RMIT UNIVERSITY

SUBMISSION TO THE PARLIAMENTARY INQUIRY INTO THE FUTURE OPPORTUNITIES FOR AUSTRALIA'S FILM, ANIMATION, SPECIAL EFFECTS AND ELECTRONIC GAMES INDUSTRIES

This submission addresses Terms of Reference b,c,e,f,g,and h

June 2003

Introduction

RMIT has significant interest in the industries under consideration, and a strong capacity to contribute to their future development. The University already plays a significant role in developing world class programs and graduates, to populate innovative and entrepreneurial organizations. Our reach is across industries and internationally. We have commenced many relevant, exciting initiatives such as the Interactive Information Institute and our AFI research collection. Information about the contribution RMIT is making in these fields is summarized in Appendix 1.

As an institution, we educate our graduates to solve real world problems and anticipate and respond to the needs of the changing world. We bring the creative discipline to the technological and practical, and have a history of leadership in these industries.

RMIT recommends that the following policy positions are adopted:
- These industries be recognised as key industries for Australia's technological, cultural and export development; and
- The need for curriculum development is recognized and a strategy for developing it established.

As an enabling mechanism, we propose
- Consideration of the establishment of a Centre for Media Industry Education, as a broad based collaborative industry, education and government partnership. It would enable development of leading edge, export focussed product through establishing sound linkages across the sectors and act as a catalyst for much needed research in these industries.

These recommendations are discussed in more detail on pp. 12-15.

Through development and practical, market focussed application of intellectual capital, Australia will enable these industries to reach their full potential. Likewise, the development of relevant and focussed programs in the education sector at all levels will be a critical investment in our future.

This submission also identifies key industry developments, including
- The rapid technological developments affecting these industries, and resulting issues of convergence amongst these industries
- These industries are key to Australia's creative output and the innovation economy
- That we currently produce world class output but we can do more
- The need for increased Australian research capacity for these industries to enable us to remain both competitive internationally and innovative
- That collaboration between government, industry and education is the essential requirement for vibrant, export focused knowledge-based, creative industries
- The significant export opportunities available to Australia through development of these industries
- That skill developments must be renewed and that lifelong learning is the key to this
- The need for enterprises to be in a position to grow through development of additional skills, including business skills
- The importance of design and communication skills to these industries

Term of Reference (b) The economic, social and cultural benefits of these industries

The industries under consideration by this inquiry share a number of key attributes:

- They are located within the broad economic and intellectual framework of the creative industries sector
- They are domestic industries within Australia, strongly internationalised with international capital and product flows.
- They all demonstrate current growth and further growth potential
- They all offer opportunities for development of expertise within the knowledge economy

Drivers of creative industries
The drivers of the creative industries include an appreciation of the value of information and knowledge; a massive growth in capacity (storage media, processor speeds and bandwidth); ease of transfer across these various channels; increased demand for content from new applications; and a shift in focus in some markets from user generated to pre-published content, e.g. computers purchased primarily to access internet and games.

There is also a general trend in the communications field for person to person communication to become more prevalent within the marketplace (e.g. the popularity of SMS and Blogs). Technology can respond, but demand and peoples' desire to innovate is the driving force behind this trend.

Innovation leads to competitive advantage
It is the utilisation of technology to create new types of products within the creative sector, such as through the developments and synergies of architecture, digital technology and design or the ability of creative artists to take up the creative input of others through technology, which creates and maintains a competitive advantage.

Furthermore, emerging technologies, the global economy and the Internet are changing the meaning of literacy at the very same time as they challenge the meaning of nationality. Boundaries are becoming porous or, in some cases, difficult to identify at all. The digital age is transforming the quantity, range and speed of information and communication in our lives. In the 21st century, the ability to interpret and create audio-visual media is a form of literacy is as critical to understanding the world as basic reading and writing.

The supply chain
Although in general the final sellers within these industries tend to be very large (media and film organisations, for example), the input firm sector is characterised by a large number of small to medium operations. In addition, the importance of the public sector as an employer and purchaser of output of these industries is significant.

Technology developed with and for the community
The significance of cutting edge information technologies for the future of the new economy is inevitably tied to community - to how people of all ages, circumstances and involvements confidently and competently impact on their well-being through a today-and-tomorrow view of such technology. There is social value in a community engaged in deliberate use of information technology to develop quality diverse areas including health, education and communication, and to generate enhancements and economies for these things. This offers a dynamic vision of growth for Australian people – a vision that underscores real purposes for recognising and valuing growth in industry sectors such as information technology, telecommunications, media and education.

Term of Reference (c) Future opportunities for further growth of these industries, including through the application of advanced digital technologies, online interactivity and broadband

Some opportunities in film
Australia ranks as one of the most frequent movie viewing audiences in the world. Australians are also noted as early adopters of new viewing technologies such as VCRs and DVDs. However, the market penetration of Australian film in Australia is relatively low – 8% of box office in 2000, which is lower than in comparable markets such as UK and Europe. Even though this is an important industry, which has received necessary government support over the past 30 years to ensure its development, there is still a need to develop the Australian film industry in such a way as to attract local interest in the product, which would in turn lead to greater viability in the Australian industry.

Some opportunities in games
Electronic games have moved beyond the entertainment industry (although uses in that industry are multiplying quickly), and into areas of educational development. As an economy with a strong export base in education, the ongoing development of intellectual property and Australian expertise in games development is crucial.

The first reason for this is that it offers export potential – we have a well trained workforce which, given a vibrant domestic industry, will contribute their expertise domestically rather than take local cutting edge training offshore. The extent of the demand is such that the domestic industry is now undertaking game development.

Some opportunities in the internet
The increasing reach of the internet has enabled an increase in access to opportunities for individuals and small organisations to develop content, given the right skills. This entrepreneurial aspect offers potential for development of product without the rigidities of the larger corporation. RMIT has a relatively high proportion of graduates who commence their own operations upon graduation and these small organisations and individuals are able to develop and promote their product through the use of information technology.

Some opportunities in animation
Animation is a critical input into film and games industries. The ability to provide cutting edge animation is an important aspect of Australia's technological development within the broader creative industries sector. The development of games technology utilising animation has potential for educational purposes, including the development of scenarios and the understanding of the principles of technology. Part of the educational development of traditional media, such as film and media, is for writers to have a broad understanding of all aspects of production, or for producers to understand the principles of animation, etc. These skills will enable ongoing employability and adaptability in a rapidly changing industry.

Term of Reference (e) The skills required to facilitate future growth in these industries and the capacity of the education and training system to meet these demands

Australia already has high levels of technical ability in these industries. The key is to develop strategies to leverage that ability to develop the industry domestically and internationally. We need to anticipate the skills and capability demands that will emerge over the next generation and to strengthen these industries to enable a sustained and robust export culture.

Industry developments lead to skill requirements
Industry developments in turn generate new skill requirements and the formation of new skill sets. In more traditional areas such as cinema, those skill requirements involve new technology and in convergence with other media (e.g. games and DVDs as spin offs from major films). In newer fields such as games, the technology is developing as the skills develop, and in some cases new skills may lead technology in specific directions. In fields such as media studies, where traditionally television and radio are the fields of employment, students now require proficiency on a number of platforms. Successful practitioners need to be versatile and multi skilled, to develop and deliver media content appropriate to new ways of reading, writing and publishing, fluent with technology and comfortable working within a rapidly changing creative and technological environment, in which there is both more complexity and more choice.

The industry also requires science-based engineering and computer skills, which underpin industry's use of technology and the creative content which utilises these media. These underpinning technologies are a critical element of RMIT's provision.

The internet may be the vehicle for delivery for new content and hence skills in developing and utilising internet technology will also be required.

Training needs for all industry practitioners
The training needs to meet these new technologies are not only at undergraduate and postgraduate level, but also at the VET level. From a national skill base perspective, the development of TAFE programs should complement these skill requirements. In an industry of rapid change, ongoing, flexible reskilling will also be needed – one academic or training course will no longer be sufficient for practitioners to evolve with and lead the industry. Project-based learning may be more appropriate in some cases and at some levels than traditional methods.

Program development response
RMIT's interest in developing overlapping fields of scholarship is timely. The University is currently redesigning programs in fields of design and communications, which have clear linkages to these industries. Cultural differences of the markets involved do need to be reflected in educational provision in these fields, to enhance the development of technical skills.

Educational programs should be designed with industry needs in mind and to do this, it is necessary to acquire state of the art technologies. This point is elaborated at term of reference (h). If this is not done, graduates find themselves unprepared to move into positions that demand their skill set.

In order to capitalise on such developments, we need to ensure that our expertise is accessible, either through speed to market or bandwidth accessibility.

Technology and skills in game development
The significance of development of courses which teach game development should not be underestimated. There is now critical mass in this field and that even though technology is moving quickly and games are likely to become more specialised, sufficient experience exists within the industry to enable educational programs to be developed.

The games industry is a blend of science, computer science and engineering, and creative content. In our view, one of the key roles for educational institutions to fulfil is the development of creative content for industry. Games is an excellent example of this. Although the emphasis in training has been on technological development during the phase of

rapid growth of the industry, a more mature games industry will require creative input, whether for education, entertainment, or for other purposes. This creative input is likely to arise from the skills of the trained individuals who work within that sector, as the next phase of development of ideas may not only include technological developments. For example, a relevant development within RMIT is the Bachelor of Design (Multimedia Systems) that will enable graduates to bring design expertise to the technologically focused games industry, amongst others.

RMIT is in a position to consider the implementation of a full undergraduate program in games development, constructed primarily of units of study already currently offered within the University. This would provide a sound platform for further development of the games industry in Australia.

Skills development in the film industry
In order to retain its differentiation and to bring more box office success, the film industry could develop a user centred approach, in which an understanding of the medium and the audience is manifested in the direction and the script. Students then can address the audience, whether through the narrative of other cultures or through the narrative of Australian cinema and the Australian experience itself.

One approach is to instil in film makers, a greater appreciation of Australian film literacy and an ability to address and understand the domestic audience. This is an opportunity for educational institutions, including RMIT.

Finally, the opportunity exists to develop interactivity itself as a narrative, through the utilisation of a combination of technology and story telling techniques

Research development opportunities
Currently, research into these areas, which is needed to enable the next generation of developers to be produced in Australia, is not receiving levels of funding which enable us to maintain world class performance. The creative sector in general would benefit from focused consideration of research needs, including collaboration between DCITA and DEST to enable support of industry and educational developments in parallel.

Historically, industry in Australia has not necessarily been focused towards the benefits of research. However, targeted research would enable educational institutions to assist these industries to develop.

Integration of technical and creative aspects – the Australian identity.
In consideration of the future opportunities for these industries, the relationship between technical capacity and creativity is important.

Technological developments in the domestic situation (i.e. access to more material) which enable access may suggest that development of technology itself is the answer to issues of content.

However, a focus on technology alone is to focus on the medium. In terms of organisations with the capacity to determine content available to consumers through new media, with the exception of the internet, large corporations tend to dominate. It is important that innovative organisations are also able to provide programming for general consumption and hence developing the Australian creative capital through education in association with enabling technologies.

One answer to reconciling issues between the need to tell our own stories and the challenge of a rapidly growing, technologically rich industry with high potential but an uneven funding

basis is to bring sources of creative content together across the entire industry – RMIT is in a position to help develop this initiative and this submission establishes a proposal for a Centre for Media Industry Education.

Term of Reference (f) The effectiveness of the existing linkages between these industries and the wider cultural and information technology sectors

Creative, cultural and commercial aspects of an economy are linked. The commercial sector provides wealth and employment and is the vehicle for consumption of creative industries by the majority of the population, sitting within a cultural framework.

The creative industries are becoming more important in Australia's innovative economy due to the evolving trend towards convergence of electronics, computing and telecommunications. This convergence causes new industries to arise in these overlapping areas (for example, software + digital content = multimedia).

These changes apply to all aspects of creative industries. Although they are most easily identified in technology-dense activities such as multimedia, other, related industries such as fine art and architecture are picking up new media and utilising these integrative processes to develop their product.

Opportunities for convergence
Convergence between industries and skill sets presents opportunities and challenges for these industries. Digital forms provide new ways of developing and presenting content, leading to new skills, technological developments and markets, and consequent opportunities. The challenges lie in establishing the linkages across industries and developing ongoing strategies for market development in a context of rapid technological change.

A key development is multiplatforming, where a piece of intellectual property (for example a film) is developed on one platform (such as for cinema utilisation), but simultaneously or subsequently developed on another platform, such as DVD or as a game. This offers the opportunity for both business and technological development that in turn adds significantly to the value of the creative endeavour and will require further educational development. Locally developed creative output that can be multiplatformed will add significantly to its export value.

A logical development of this trend is the consideration of games potential when film scripts are being developed. The way in which cutting edge developments in effects and animation may be integrated will also influence content or format.

One possible scenario, in relation to film, identified by RMIT is that the rise of DVD and other interactive formats relies for its appeal on rich or elaborated content (interviews with key creative personnel, biographies, resource materials etc). In these formats the 'local' is literally the added value. In this future scenario there is a place for an international or global cinema in which the local has value as a privileged source of context. Local digital deliverers will be able to offer enriched and elaborate viewing experiences for audiences anywhere, anytime. In this future, the Australia cinema really will be a contributor to and participant in the global audio-visual industries.

The possibilities for interactivity are now becoming evident, with the spin-offs between feature films and electronic games and interactivity on DVDs utilising technological developments to add value to intellectual property in the entertainment industry.

A report prepared by the National Office for the Information Economy (2002) on clustering in the Creative Industries, identifies that "creative and media industries, like music and film post production, are undergoing significant changes and are increasingly engaged in the production of digital content and applications". However the report notes that at this stage there has been little increase in the extent of collaboration between industry sectors. Effective development of multidisciplinary work may also require more effective linkages between the various sections of the industry.

Any particular project may have a range of applications or outputs, e.g. DVD's and online potential that arise from films, or films themselves that have been produced as a result of successful ventures in the field of animation. These synergies represent opportunities for content developers in any of these fields to branch out across a range of media.

There are a number of other linkages to other industries that should be considered when determining future areas of growth, which are relevant to both entertainment and to education.

Key related areas – design and business
Design has a key impact – in terms of communication design, symbols and publicity. The design aspects extend to computer hardware utilised by producers and consumers, and the design of the content itself. Design is a key creative industry, not restricted to traditional aesthetic qualities, but an aspect that can be built into media to enable high levels of utility.

A key linkage is to business skills. Organisations in all areas of creative industries are now recognising that skills required for success include a range of skills in addition to the "core" competency, a challenge being addressed by RMIT. For example, practitioners in the media industry are now more likely to require an understanding of marketing or business principles in order to add the greatest level of value to the organisations they represent. This development of the broader skill base is becoming a desirable trend across all industries, including within the creative sector.

The broad industry sector of finance, insurance, property and business is also the largest employer, in percentage terms, of Australian bachelor graduates in Graphic Art and Design, and Visual Arts.

Term of Reference (g) How Australia's capabilities in these industries, including in education and training, can be best leveraged to maximise export and investment opportunities

Requirement for investment
In common with other industries, the creative industries are driven by a requirement for investment. The way in which investment is currently structured affects the way in which the industry is consequently structured. There are a large number of small organizations working within these industries with limited access to capital and hence have limited access to skill development.

Many businesses in this sector are effectively microbusinesses with limited leverage in an international supply chain where the final producers are often large organizations. This imbalance can create imperfections in the market which investment by government, education and industry may help to overcome.

Industry development
Within the creative industries, approaches to industry development may require flexibility to ensure maximum benefit because of the specific structure of the industry. The majority of sub-sectors of the creative industries include small, medium and micro-businesses working in

flexible contracting networks with a variety of similar firms. Whilst some firms grow larger and take on more conventional structures, they are often embedded in a dense network of suppliers who are small and micro-businesses or independent contractors. Lack of access to the following is a hindrance to the growth of the industry:

- Research and development
- Equity or loan capital
- Facilities of office space, production space, production infrastructure
- Networks built on maintaining competitive and collaborative relationships.

The skills and technologies within the supply chains are developing rapidly and the relationships are driven and influenced by technological change.

In an area of rapid technological change and relatively high risk associated with creative industries, capital injections through venture capital investments may be difficult to secure.

The role of venture capitalists is also critical to the development of this industry. Entrepreneurial capital may be attracted to an industry that can demonstrate sound educational development and the development of significant areas of expertise. It is an area where venture capital could lead development of creative industries, with export potential.

International developments
The development of these industries is characterised by increasing mobility of both capital and labour. The way in which Australia takes advantage and engages with the international market will determine the ultimate direction of the industry. Increasing levels of imports will require a response which develops Australia's export capability and niche developments based on skills.

Mentoring and incubators
Related to the development of skills and business is the need for structures to assist entrepreneurs and small organisations to flourish. A potential critical linkage between education and business is the development of programs to cover mentoring (or the provision of advice and guidance) and incubators (which are physical locations, either attached to educational institutions or as stand alone arrangements).

Mentoring may be established through industry connections, and governments may have a facilitation role to play. Educational institutions would be in a position to contribute to such programs through existing connections.

Incubators play a valuable role as a start up facilitation and are supported by a combination of government, education and industry. Frequently incubators are located at locations of existing clusters of like industries and enable innovative and experimental start up businesses to flourish.

Industry requires broad range of skills
As noted above, the industry is now more reliant on sound business practices and an understanding of the commercial and social environment. In addition to sound technical skills, opportunities also exist for educational institutions to develop these specialities in relation to the specific needs of emerging, knowledge-based industries. The ability to cope with change and to utilise change as a driver for new developments will be important skills in these industries. RMIT's experience suggests that this is becoming increasingly critical, across all industries.

The international labour market is generally becoming more mobile and these industries provide an excellent example of that type of mobility. Australian graduates, in this field as in others, are likely to seek to work overseas. The developments in these industries, particularly in the United States may mean that graduates are less likely to return to Australia with their skills augmented by international experience. A well grounded local industry which is growing and has areas of speciality will be more likely to attract Australian graduates and international expertise.

For example, the field of interaction design is a broad area of activity concerned with understanding the relationship between people, their environments, devices, content and community networks. It has risen in importance as researchers and industry recognise that emerging technology concepts will fail without a complete understanding of how people are affected by their initiatives.

Industry's need for educational provision
For Australia to lead in these creative industries, the convergence being experienced in the industry needs to be enhanced in the educational sector.

It is critical that graduates acquire understanding of the dynamics of industry and skills development in response. Learnings can therefore be applied to many industries, and those industries under consideration are tending to converge, requiring mobility across the sector.

As the industry is somewhat fragmented and characterised by large numbers of small firms, particularly on the supply side, investment in skills may be difficult for the small to medium firm to maintain in a situation of high demand and high labour mobility. Therefore the role for educational institutions, such as RMIT with its strength in media an business, is even more critical, both to produce sound, technically qualified graduates and to provide the opportunity to engage in lifelong learning, accessible to firms across the sector.

Opportunities for production and post production
Aspects of production and post-production enable high value added content in the industry. These are areas in which Australia is not historically strong and the possibility exists to develop a niche that could be served by postgraduate or diploma programs. This is already an area of RMIT's expertise. Special effects development is another case where skills can be developed to the highest level in Australia and provided competitively, to enable a niche to be developed. In order to maintain such an advantage, the educational developments must not lag technological developments within the marketplace. Technological development can be expensive for educational institutions, but must be maintained if industry and educators are to work closely in Australia's relatively small economy, to lead the international market and capitalise on international developments.

Opportunity for export development through education
Both entertainment and education are in a position to significantly enhance Australia's export performance and the skills base exists, if harnessed within our educational institutions and entrepreneurial organisations, to establish and develop export markets for the Australian industry.

For example, already, Australian specialisations in terms of games development is utilised by US-based corporations because of our ability to supply high quality developers to the industry, with the ability to solve problems. Australian developers are priced below US equivalents, but the more quality development that we are able to supply in a competitive market, the more likely will be the establishment of market niches.

Term of Reference (h) Whether any changes should be made to existing government support programs to ensure they are aligned with the future opportunities and trends in these industries.

This section identifies opportunities and consequent policy initiatives for Government, educational institutions and industry to act together to develop these industries in Australia's national interest.

Opportunities:

Development of international audiences through collaboration
Development of films and resulting convergent technologies that have an export market may also provide tourism spin offs, leading to provide international revenue but only present one facet of the Australian culture to international audiences. It is critical that to enable a creative domestic industry to flourish, that international audiences are also developed for lower budget, innovative development in film, animation and games.

Mentoring and incubators to enable collaboration
Mentoring programs, which will assist small entrepreneurial organisations to develop product and enter new markets.

Establishment of business incubators for these industries to enable development of innovative product, in collaboration with educational institutions.

Links between industry and education for collaborative export
In addition to the approaches above, further developing links between education and industry for research, including linking education and games producers, to produce new product for cultural or educational export. This includes development of clusters to enable collaborative development between small firms.

Utilise Australia's strategic advantage in the international time zone to enable us to produce both real time production in the Asian region and to develop solutions "overnight" for European and American collaborators.

One method of facilitating this is the establishment of a Centre to bring industry and educational needs together, which in itself will aid international competitiveness.

Utilise new technologies in related disciplines
In undergraduate programs, there are opportunities for institutions such as RMIT to utilise new technological developments of 3D virtual realities and animation and special effects, into architecture, fine art, and many other discipline areas.

Develop local expertise in areas of convergence
Develop and promote local expertise as a centre of high quality film and post production, within a converging industry, this may require research to identify key players, and to further develop strategic directions.

Specific funding for business and export training for these industries
Enable development of opportunities in the region, particularly for access by innovative entrepreneurial organisations.

Specific research to enable export development for use of games in education
This is a separate consideration from industry development, but may enable development of intellectual property to enable establishment of competitive advantage in the international education field.

Further support for development of animation.
Of the short, animated work that tours internationally, in addition to that developed in Universities, much arises from excellent animation in developed by innovative young people, schools and the networked community generally. However, much of this remains untapped and it offers a sound base for further development in the post secondary education sector, which will link to the creation of content and technology rich industries. RMIT's Centre for Animation and Interactive Media can provide a basis for further development.

Development of an innovation model that will enable "underground" content developers to be brought into the mainstream.
The universality of creative media means that many young developers of innovative material do so from outside the formal structures and so are neither assisted nor brought into contact with other complementary developments, which would assist their ability to create innovatively and productively. Development of an innovative model, incorporating aspects of access to education and exhibition that can provide access for these developers would enhance Australia's creative industries generally.

Development of curriculum for industry-based skill development.
In consultation with industry partners, engage in further development of specific programs at TAFE, undergraduate and postgraduate levels to enable development of more focussed programs. Specific areas include project management for these industries and the games area as an educational development. It is recommended that an ongoing curriculum development fund be established to invest in the development of programs required by industry. In the film area, for program developers and audiences, build a greater understanding of Australian film for industry viability and export development.

Development of curriculum for lifelong skill development
There are a number of gaps currently in existence, which because of the rapidly changing nature of the industries are now becoming recognised. These include skills such as management and entrepreneurship.

Development of research skills in these industries
In order to develop knowledge for industry development and to link back to teaching, additional research places targeted to these industries will enable Australia to develop a critical mass of industry/academic engagement. This may include funding for full time research partners. As one example, a type of research that would enable Australia to contribute to the international development of the industry is research to simulate digital effects (out of camera special effects that could be developed in a digital environment).

RMIT is in a position to leverage its existing skills and infrastructure in order to provide further assistance for the industry, including pathways for graduates into industry roles, as it adapts and develops in a period of rapid change.

Recommended policy Initiatives:

1. Recognition and development of these industries as a key technological and cultural area for industry and research investment.

As a key aspect of Australia's economic, cultural and creative development
Competitive advantage is derived from the way in which we enable our creative industries to develop. The development of a knowledge base, through applied research in these industries and through student centred learning experiences is an essential prerequisite to a competitive advantage.

The development of creative knowledge and expertise in the context of convergence of technologies enables the cost of logistics of the dissemination of content or exchange to be reduced. Due to the (generally) localised nature of creative industries and the relative ease of taking on new technology, the cost of restructuring or renewing creative industries is significantly less than that of traditional industries.

Development of commercial aspects
Furthermore, the benefits of e-commerce apply equally to creative industries as to manufacturing or service industries and the creation of content is now more closely linked to and integrated with the publishing, exchange and marketing as a result of technological developments.

Currently only small scale digital content and applications undertake development activity in Australia. We have an opportunity to grow these industries, utilising industry, educational institutions and government partnership. It is an opportunity to take up this challenge.

The NOIE report identifies the possibility that small firms, in particular, would be assisted by access to timely research of emerging international business models.

The industries under consideration may also be in a position to benefit from research priority areas recently announced by the Federal Government:
- Frontier Technologies for Building and Transforming Australian Industries
- Complex / Intelligent Systems (ARC Priority)

The technologies utilised fit both of the above categories. A vibrant film industry exists which can utilise links with other industries and further understanding of our own creative identity to enhance its market share and export potential. The possibilities exist for games and animation to become critical developmental technologies that are relevant to a number of industries including the export led creative industries. The technological developments are likely to also have systems implications.

Desirability of having research inform teaching.
In order for graduates of institutions to have the skills to develop these industries on a world class basis, the teaching programs should be influenced and informed by world class research, grounded in real world outcomes. RMIT already produces this type of research. One of the critical requirements for research is access to technology that can take the development of ideas to the cutting edge. RMIT recommends that Government programs are utilised to enable such research, within the framework of research priorities and competitive grant processes.

Globalisation and Internationalisation, including business model development
International developments are relevant to these industries, particularly in consideration of the high level of export orientation of the outputs from the games industry, in particular and historical success in the film industry. The future markets will be primarily international and early identification of technological developments and establishment of strategic partnerships will be critical to future success. The tendency for globalisation of these processes does offer great opportunities for Australia, if the skills provided to our graduates are relevant. These skills include an understanding of business principles and design.

2.   Establish a national curriculum development strategy

It is RMIT's view that due to the rapidly changing nature of these industries and the excellent prospects for export development of both creative output and education in these fields that a national initiative to support curriculum development is warranted.

These industries do have a major technological component and a critical aspect of their development is to have current technology and enabling that technology to be constantly updated. We recommend that the curriculum development fund be enhanced by the ability to provide equipment based on identified need. This curriculum development fund should consider the requirements of all levels of education including students in regional areas of Australia and the possibilities of open learning and distance education. This would enable institutions to link programs, share expertise and enable the best use of limited curriculum development time within institutions as they stand.

3. As a facilitation mechanism for the above two policy positions, RMIT recommends consideration of a Centre for Media Industry Education

A key proposal of this submission is the proposal to establish, for these industries, a Centre for Media Industry Education, whose broad role is as a facility to promulgate research and curriculum development across the University sector, with flow on effects to secondary schools and industry. It would also provide incubator facilities for the development of start up companies.

It would enable the industry to take advantage of the opportunities identified earlier in this section.

This Centre would be established to enable Australia to take up a leadership position in these sectors. It would:

- Include a charter to encourage convergence of the various industries under consideration
- Specifically develop educational developments that bring together cultural and technological expertise.
- Facilitate mentoring programs for entrepreneurial individuals and small companies with innovative products and services
- Be a facility to promulgate research across all universities
- Facilitate curriculum development within these industries and enable dispersal of curriculum development funds
- Bring together industry and all education sectors to ensure relevance and enable further development of cross industry linkages
- Would specifically encourage activities directed to export development
- Act as a centre for innovation in these fields
- Enable sharing of risk between government, industry and the education sector in developing these industries.
- Be consistent with RMIT's profile and research interests and link to existing RMIT initiatives, including the AFI Centre, RMIT's infrastructure including the Interactive Information Institute, the Centre for Excellence in Digital Design, and the proposed CRC for interaction design
- Act as a place of dissemination, producing websites, conferences, special projects and international research linkages
- Be located at RMIT, using the University's existing strengths as a catalyst.

The development of such a Centre would build on an existing public profile and assist development of these technology intensive industries, which are critical to Australia's development and are examples of Victoria's strengths.

It would present Australia with an opportunity to capitalise on our existing developments in these creative industries and to overcome within a structure some of the difficulties identified with the cross pollination between industries and the various fields of endeavour. This would ideally be located within an existing teaching institution such as RMIT and deliver outcomes that are relevant to industry. In addition, barriers currently confronting researchers such as access to research materials may be broken down.

To enable the benefits to be derived from establishment of such a Centre, it should be able to address research and curriculum development in areas that would be targeted through bodies such as the Australian Research Council.

Following initial seed funding, such a centre should become financially self sufficient. It would provide export related industry development at minimal cost.

The Centre would have the following additional benefits for the industry and community:

Development of incubators, which would provide innovative start up businesses with the opportunity to gain domestic and export markets for innovative developments which would be focused on export or import replacement.

This would enable further development of clustering in the inner Melbourne area, which is currently a centre of innovation in these industries.

Cross disciplinary initiatives, including cross institutional initiatives
Initiatives that enable institutions to co-operate, possibly along lines of co-operative research centres, are likely to be outcomes. These typically involve several institutions with industry partners and produce industry-focussed outcomes.

Ensure relevance in Asia-pacific region, as our major catchment area for international students and development of programs for distance, on line and international focus.
Development of collaborative initiatives that take up distance education, or programs with partnerships with foreign institutions. The benefits would be that the education industry itself would receive further export income, that ongoing links would be created with major trading partners within the region.

Development of specific skills around convergence
The next ten years are likely to see these industries converging in some areas and moving in disparate directions in others. However the general trend is likely to be towards the technologies and skills being utilised across the creative industries in general. For Australia to be in a competitive position and to remain as a provider of high value added products in these areas, government support for institutions to develop intellectual property around convergence including through research funding and/or a research centre is critical.

Enable development of small to medium businesses focussed on export
Facilitation industry links through the supply chain, to Government and to cutting edge educational developments, to develop skills, products and markets.

APPENDIX 1: RMIT's provision

RMIT encapsulates the role in education for clever thinking within these industries.

The University has a focus of applied technology, enabling practicality and usefulness to business.

The University brings together critical facets of the development of these industries:
- The links and synergies between education and industry
- The links and synergies between technical and creative developments
- Development of knowledge and skills in an iterative framework

Capabilities:

- RMIT has a record of provision of innovative programs to industry. We work closely with industries to develop programs that reflect needs.
- Because of our technical capacity and creative development strengths across the University, RMIT has the capacity to bridge the technical and the creative aspects in its programs.
- RMIT is able to service gaps in educational provision for the industry, to develop lifelong learning, for example in entrepreneurship, business and communication skills. We provide education and training flexibly, in different modes and across distances.
- RMIT is in a position to develop and implement undergraduate programs required by the industry.
- RMIT's graduates are highly employable and work across all forms of business and media, in organisations that produce and export technologically sophisticated product.
- RMIT is able to provide programs that anticipate future needs and is prepared to innovate.
- RMIT's has a specific interest in developing overlapping fields of scholarship, in such areas as design and communications, for both Australian and international markets.

Outputs

Examples of Relevant Contribution:

Undergraduate and postgraduate programs in the following fields:

Advanced Diploma of Multimedia
Bachelor of Arts- Multimedia (including video stream)
Graduate Diploma and Masters by coursework in Animation and Interactive Media (AIM)
Masters by Research and PhD, also in AIM
Master of Engineering (Simulation Technology),
Bachelor of Design (Multimedia Systems)
Diploma of Video Production
Diploma of Professional Writing and Editing
Diploma of Screen Writing
Bachelor of Applied Science (Computer Science)

We have further specific expertise in areas such as media arts and film track design.

Research

We undertake research across the range of industries under consideration, including numerous research projects in film (e.g. Contemporary Australian film policy, Australian film history, New technologies and screen literacy, Regional cinemas), animation and interactive media, applied communication, simulation engineering, 3D Virtual Realities in Fine Art/Multimedia,.

These projects entail research partnerships locally, interstate and internationally.

As an example of one research link already providing benefits, several of RMIT's proposed research and research-related initiatives slated for 2003 and beyond will benefit from the critical infrastructure provided by the AFI Research and Information Centre. These include conferences, publications, critical, creative and curatorial works as well as research partnerships.

Facilities

Extensive teaching studios, computer labs, video editing suits and sound recording areas in the City campus for TAFE, undergradraduate and post-graduate students in the above areas.

Linkages

Examples of RMIT's diverse range of linkages and facilities in these fields:

Interactive Information Institute

The Interactive Information Institute (I-Cubed) has been established by RMIT University with startup funding from the Victorian State Government through Multimedia Victoria, to provide an environment for prototyping new and different ways of exploring opportunities in computing, communications and new media. It is positioned to operate at the interface between teaching, research and commercial project development.

Its focus is to take interdisciplinary approaches to creating structures for developing product, service, business and research ideas in information technology, communications and new media. To this end it has in place an Ideas Incubator and a Virtual Reality Centre as focal points for interaction.

The Ideas Incubator at the Interactive Information Institute attracts cross-faculty teams from RMIT University as well as individuals, businesses and the outside community.

The Institute helps entrepreneurs create new investment-grade businesses, by assisting with business concepts, business plan formation, company formation, the creation of intellectual property and other new business strategies, and startup funding. We are a business formation accelerator and operate in the earliest stage of a company's lifetime.

Centre for Animation and Interactive Media

Centre for Animation and Interactive Media (AIM) within RMIT's School of Creative Media has interest in computer games and is well placed to develop and support educational programs designed to respond to the needs of the local computer games industry

AIM offers postgraduate professional development programs for originators of 'creative content' (writers, directors, producers) and research programs that investigate applied new media, animation, networked and virtual environments and the cinematic arts.

AIM is a unique incubator, giving opportunities to talented students and to artists from the wider community, to explore and realise creative, innovative ideas. Its supportive teaching and research environment has advanced both the body of knowledge about the new art mediums and enhanced the development of a new professional, creative workforce. It has even further enhanced the University's reputation for combining new technologies with creative excellence.

The AFI Research Collection & the Henry Mayer Collection

The AFI Research Collection (incorporating the Henry Mayer Collection) is a non-lending collection principally operated for the benefit of industry researchers, government agencies, academics and students.

RMIT University has worked collaboratively with the AFI over the past three decades. RMIT staff and students have supported the AFI Library through collaborative research projects, direct sponsorship of events, participation in AFI forums and student internships. AFI staff have reciprocated by contributing to lectures in RMIT's MA (Communications) and through research provision to RMIT staff. Since its opening at RMIT in January 2003, the AFI Research Collection has worked with a wide array of academic and industry researchers, in Australia, Europe, New Zealand, UK and USA.

Local Partnerships

A close relationship between RMIT and Australian Centre for the Moving Image (ACMI) sees RMIT students making increasing use of ACMI's facilities.

Centre for Excellence for Digital Design at RMIT.

The Centre of Excellence in Digital Design at RMIT University, established in partnership with the Victorian Government will develop expertise in design and digital technology and work in partnership with other education providers, and RMIT's extensive network of relationships with enterprises, regions and other research and education institutions, both locally and internationally.

Technical innovation and critical analysis

RMIT produces work that is at the leading edge technologically, to enable students to realise visions in an educational environment with direct relevance to the industries they service. We have a strength in our ability to do our core development work and critical analysis – research projects that would be impossible elsewhere, because of our strengths in creative media, communication and computer science.

The development of the Australian industry requires critical engagement as well as technologically sophisticated engagement. In this context, RMIT is also able to contribute to the ongoing development of the cultural capital of Australia, through the enabling of expertise in technologies that promote it and through multidisciplinary approach to our programs. RMIT is a technologically sophisticated university, which has deliberately enabled creative developments to influence students with technologically based skills. The emphasis is on development of relevant skills that will enable immediate employment within rapidly changing industries. An example of this technological development is that of the Interactive Information Institute (described above).

Career development and lifelong learning, anticipating the future

We are also in a position to assist the industry to attain skills of relevance for career development – entrepreneurship, business and communication skills. Our graduates are highly employable and work across all forms of media, in organisations that produce and export technologically sophisticated product.

Because of RMIT's history of leading edge development in this area, we are able to encourage students' understanding of the development of these industries and therefore to be able to anticipate the future. For example, digital editing, once cutting edge technology is now a desktop solution. In this case, accessibility leads to a need to see beyond the cutting edge, to enable innovative implemantation. These developments are also true in the area of multiplatforming. An aspect of the development of the body of knowledge is risk taking to innovate and advance knowledge in the industry.

An internationalised University
Our engagement with the development of these industries also takes on international dimensions. RMIT is actively teaching multimedia in Malaysia and Applied Communications programs have been established in Singapore. Our international alumni work across these fields, particularly in South East Asia.

In terms of the development of a national skills base, RMIT is in a position to add value to government investment in education in these industries by developing highly employable graduates who are able to further develop export industries, or who themselves are exports in education. RMIT is currently in a unique position of leadership in educational provision for these industries. The University has an international reach and a significant, relevant, research profile. We train for all of the industries under consideration and are actively leading in their development; that is, we anticipate and engage with emergent technological and content-based developments.

Developments in sciences and engineering
RMIT also has relevant linkages within science and engineering disciplines. For example, the Master of Engineering (Simulation Technology) has applications for these industries, through the discipline of computer engineering. Similarly, RMIT provides large numbers of graduates in the computer science discipline.

Innovative research and teaching development
Across these areas, RMIT is able to provide teaching and research strength in narrative, or the development of the story within its context, including in the fields of animation, 3D programming and related fields such as media studies,

In fields of new media production and research degree completion, RMIT has already developed skills as a centre for critical/cultural studies. For example, many years of collaboration has enabled the Australian Film Institute collection to locate at RMIT (see above). This provides the opportunity for the University to work with its own students and the community (including the film making community) to develop a critical mass and to undertake further research in this area, adding to our existing strengths in film production and new media.

When developing courses and research projects, RMIT has a preference for user centred design. This is enabled by our consistent development of programs in conjunction with industry and the direct relationship with audiences. This has led to recognition through awards and exhibitions.

Communications and design
Design in technology and in communications is critical to program development. In this context, design is relevant to both intrinsic and extrinsic aspects of projects and media developments. For example, design in new media has as much relevance to the success of the product as does the technical aspects. User centred design reflects interest in the audience and the market. It reflects our interest in solving real world issues and ensures the relevance of the University and its teaching and research programs.

Graduates add value to the economy and society
The outcomes of RMIT's educational investment well exceed the cost of provision of Commonwealth funded places, in addition to full feeing paying students. Graduates in these disciplines have the potential to add value to the organisations they work in and to contribute in large degree to the innovative development of export related industry development.