leaders Group (SILG) members

Tom Kennedy—CEO of Media Zoo P/L a Photon Group Company (ASX- PGA), and Chairman of the Digital Content Action Agenda Experts Group

Kim Anderson—Chief Operating Officer, Southern Star Entertainment

Grant Cameron—Director, Grant Broadcasters Group of commercial radio stations

Terry Cutler—Managing Director, Cutler and Company Pty Ltd

Patrick Delaney—Executive Director, Content, Product Development and Delivery, Foxtel

Rachel Dixon—General Manager, Massive Interactive Pty Ltd

Jennifer Hughes—Associate Director, Financial Products division, Macquarie Filmed Investments and Manager, Macquarie Film Corporation

Nic Jones—Managing Director, News Interactive

Susan Mann—Chief Executive Officer, Curriculum Corporation

Lynley Marshall—Director, New Media and Digital Services, Australian Broadcasting Corporation

Zareh Nalbandian—Managing Director and co-founder, Animal Logic, represented by Greg Smith, Director Communications and Public Affairs, Animal Logic

John Richardson—Cox Richardson Architects

John Rimmer—Chairman, Acuity Venture Pty Ltd

Greg Siegele—co-founder and CEO, Ratbag subsequently Midway Studios Australia

Professor Duane Varan—Director, Interactive Television Research Institute and Chair, New Media, Murdoch University

SILG meetings

Strategic Industry Leaders Group Meeting 1

13 July 2004, 10am to 4pm
Film Finance Corporation
Level 12, 130 Elizabeth St, Sydney NSW 2000

Strategic Industry Leaders Group Meeting 2

22 September 2004, 9am to 1.30pm
Department of Communications, Information, Technology and the Arts
Level 7, 257 Collins Street, Melbourne VIC 3000

Strategic Industry Leaders Group Meeting 3

16 November 2004, 10am to 2.30pm
Macquarie Bank
1 Martin Place, Sydney NSW 2000

Strategic Industry Leaders Group Meeting 4

23 February 2005, 10am to 2pm
Australian Broadcasting Services
Ultimo, Sydney NSW 2000

Strategic Industry Leaders Group Meeting 5

1 April 2005, 10am to 2pm
Macquarie Bank
Level 22, 20 Bond Street, Sydney NSW 2000

Strategic Industry Leaders Group Meeting 6

17 May 2005, 10am to 2pm
Australia Council, Stuart Challender Room
372 Elizabeth St, Surry Hills NSW 2010

Strategic Industry Leaders Group Meeting 7

23 June 2005, 9.30am to 4pm
Macquarie Bank
Level 22, 20 Bond Street, Sydney NSW 2000

Strategic Industry Leaders Group Meeting 8

26 September 2005, 9.30am to 3.30pm
Department of Communications, Information Technology and the Arts
38 Sydney Avenue, Forrest ACT 2603

Appendix B: Organisations consulted about findings of Digital Content Industry Action Agenda

Industry associations

Australian Interactive Media Industry Association

Games Developers Association of Australia

Screen Producers Association of Australia

Australian Graphic Design Association

Australian Screen Directors Association

Australian Subscription Television and Radio Association

Australian Writers Guild

Australian Interactive Entertainment Association

Australian Direct Marketing Association of Australia

Australian Electrical and Electronic Manufacturers

Australian Information Industry Association

Commercial Radio Australia

Australian Mobile Telecommunications Association

FreeTV Australia

Australian Computer Society

Australian Telecommunications Users Group

Internet Industry Association

Media, Entertainment and Arts Alliance

National ICT Industry Alliance

Australian Screen Council

Australian Services Roundtable

Cultural agencies

Copyright Agency Limited

Australasian Performing Rights Association

Australian Film Commission

The Australian Film Television and Radio School

Film Finance Corporation

Australia Council

NSW Film & TV Office

Pacific Film & TV Commission

Screen West

Screen Tasmania

Film Victoria

SA Film Corporation

Film Australia Limited

National Gallery of Australia

National Museum of Australia

National Archives of Australia

National Library of Australia

Australian National Maritime Museum

Ausfilm

NT Film, Television and New Media Office

Other

Advanced Networks Program
(CeNTie, GrangeNet, m.Net)

Innovation and Business
Skills Australia (IBSA)

ICT Foresighting Group

Online and Communications Council

Smart Internet Cooperative
Research Centre

Tasmanian Electronic Commerce Centre

Appendix C.1: Key features of the digital content industry

The Centre for International Economics produced the report *Australian Digital Content Industry Futures* for the Leaders Group in 2005 (Appendix C.2). The follow-up analysis prepared by the Centre produced further information on the extent of digital content activity in other economic sectors. The follow-up analysis appears below.

Digital content industry estimates

Introduction

The digital content industry is not formally recognised by the Australian Bureau of Statistics at the ANZSIC division level. Therefore to measure the value added to the Australian economy by the digital content industry, estimates must be calculated.

Component (2)	Industry value added (3)	Operating businesses (4)	Industry labour costs (5)	Profit margin (6)
	(\$m)	(establishments)	(\$m)	(%)
Core production	10,274	38,972	6,657	12.2
Embedded production	9,095	52,091	5,754	13.8
Distribution	1,529	3,738	1,018	3.0
Total	20,897	94,801	13,430	9.0

Table 1: Digital Content Industry estimates (1)

- (1) Source: ABS Catalogue Number 8155.0, 8126.0 and 8679.0 (2002-03) and CIE Estimates. ABS 8155.0 relates to private sector statistics only. It also excludes data for the finance and insurance industry
- (2) Refer to CIE Digital Content Futures Report for definitions of component parts of the Industry.
- (3) That proportion of output minus inputs that is produced by activities linked to digital content.
- (4) Estimated number of establishments with a significant portion of activity that is digital content related.
- (5) The proportion of private sector labour costs that are estimated to be linked to digital content activities.
- (6) Weighted average profit margin of industries with a significant proportion of digital content activity.¹

	Industry value added	Operating businesses	Industry labour costs	Profit margin
	(%)	(%)	(%)	(%)
ANZSIC Division				
Agriculture, forestry and fishing	3.2	10.7	2.0	8.9
Mining	7.5	0.4	2.6	24.6
Manufacturing	17.9	6.5	19.1	6.7
Electricity, gas and water supply	3.7	0.1	1.4	10.4
Construction	7.8	15.8	7.5	9.8
Wholesale trade	7.8	3.9	8.3	3.8
Retail trade	9.2	10.4	11.4	3.5
Accommodation, cafes and restaurants	3.2	2.6	3.9	5.0
Transport and storage	6.1	5.4	6.4	5.6
Communication services	4.0	1.2	2.3	15.6
Property and business services	18.4	27.7	19.9	13.5
Education (private)	1.7	1.4	3.0	5.8
Health and community services (private)	5.7	5.1	7.6	12.8
Cultural and recreational services	2.0	3.6	2.2	8.3
Personal and other services	1.7	5.1	2.3	9.9
Total	100.0	100.0	100.0	6.5
Digital Content				
Production	2.1	1.8	2.4	12.2
Embedded	1.8	2.4	2.1	13.8
Distribution	0.3	0.1	0.4	3.0
Total	4.2	4.3	4.9	9.0

Table 2: Digital Content Industry and the private sector at large (1) (2)

(1) Source: ABS Catalogue Number 8155.0 (2002-03) and CIE Estimates.

(2) Private sector includes the economy at large minus Government activities and Finance and Insurance.

Although estimates generated in the *Australian Digital Content Industry Futures* report (herein known as the 'Futures' report) represent an accurate approximation to value added and employment within the digital content industry, additional estimates have been generated using an alternative data source to provide supplementary information on the digital content industry within Australia. These are presented in Table 1. In addition, a snapshot of the private sector at large within Australia has been provided to enable comparisons of the digital content industry with ANZSIC Division industries within Australia. These estimates are presented in Table 2.

This brief report explains the estimates generated in tables 1 and 2. It then outlines the methodology used to generate the estimates in these tables and provides a brief analysis on the limitations of these estimates and the data used. It then provides a description of the methodology used in the 'Futures' report, compares the value added estimates from Table 1 and 2 to the estimates generated in the 'Futures' report, and offers an explanation on why there are differences within the estimates.

The results

This section explains the results found in tables 1 and 2.

Table 1

Table 1 outlines the industry value added, the number of operating business establishments, industry labour costs, and the average profit margin for each digital content activity. Table 1 shows that core production of digital content had the largest industry value added with around \$10,274 million, closely followed by embedded production with around \$9,095 million. However the number of businesses that generate embedded production was approximately 34 per cent greater than core production, suggesting the average amount of digital content production in embedded activities is less than core production. Distribution had the smallest valued added with around \$1,529 million.

Industry labour costs were proportional to industry value added across all three digital content activities. Consequently core production had the highest industry labour cost (\$6,657 million) followed by embedded production (\$5,754 million) and then distribution (\$1,018 million).

The average profit margin was calculated by dividing total net profit by the total value of sales for each digital content activity. The profit margin was highest for the embedded activity at around 14 per cent. However this does not mean embedded production was the most profitable activity in total as the total profit earned by embedded production will depend on the value of total sales. Core production of digital content had the second highest profit margin with 12 per cent followed by distribution which had a relatively low profit margin of three per cent.

Table 2

Table 2 provides a snapshot of the private sector at large, broken down into ANZSIC divisions. It does not distinguish between those businesses that do or do not produce digital content. For example, Property and Business Services contributes around 18.4 per cent of the total value added produced in the Australian economy, has 27.7 per cent of all private businesses fall within its category, and has the highest industry labour costs at around 19.9 per cent.

Table two also provides a comparison of digital content with the private sector. It shows that production accounts for around 2.1 per cent of the total private sector industry value added, 1.8 per cent of private operating businesses and around 2.4 per cent of total private sector labour costs. Results are also provided for embedded and distribution. In total, digital content contributes around 4.2 per cent of value added to the Australian private sector. Although this is relatively small compared to the traditionally large industries (for example Property and Business Services), it is greater than the value added by seven ANZSIC divisions.

Table 2 also shows that the profit margins for digital content production activities are relatively high compared to the private sector. For example profit margins for embedded production are the third highest at 13.8 per cent compared to those profit margins for all ANZSIC divisions. However profit margins for distribution at 3.0 per cent are the lowest out of all ANZSIC divisions.

Methodology

This section explains the methodology used to generate the results in tables 1 and 2, outlines the limitations of the data used, and outlines the methodology used in the 'Futures' report for comparison.

Tables 1 and 2

The methodology used to produce the estimates for Table 1 involved:

- Sourcing data on industry value added, number of operating businesses, industry labour costs, and profit margin from ABS publications for each industry identified in the 'Futures' report as producing digital content.
- Multiplying the portion of digital content estimates used in the 'Futures' report by the industry value added, number of operating businesses, industry labour costs, and profit margin data for each industry.
- Adding these values across those businesses identified as undertaking production, embedded production, and distribution of digital content.

In essence, the same methodology was used to produce the digital content estimates in Table 1 as the methodology used in the 'Futures' report, except it was applied to a different ABS data set. The breakdown of the private sector at large in Table 2 was derived directly from ABS publications.

The estimates presented in Table 1 and 2 are sourced primarily from the ABS publication 8155.0 – Australian Industry. Data contained within this report is considered by the ABS as experimental estimates. However, because this publication does not split estimates for internet service providers, commercial free to air broadcasters, or pay television providers from the general telecommunications group, the data was supplemented using ABS publications 8126.0—Information and Communication Technology and 8679.0—Television, Film, and Video Production.

The data in ABS publication 8155.0 is collected using a combination of ABS survey data, and business income tax data sourced from the Australian Taxation Office. For those businesses that are tax-exempt, such as charities and other private non-profit organisations, those businesses that have not completed their income tax return at the time of the survey, or those businesses that are significantly large in their industry, the data is collected through the use of an ABS survey. For all other businesses the data is collected through the ATO business income tax returns.

In addition, the data in tables 1 and 2 represent the private sector only and do not contain information on the public sectors that may use digital content, such as Government Administration and Defence, Health, and Education, as recognised in the digital content futures report.

The ability of the tables to represent the true picture of the digital content industry depends on the accuracy of the:

- sample data from the ABS and ATO; and
- digital content portions estimated by CIE.

As the majority of data contained in the ABS publication 8155.0 has been obtained from a sample of businesses, the tables are subject to sample variability and therefore may differ slightly from the figures that would be presented if the data had been collected from all businesses. While it is not possible to eliminate this type of error, the ABS compares data from different ABS and non-ABS sources relating to the one industry to ensure consistency and coherence, and to reduce any bias to a minimum.

Another possible shift from the true representation may eventuate through the use of estimates on the portion of digital content within an industry. As the data in the tables are calculated with the use of these portion estimates, any variability from the true portion of digital content within these industries will directly feed into the tables. Estimates were derived using a survey based methodology and therefore will be subject to some variability from the true portion representations.

Digital content futures report

The process used in developing estimates of the value of digital content within the 'Futures' report involved:

- identifying those industries that add value to digital content production and distribution;
- classifying these industries as producing digital content as a core activity, producing digital content within in embedded activities, or using digital content in distribution;

- collecting specific data on value added and employment from the Australian Bureau of Statistics. Data about industry value added was obtained at the division level (Government Administration and Defence, Education, and Health and Community Services) and at the 4-digit ANZSIC level for those industries identified as using digital content. The data was sourced from the ABS Information Consultancy Service specifically for this task and therefore may differ from ABS publications;
- estimating the portion of digital content value added from total value added for each industry. These estimates were previously derived from surveys undertaken as part of a previous study on the value of copyright industries in Australia;
- multiplying the portion of digital content by the total value added of the identified industries to get the total value added for digital content for each industry; and
- adding value added across industries to calculate value added for production, embedded, and distribution.

The proportion of each 4-digit activity's output that is attributable to digital content production and distribution was also used to compute the employment figure for the activity that is associated with digital content. Total digital content employment is obtained by summing up these figures over all relevant economic activities.

The methodology used in measuring the value added from digital content was derived from the World Intellectual Property Organisation's guide on surveying the economic contribution of the Copyright-Based industries (WIPO 2003). This is an internationally recognised UN methodology, and has been used by governments worldwide.

	Value added—Table 1	Value added—Futures report
	\$ (mil)	\$ (mil)
Production	10,274	7,973
Distribution	1,529	1,549
Embedded	9,095	9,093
Total	20,897	18,615

Table A: Estimates of digital content using alternative methods, 2002–03

Note: When comparing the estimates for 'Embedded', consideration must be given for the fact that Table 1 does not account for the public sector, such as Government Administration and Defence, Education, and Health and Community Services, whereas the Futures report does include estimates for digital content value. Therefore if we were to add the public sector to Table 1, the value added for Embedded would actually be \$3,619 million greater, or \$12,174 in total.

Source: The CIE

Comparison of results

Table A shows the difference in the value added estimates for the three types of digital content from Table 1 and the 'Futures' report. Comparing the two estimates, value added from Table A is significantly larger than the estimates generated in the futures report for both core production and embedded production, with differences of \$2,301 million and \$3,621 million respectively.

As the portion of digital content and the methodology is the same for both Table 1 and the 'Futures' report, the differences in estimates are strictly due to the difference in the two data sources—the ABS publications and the information collected from the ABS Information Consultancy Service.

Estimating digital content production in other economic sectors

The Centre for International Economics produced the report *Australian Digital Content Industry Futures* for the Leaders Group in 2005. Follow-up analysis by the Centre produced some useful and informative quantitative working data on the extent of digital content activity in other economic sectors. The following tables have been adapted from the Centre for International Economics updated working papers for the *Australian Digital Content Industry Futures* report, 2005.

	Operating businesses (no.)	Total digital content businesses (no.)	% of sector	Labour costs (\$m)	Total digital content labour costs (\$m)	% of sector	Industry value added (\$m)	Total digital content value added (\$m)	% of sector	Sales of goods (\$m)	Total digital content sales of goods (\$m)	% of sector
Manufacturing	138,843	5,998	4%	51,933	2,088	4%	89,442	4,078	5%	287,103	3,936	1%
Property and business services	596,178	73,092	12%	53959	8,834	16%	91,626	13,036	14%	22676	2,248	10%
Education (private)	30,813	1,571	5%	8,119	414	5%	8,662	442	5%	219	11	5%
Cultural and recreational services	77,527	7,229	9%	5,852	585	10%	9,799	1,028	10%	4,462	646	14%

Estimated level of digital content activity in other significant economic sectors detailed

	% of sector which are digital content businesses	% of sector labour costs borne by digital content businesses	% of value added by sector from digital content businesses	% of sector sale of goods from digital content businesses
Manufacturing	4%	4%	5%	1%
Property and business services	12%	16%	14%	10%
Education (private)	5%	5%	5%	5%
Cultural and recreational services	9%	10%	10%	14%

Estimated proportion of digital content activity in other significant economic sectors

Appendix C.2: Australian Digital Content Industry Futures report

Appendix C2 is a separate document. Click on the link below to open this document in a new window.

You can also open Appendix C2 by clicking on its reference in the [table of contents](#) of this document.

[Open Appendix C2](#)

Appendix D: The impact of digital content production across other economic sectors – some examples

E-health

FastSCAN, a face mapping technology originally used in the *Lord of the Rings* film trilogy, is now used in Perth's Sir Charles Gairdner Hospital Radiation Oncology and Medical Technology and Physics Departments to construct immobilisation masks for patients undergoing radiation therapy.¹

Games for Health promotes best practices, community building, and research into how cutting-edge game design and development methodologies can aid in the creation of health tools that range from direct patient application to personal health education and workforce initiatives.²

E-learning/training

Project Air 87 is an e-learning tool developed by Catalyst Interactive to provide training for the air and ground crew of the Australian Army's new reconnaissance aircraft, the ARH Tiger, in preparation for hands on experience with the aircraft.³

Brisbane company Auran has designed a special version of its Trainz simulator as a desktop driver training system for commercial railway operators in the UK and Germany.⁴ Since its first release in 2001, Trainz has sold more than 500,000 copies worldwide. The combination of gaming software with a training application broadens the export potential.

Environment/ design

QANTM Studio developed *Green Home* for Brisbane City Council. The product features an immersive 3D simulation of an environmentally friendly house. The user navigates through the house and interacts with objects to reveal practical building and household lifestyle guidelines for achieving a more sustainable and cost-efficient home.⁵ The product won the Best Government category of the 11th Annual Australian Interactive Media Industry Association (AIMIA) Awards.

Advertising

Advertising company *Adshel* has made advertising poster campaigns interactive.⁶ Hypertag technology allows the public to interact with the advertising panel through the infrared device in their mobile phone. In the first campaign of its kind in Australia, consumers were able to download mobile phone ring tones and wallpapers from specially outfitted posters in bus shelters.

Cultural/ entertainment

The new i-mode mobile phone service was trialled in Sydney's Museum of Contemporary Art where visitors were able to listen to the artists' commentary on their mobile phone as they walked around the room. The exhibition was brought to life as visitors were led through a journey, learning the background and meaning of paintings at their own pace.⁷

Agriculture

The Australian Centre for Remote Sensing provides satellite data and visualisation tools to assist with assessment and monitoring of vegetation types and their status, soil surveys, water resources planning and monitoring, agricultural property management planning and crop yield assessment.⁸

Defence

America's Army is a first person shooter PC videogame available for free over the internet, officially released by the US army as a recruiting tool.⁹ It simulates soldiers' roles in squad based combat and training situations.

MediaWare has developed Mpeg video software which is used in US Navy Unmanned Aerial Vehicles to capture, download and manipulate compressed video.¹⁰ The technology is also part of a tender for the Australian Army's pilotless aircraft program.

Appendix D endnotes

- | | |
|---|---|
| <p>1 www.scgh.health.wa.gov.au/news/innovative.html</p> <p>2 www.gamesforhealth.org</p> <p>3 www.catalystinteractive.com.au/default.htm</p> <p>4 www.auran.com/default.htm</p> <p>5 www.impart.com.au/docs/media_release_AIMIA_07_02_2005.pdf</p> <p>6 www.adshel.com.au</p> | <p>7 <i>Data Communications Magazine</i> by the Department of Communications, Information Technology and the Arts, July 2005, p. 30, available online at: www.dcita.gov.au/_data/assets/pdf_file/31038/DATAJuly2005_issue9.pdf</p> <p>8 www.ga.gov.au/acres/index.htm</p> <p>9 www.americasarmy.com</p> <p>10 www.mediawaresolutions.com</p> |
|---|---|

Appendix E: Extract from Venture Capital Review Submission

On 10 May 2005 the Minister for Industry, Tourism and Resources, Ian Macfarlane announced a review of the venture capital industry would be conducted, and submissions were invited by 10 June 2005. The Digital Content Industry Action Agenda (DCIAA) contributed the following information to the submission provided by the Department of Communications, Information Technology and the Arts. Further background on the Review is available at: www.industry.gov.au/venturecapital

Digital Content Industry Action Agenda

The 2004 IT Election Policy notes that 'the development of compelling digital content and applications will be a key driver in promoting the take up of a range of new technologies, including broadband, interactive television and next generation mobile phones by consumers and businesses in Australia.' The Election Policy further commits to 'developing a comprehensive Digital Content Strategy supported by the Digital Content Industry Action Agenda to accelerate the production of digital content.'

The Action Agenda builds on a wide ranging, two year Creative Industries Cluster Study, which provided firm, sector and industry wide information on the scope, scale and dynamics of the Creative Industries producing digital content and applications in Australia. The Study provides information to facilitate policy development to support the commercial growth of major, globally competitive Australian industries producing digital content and applications.

The Digital Content Industry has been described as 'where art, science and technology combine'. Producing both products and services, it is a subset of the content industries and has vital linkages with other firms operating within the information economy sphere.

Typical products and services provided by the digital content sector include:

- visual effects, animation in digital film production and post production
- computer and online games
- interactive multimedia eg websites, CD-ROM
- interactive television
- educational multimedia
- virtual reality and 3D products
- digital new media arts production
- digitised cultural heritage products
- content management applications and other supporting software.

Recent studies completed by the Centre for International Economics in March 2005 as part of the Digital Content Industry Action Agenda have found that:

- the total value of the Australian digital content industry today is estimated at just under \$20 billion (about 3.3% of GDP),
- approximately 300,000 people are estimated to be employed in the digital content industries and the area is estimated to run an annual trade deficit of about AUD\$2 billion,
- estimated annual average growth rates for the industry vary between 2 to 4 percent
- 40% of total industry value is attributable to core production activities (mainly representing development within firms who are allied closely to cultural industries); 50% to embedded production (firms whose target may be health or other industries who are adopting digital content innovations); with 10% focused around firms who are primarily operating services to distribute digital content.

Investment generally and the role of venture capital in particular are among the most important issues emerging from research, consultations and analysis for the digital content industry action agenda to date. The opportunities and drivers associated with developing an effective and sustainable response to digital content industry requirements in these areas are being considered by both government and industry. In the short term the action agenda report is aiming to ensure that investment priorities to be articulated are aligned with identified opportunities and needs to facilitate significant and ongoing industry growth. Business enterprises in the digital content sector report limited access to external investment, with only 11 percent of companies in a recent large national survey identifying external investors as a source of funds. The Creative Industries Cluster Study also noted that available data appears to support the finding that digital content is systematically under-represented in generic industry support schemes.

Measures to facilitate early stage financing could be highly relevant to growing the digital content industry:

- the capacity for improving the information environment and address perceptions of risk (eg. by improving the measurement and value of digital content),
- the need to help firms become investment ready,
- the need to educate investors to support the industry,
- the importance of seed funding and
- the role of mentoring to help firms become more investment literate.

The Action Agenda leaders are also reviewing the following possible measures:

- Existing forums for promoting issues relating to investment and enterprise growth
- Ongoing input and liaison relating to accessing venture capital and other available investment incentive measures
- Avenues of partnership or support with the Government eg. the Commercial Ready program, the EMDG scheme
- Potential benefits of an Industry Investment Fund

Australia has an important core of expertise to promote. An effective and commercially focused investment environment for the digital content industry will be important for building confidence and establishing pathways to growth in new markets.

Appendix F: Acronyms and abbreviations

AEEMA	Australian Electrical and Electronic Manufacturers' Association
AFTRS	Australian Film Television and Radio School
AGIC	Australian Games Innovation Centre
AIE	Academy of Interactive Entertainment
AIMIA	Australian Interactive Media Industry Association
ANAO	Australian National Audit Office
ANP	Advanced Networks Program
ARC	Australian Research Council
ASC	Australian Screen Council
CeNTIE	Centre for Networking Technologies for the Information Economy, CSIRO
CMCL	Centre for Media and Communications Law
COMET	Commercialising Emerging Technologies
CRC	Cooperative Research Centre
CRTC	Canadian Radio-television and Telecommunications Commission
CSIRO	Commonwealth Science Industrial Research Organisation
DCI	Digital Content Industry
DCIAA	Digital Content Industry Action Agenda
DCITA	Department of Communications, Information Technology and the Arts
DEST	Department of Education, Science and Training
DEWR	Department of Employment and Workplace Relations
EIB	European Investment Bank
EMDG	Export Market Development Grant
GDAA	Games Developers Association of Australia
GDP	Gross Domestic Product
IBSA	Innovation Business Skills Australia Ltd.

ICT	Information and Communications Technology
IDC	Inter-departmental Committee
IIF	Innovation Investment Fund
IP	intellectual property
IPRIA	Intellectual Property Research Institute of Australia
NBSIG	National Broadband Strategy Implementation Group
NEDP	New Exporter Development Program
NICTA	National ICT Centre of Excellence
OECD	Organisation for Economic Co-operation and Development
PMSEIC	Prime Ministers Science, Engineering and Innovation Council
R&D	research and development
SILG	Strategic Industry Leaders Group
SME	small to medium enterprises
TAFE	Technical and Further Education
UK	United Kingdom
UN	United Nations
US	United States of America
UTS	University of Technology Sydney
VET	Vocational Education and Training
WSIS	World Summit for the Information Society
WTO	World Trade Organisation

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