



midasinitiative

MIDAS Initiative Report

The Digital Content Markets on the Island of Ireland

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## 1.0 Introduction

The increased availability of digital technology is enabling the development of a whole range of new products and services, significantly growing market demand for digital content worldwide. The digital content industry encompasses the creation, design, management and distribution of digital products and services and the technologies that underpin these activities.

The industry comprises companies from traditional content, media and entertainment, software and multimedia, and electronic hardware and telecommunications sectors. Convergence of these sectors is being led in large part by the rapid growth in information and communications technologies (ICT), the Internet, and broadband fixed and wireless access and associated devices, which are driving demand for the electronic distribution of content.

The digital content industry, while still at a relatively early stage of development, is emerging as an area of significant global opportunity. Valued at over \$178 billion in 2001, the industry was forecast to grow globally at an annual rate of 29% to more than \$434 billion by 2006 (Source: PWC, 2002) and may in fact already be worth over \$500 billion. (Source: FAS, 2005) However, the industry is still some distance from maturity, having been adversely impacted by the recent slowdown in the overall information and communications technology environment. Previous expectations for the industry now look as though they may have been overly optimistic and premature.

However, many developments driving digital content are now only beginning and not anticipated to significantly impact on the industry until at least 2005 to 2006, by which time there is expected to be mass market penetration of broadband access and devices. In the intervening period the global digital content market is expected to grow strongly at an annual rate of about 30%.

The creative and media industries in the UK currently generate revenues of around £112.5 billion and employ more than 1.8 million people, which is 5% of the total employed workforce. Exports contribute around £11.6 billion to the balance of trade, and the industries account for over 8% of gross value added to the economy. The value of the creative industries to UK gross domestic product is therefore greater than the contribution of any of the UK's manufacturing industry.

*(Source: DCMS, Economic Statistical Bulletin, 2005)*

The digital content industry in Ireland was valued at over €1.9 billion in 2002, with companies engaged in a range of activities from content creation to the development of related technologies and was forecast to rise by 5.5% per annum to over €2.4 billion by 2006. (Source: Forfás) Activity is spread across a range of entertainment, education, consumer and business publishing sectors but, in general, companies are fragmented and small in scale with only limited export markets yet developed. Skills and competencies vary across the value chain, with sectors such as e-learning having a high level and range of competency, while other areas, such as digital film and TV, being more focused on single aspects (e.g., content conversion and management).

Around 300 companies, mostly indigenous, are estimated to be involved in the development of digital products and services, between them employing approximately 4,500 people in an industry that was worth £300 million in 2000 (Source: Enterprise Ireland), although this is forecast to double to around £600 million by 2007 (Source: FAS, 2005). The industry has developed in clusters, namely in the digital film and television, business publishing (including web design) and e-learning areas with nearly 90% of companies based in Dublin, although other clusters exist in Limerick, Galway and Cork.

## 1.0 Introduction cont.

The majority of these indigenous companies are, however, relatively small, often employing fewer than 10 people (many of whom are multi-skilled) and, despite a period of buoyant recruitment up to around 2001, industry employment has remained static at around 8,500 jobs. (Source: FAS, 2005) It is assumed that there should be further growth in both economic output and employment within the industry, perhaps leading to an increase of 2,000 new jobs by 2008, but this will require both improved performance by existing participants and large overseas investments.

(Source: FAS, 2005)

The industry features a particularly high number of contract employees and freelancers and in many content development skills areas there would appear to be sufficient, if not an oversupply of people. Difficult to fill vacancies do exist, predominantly in sales, marketing and project management areas with a particular gap in the 'creative entrepreneur' role, that is, someone with a sense of business and finance who can also see the synergies between different types of media.

(Source: FAS, 2005)

The 2002 Forfás-commissioned Pricewaterhouse Coopers' report identified that Ireland's strengths included a strong skills base, a mature software sector and an awareness of the importance of the knowledge economy to the country's future prosperity. It identified the weaknesses as including low adoption of digital technologies within the traditional media sector; relatively low availability of broadband communications and low levels of formal research and development (R&D) within the digital content industries in general.

However, in today's much-heralded knowledge economy the potential importance of these industries to national wealth is being reflected in policy development at the national and local levels. In the UK the creative industries come under the remit of the Department for Culture, Media and Sport (DCMS). The DCMS aims to raise awareness of the issues affecting the creative industries and has undertaken several initiatives to facilitate this. This work is undertaken by four industry groups; Creative Exports, Cultural Heritage and Tourism, Design Partners, and Performing Arts International Development.

Together the UK's content industries (advertising, publishing - including electronic - computing software, games and services, music and recording, broadcasting and film) offer perhaps the best prospects of any UK industrial sector for substantial export growth. Content, in which the UK is said to have outstanding expertise, is absolutely fundamental to any chance of success in the information society and knowledge economy.

In Ireland, the Commission for Communications Regulation (ComReg) was established in December 2002 to be responsible for the regulation of the electronic communications sector and the Information Society Commission (ISC) reports directly to the Taoiseach in shaping the evolving public policy framework for the industry. The Digital Hub is an incubation initiative for the sector which has been devised to reflect Enterprise Ireland's and IDA Ireland's aim of developing a world-leading digital media industry in Ireland. It will be developed on a phased basis up to 2010.

This report will seek to clarify the overall state of the digital content industry in Ireland, the UK and globally. It will identify and discuss many of the issues affecting key areas of potential growth in the Industry including design, film and video, animation, games, mobile technologies and music. And it will try to draw some useful conclusions regarding the future potential for a sustainable digital content industry throughout Ireland.

## 2.0 The Digital Content Industries cont.

The creative industries encompass activities that focus on individual creativity, expression, skill and talent and which have the potential to generate wealth and job creation. The Department for Culture, Media and Sport identifies the following as being the main industries involved - advertising, architecture, art and antiques market, craft, design, designer fashion, film and video, interactive leisure software (games), music, the performing arts, software and computer services, and television and radio.

Of these, this report will examine the following in greater depth:

- design and visual communication
- film, television and video
- animation
- games
- mobile technologies
- music

### 2.1 Design and Visual Communication

Design is almost impossible to define as it is all around us, from the clothes we wear to the chairs we sit in, the pens we write with, the cars we travel in and the cups we drink from. Good design is not only about appearance but how well items and processes fulfil their functions. With respect to the digital content industries however, and this report in particular, we will be concentrating on the area of graphic design for print and digital media as used in business or corporate communications.

Britain's multimedia and design companies, especially in Northern Ireland, are usually small ad-hoc collections of fewer than 10 workers mostly working for a share of the corporate communications market within their local region. The UK has an international reputation particularly in the areas of

retail interior and exterior, branding, advertising, corporate identity, product design and multimedia. It was estimated that UK consultancies generated over £1 billion in export earnings in 2000 (*Source: IDEO Europe*) and the design education system is held in high regard internationally. In Ireland, almost 6,000 employees currently contribute to an industry turnover of around €300,000 - again mostly concentrated around localised services.

It is clear then that the very survival of the existing local graphic design and multimedia companies is dependent on the requirements of business, government, education and healthcare in their own region - particularly since there is currently relatively little development of original stand-alone consumer-oriented projects. Business though, is being radically transformed by the advent of digital media, and design and visual communications are taking on a powerful new role.

As marketing is being more fully adopted into business culture, design is becoming central to the process of establishing customer preferences, behaviour, market trends and competitive behaviour and ultimately producing new products and a brand to deliver exactly what the customers want. The designer will now influence every stage of the business process from product conception, to manufacturing, sales and even disposal.

Design is no longer a luxury but is now 'a powerhouse of business' (*Source: Design Ireland*) and has become central to the differentiation of one company and its products from another. Integrating design into a business totally is now seen as the key to success, as it influences strategy, tactics and the entire operation.

In addition to the roles of product design and packaging, design remains the most efficient method of communicating with customers. As well as brochures and annual reports, an online presence or web site is now a prerequisite for any successful business and must understand and deliver a balance between immediate aesthetic impact and robust usability. A company's image will stand or fall by the customers' first impressions and a badly designed, unusable web site can be utterly destructive.

## 2.0 The Digital Content Industries cont.

Other new forms of direct digital marketing communications are also becoming increasingly important to business. These include e-mail and SMS text which, despite the relatively low expense and high usability, should also be fully integrated within the overall design process, as informed by the customers' preferences, to ensure maximum effect.

Historically though, the most valuable sector of the marketing communications industries is advertising, including press, television, radio, outdoor display and cinema - all of which are entirely driven by the design process. With a total market value in Ireland of around €1.5 billion in 2004 (Source: IAPI/Adspend), advertising is forecast to increase by an additional 8.6% in the following year, outpacing current global trends that are already the healthiest since 2000.

*(Source: Initiative Media)*

Thanks to advances in bandwidth and available media technologies, digital media technologies are being integrated into other core business processes, such as customer service, education and planning. Solutions in this area can help businesses - including banks, retailers and health services - protect their assets, reduce the cost of communications and increase their market penetration and share.

Digital media assets in the workplace (including logos, photographs, video clips etc.) are proliferating. An increasing number of organisations now have the networks and technology to more effectively exploit them. Technology and bandwidth have reached critical mass.' Now it's not only possible, but also necessary to integrate design and communications content production into core business processes.

However, recent indications are that increasingly many companies and organisations are turning towards self-supply in respect of their design and communications requirements - largely due to the improved availability and reduced cost of desktop digital production equipment and improved skills within the general workforce. This is likely to have a marked effect on the fortunes of an already nervous industry. Organisations focused on creating content or doing substantial advertising are now more likely to develop in-house media departments. In general, investing in a digital content management solution will protect assets, while reducing both

time and cost to produce content. Digital content distribution offers the means to extend the richness and reach of businesses and increase market penetration and share.

Particular aspects of this development include:

- Initially, larger organisations with internal marketing departments and product development teams will be the early adopters and consumers of digital media assets management, followed over time by smaller organisations.
- Outsourcing will follow the previous e-business outsourcing curve as digital media integrates within the organisation, i.e. as design and communications self-supply becomes the norm there will be less opportunity for specialist providers to obtain employment.

Sectors to be affected by this change are likely to initially include retail banking, local government, banking and financial services, healthcare and cross-industry commercial services companies. These are of course the very sectors that have traditionally provided the majority of work opportunities for larger advertising and marketing agencies in the UK and Ireland, as well as our specialist graphic design and multimedia companies. The loss of these potential sources of income will undoubtedly have a negative impact on an already stretched industry.

Perhaps our local, largely SME-based, economy will offer some initial protection, as the smaller companies will have fewer resources with which to bring their design and communications requirements fully in-house in the short term. But it is these same scarce resources that will ultimately require managers to look at how best to utilise the latest cost-effective technologies.

There may be future opportunities for individual designers and developers to join companies in a new role, e.g. house designer, marketing materials developer, digital assets manager etc., or for existing company employees to be given additional training in these new disciplines in addition to their normal duties. But it does seem likely that continuing developments in the creative technologies that were behind the formation of many of our design and multimedia companies may lead to potential difficulties in the not too distant future.

## 2.0 The Digital Content Industries cont.

### 2.2 Film, Television and Video

Film and video are immensely powerful media at the heart of the UK's and, to a lesser extent, Ireland's creative industries. They combine artistic creativity and technical innovation to entertain, inspire, challenge and inform. Films help to shape the way we see and understand the world, how we see ourselves, and how the world sees us. They promote ideas and understanding in a way that no other medium can or does. With total global revenues in excess of \$450 billion (Source: *Screen Digest*), film and video are key drivers of the creative industries.

In the UK, the film industry is worth £5 billion annually, employing in excess of 60,000 people. (Source: UK Film Council) Television broadcast accounts for an additional revenue of £10.1 billion employing over 30,000 people specifically and an additional 46,000 freelancers. (Source: *OFCOM*) Ireland's film industry is worth €304 million, growing at a rate of approximately 18% annually (Source: Audiovisual Federation), and employs over 4,300 people.

(Source: *SPI*)

The cinema audience is broadening as the general population ages, but the most frequent cinemagoers are generally aged 15 to 24 - teenagers, students and young adults. Fifty-four per cent of 15-24 year-olds go to the cinema at least once a month, declining to just 14% of people aged 35+ (Source: *CAVIAR 18*). Overall, a quarter of the UK population visits the cinema once a month or more. Cinema is generally a shared experience, with an average of three people per party.

The audience for film, in virtually every country in the world, continues to grow - at the cinema, on television, and, especially, on DVD, the fastest-growing consumer electronics product of all time. When a title's profile is established, there is substantial additional income potentially to be derived from the ancillary markets such as DVD/VHS, pay-per-view, video on demand and TV sales. In a typical week, seven new films open in UK and Irish cinemas.

The UK and Ireland have a thriving home video market, approximately three times the size of the theatrical market and, thanks mainly to DVD, it continues to enjoy vigorous growth. (Source: *BVA*)

Most films that perform well theatrically go on to do well on video - the audiences are complementary. By the same token, films that are not particularly successful in the cinema are less likely to be particularly profitable in these ancillary markets.

Without doubt, however, the most important aspects of the film industry worldwide are to be found in the sheer costs involved in the production, distribution and advertising of the films themselves. In the US, the average cost of producing a studio picture is \$35 million or more, with a further \$10-20 million regularly invested in prints and advertising. Today's 'event' movies regularly cost \$100-200 million to make, with \$50 million spent on the domestic (US/Canada) release alone, so the stakes are higher than ever.

Once made, the film needs to be distributed to theatres and or DVD outlets and advertised in order to develop a willing audience. In 2003, UK film distributors invested £147.8 million in advertising their new releases, up from £131 million in 2002, stirring up enormous demand - 167.3 million cinema tickets were bought UK-wide in 2003, an average of 14 million every month.

(Source: *FDA Yearbook, 2003*)

The effectiveness of this expenditure clearly matters to the industry, although it is extremely difficult to predict how well a film will do, even when it has certain characteristics (stars, genre, type of story, tone) that are similar to other films that have achieved a certain level of success. The strength of the opening weekend, word of mouth and chance elements of taste and timing all have an influence on the result. From the point of view of econometric analysis, many of the factors that influence the success of a film are hard to observe quantifiably and therefore throw doubt on the validity of the mathematical results.

To stimulate the industry in Britain, the Film Council encourages the growth of inward investment production to the UK. This helps create a stable financial environment where the creative and innovative use of digital technology across the film industry, especially in the field of post-production, can thrive and help the UK to possess a state-of-the-art infrastructure. It also helps to advance the UK Film Council's goal of positioning the UK as the film hub of Europe.

## 2.0 The Digital Content Industries cont.

Inward investment increased from £266 million in 2002 to £729 million in 2003, with the number of inward investment productions increasing from 16 to 30. As a result, total domestic UK features were up from 37 to 44, with production value increasing from £156 million to £269 million.

(Source: UK Film Council)

The Irish film industry too is a recipient of over €136 million in overseas investment. (Source: Audiovisual Federation) Every major Hollywood studio has produced or co-produced at least one film in Ireland and an average of 14 films are made here every year - sometimes up to five of them concurrently. Film and television production creates an additional €107 million in related tourism activities, sustaining over 3,000 jobs in accommodation, travel and catering.

(Source: Bord Fáilte)

However, for all the activity detailed above and the overall commercial success of the film and video industries in general, there does need to be awareness of how that success is actually returned to the industry. Regardless of the cost, quality or origin of a film it cannot generate any revenue unless it is distributed to the theatres, seen by cinema audiences, released on DVD, purchased by consumers and shown on television. The truth is that, as far as UK or Irish-made films are concerned, this level of commercial activity is simply not happening.

In respect of the films released to UK theatres in 2003, 96% of the total box office revenue received was shared by only eight distributors, a similar proportion to 2002. These distributors were:

- Buena Vista International (Share: 26.6%)
- UIP (22.5%)
- Entertainment Film Distributors (14.5%)
- Warner Bros (10.4%)
- Columbia TriStar Films (9.8%)
- Twentieth Century Fox (8.8%)
- Pathé (1.9%)
- Momentum Pictures (1.4%)

(Source: Nielsen EDI)

The conclusion is simple: unless a film is released and distributed by one of the above eight companies it is unlikely to make anything like the revenue required to recoup the costs of production, never mind make a profit to be used to finance the next project.

Also, most of those successfully distributed releases are unlikely to have originated in the UK. It is estimated that around 80% will be US films, around 19% will be UK films and around 1% will be non-national European films. All but one of the films in the top 20 have US involvement in some capacity, the majority of which (15) are solo USA productions. The majority (85%) of the 45 or so successful UK films were made in collaboration with US, European, Japanese or Australian partners.

(Source: Nielsen MMS)

On television in the UK, only 33 of the 1,125 films shown on the five main terrestrial channels were UK films made in the last eight years! This is less than 75% of the features that were made in the UK, and which have long passed their theatre, DVD and pay-per-view shelf lives and are readily available for broadcast.

The point is obvious. For all the film-making activity in the UK and Ireland, including education and training, very little of this activity seems to be reflected in the success of the market's box offices. For all the public sector and lottery fund contribution to the industry, there is essentially no commercial value to any of the very many short films produced every year. Despite the worthwhile experiences that these activities will give to young, aspiring film-makers, very few of these people ever go on to have real, long-term careers in a profitable, sustainable film industry.

To have any chance of success, regions would have to develop a new, industry-focussed infrastructure that could:

- identify, support and develop talent;
- attract real, commercially-sourced funding to locally-based projects in amounts that are sufficient to actually make a complete 'cinema-grade' feature; and

## 2.0 The Digital Content Industries cont.

- promote completed films to the main distribution companies, all of whom are already saturated with potential projects, yet who dominate the market and without whom nothing can be financially viable or commercially successful.

It may be that such an infrastructure is beyond the resources of Ireland, North and South, and so, unless there is a shift in how the consumer receives and elects to pay for film content, it is likely that the indigenous industry remains something that society continues to subsidise for very little apparent long-term benefit and, in the main, with very little interest.

Overall, film is likely to remain a key driver product. Cinema will not be changed overnight but will be modified by a series of steps where there will be both business opportunities and threats. Just as 'super-cinemas' emerged in previous waves of technical developments (with wide-screen and Dolby sound, etc.) so a new phase of super-digital interactive spaces may emerge modifying consumption experience and thus production and delivery. But unless we start to contribute people, content or technologies that are good enough to drive these changes and compete worldwide, yet remain financially attractive, then we are likely to remain reliant on producing skilled temporary employees and location facilities for the more successful international studios, broadcasters and distributors.

### 2.3 Animation

The rapid advancement of technology has made computer animation available to the masses and the animation industry is one of the fastest growing of the digital content industries. Three-dimensional (3D) graphics, photo-realistic animation, cinematic-quality sound and interactive real-time multiplayer games, have recently become a reality for the evolving games industry, driven by the evolution of gaming middleware and 3D. The technology coming out of the games industry is leading academia and other industries in terms of these types of applications.

According to the Roncarelli report on the computer animation industry (2003), the global market for computer animation alone is now valued

at \$27.2 billion and is expected to grow to \$33 billion by 2008. The report states that the industry is continually re-inventing itself as it continues to expand and develop, and costs for entry into the market are becoming increasingly low. Architecture and product design in particular are industries that are increasingly using 2D and 3D animation techniques as an integral part of their normal day-to-day activities, albeit at the expense of traditional drawing and modelling techniques.

Details of the size and value of the animation industry in Ireland are difficult to establish, due in part to the fact that most digital content producers will claim to include an animation capability (e.g. Flash for web sites), while few can point to any significant market activity. Our own research however indicates that there may be as many as 65 companies, including the Oscar-nominated Brown Bag Films and Zanita, whose primary activities are fully engaged in the development of animation content, employing around 430 people and generating a market value of approximately €35 million. (Source: MiDAS Primary Research, 2003)

The roots of the Irish animation industry started in the 1980s and early 90s, when the Industrial Development Authority (IDA) offered companies tax incentives and facilities to work in Ireland. Three large international studios, Don Bluth Studios, Fred Wolf Films and Quateru Films, set up shop in Ireland, producing a fare of distinctly American flavoured animation, including *An American Tail*, *All Dogs go to Heaven* and *Teenage Mutant Ninja Turtles*.

While the work produced by the studios might not enter posterity, one of the lasting influences of the studios can be seen in the creation of a number of animation courses to service the industry. Most notable among these is the animation course in Dun Laoghaire, which forged close ties with Don Bluth. The existence of these courses and the growth of an indigenous animation industry are inextricably linked. At the height of its power, Don Bluth alone employed 380 in its Irish operation but, by the mid-90s, Ireland's first courting of international animation studios drew to a sudden close with all three companies shutting up shop, leaving the country or becoming insolvent.

## 2.0 The Digital Content Industries cont.

Within the film industry, there is a growing movement to make all -CGI feature films -perhaps the single most lucrative application of animation techniques - using existing animation studios, newly formed studios, and a variety of combinations thereof. DreamWorks, for instance, is building its own 3D-CGI facility at its California headquarters. This comes even while the company continues to own Pacific Data Works (PDI), the company that made the Shrek films. The rousing success of Disney-Pixar's Finding Nemo will surely further the notion that CG features can mean huge box-office profits, helping new developing projects source the required investment. Indeed, of the dozen or so CGI features that have been released in the last few years, most have been huge box-office successes driving massive interest in the medium.

Naturally then, as more of these all-CGI films are produced, it should mean more work for animation companies and effects studios, since through technology, there is now little difference between an effects-heavy film and an animation. The only question now is whether the animation needs to be photo-realistic or not, with relatively inexpensive, powerful desktop hardware capable of running smart software that increasingly provides improving production values at a decreasing cost. Because of advancements in technology, it is now financially feasible for big studios to make all-CG films. And it's feasible now for smaller studios to develop all-CG films to a point sufficient to lure investors and, if they can sell them to a TV broadcaster, sometimes even make money with them. This technology-enabled trend will clearly continue.

Owing, then, to this increase in computing power and the reduction in computing costs, the industry is seeing more and more of the global computer animation production output taking place outside of North America and Europe. Over the last three years this has been an increasing pattern, with the resultant growing importance of the outsourced computer animation production market. The global computer animation production industry is very fragmented and the total number of players in this industry runs in excess of 4,000. Most of the small and medium players are located outside of North America and execute outsourced animation projects, simply working to order as required by the US paymasters.

Where the major buyers for animation production services appear to be in the mood to look towards overseas suppliers, there is undoubtedly an opportunity for UK and Irish companies to compete. However, it is clear that our producers are already much more expensive than those in Asia and unless there is a case that the quality coming out of Europe is in some way superior (which there is not) then it is unlikely that our production companies will be in a position to claim much of the available business.

The costs of getting work done in countries such as Korea are said to be roughly half that incurred in production houses in developed countries such as Ireland. In countries like the Philippines and India, the costs are even lower (25-30 % of the cost of production in developed countries). This market is increasingly being tapped by North American film and television program producers (who of course are the creators of the vast majority of the world's commercially viable content). The major factors behind this shift of computer animation production to the Asia-Pacific region continue to be the availability of low cost, powerful computer animation platforms and much lower labour rates in the Asian and Pacific Rim countries compared to North America and Europe.

The low local labour costs in these countries means that they can offer computer animation production services to American and European producers at very attractive rates. The cost competitive advantage along with the delivery of good international standards of animation by studios in India has encouraged these production houses to look towards India as the future destination to outsource their assignments. There is a considerable increase in the 2D and 3D animation outsourcing to India. Due to the extremely competitive climate as well as the global slow-down, some of the large studios in the US have implemented large amounts of layoffs of animators and artists, with India slowly emerging as an alternative to Korea, Philippine and Taipei for animation outsourcing. India is also emerging as a post-production hub for animation.

It's important to remember that the animation-CGI industry is still relatively young, CGI having

## 2.0 The Digital Content Industries cont.

really just started to come into its own in the past five or six years. This means it's still a very dynamic place to be, and what is possible is still defined by how good the technology is, and how well artists understand it. By its very nature, this makes the art of predicting the industry's future direction a shaky business, at best.

It should be possible for local companies to contribute to the production of locally-made films and television programmes but, as in the section on film and video above, regional budgets are tight. There is little or no commercial distribution for these projects and, as such, very little of our activity in this industry is currently commercially successful and therefore sustainable. Leisure software and games production (as detailed in greater depth the section below) is one area where it would seem that there is scope for a sustainable local industry but, as we shall see, the problems of costs, publication, distribution and consumer uptake reside here too.

### 2.4 Games

The global games market is an area of significant potential. With a truly global market spanning the US, Europe and Asia, annual games software sales were worth €42 billion in 2001 and are forecast to reach £86 billion by 2007, with an average growth rate of 14%. Internationally, this represents the single largest sector of the digital content industries, accounting for over a quarter of the total value.

(Source: FAS, 2005)

The majority of this growth will be driven by console games, delivering annual growth of 15%, whilst PC games will grow more slowly in value over time. Returns on investment are very high for successful games developers, despite the high risk involved in producing games, due to high failure rates - but negligible for unsuccessful ones!

The domestic UK market is the third largest in the world (behind the US and Japan) at £1.10 billion (in 2001) and the UK games industry generated £1.16 billion of value for the UK in 2001 from retail, distribution and publishing margins, development advances and royalties. (Source: *Screen Digest*) The UK games development industry as a whole is a significant global player

and a major export earner for the UK, worth €1.6 million in 2002. It is highly thought of, creatively and technically, and very successful in terms of global sales compared to the size of the sector.

(Source: ELSPA)

UK-developed games have a 35% market share of the UK market, but this is closely followed by Japanese and US developers with 32% and 26% respectively. (Source: *Screen Digest*) In addition to the games that bring such strong success in the global markets, many of the top selling UK-developed titles are also highly UK-specific. For example, *Who Wants To Be A Millionaire* is based on the leading television quiz show, and includes the digitised image of presenter Chris Tarrant. *Championship Manager* focuses primarily on English football leagues and their teams.

While the Irish leisure software market is valued at €120 million (Source: Forfás, 2004) there is little evidence of significant market participation by Irish games development companies and little or no activity at all in Northern Ireland especially. In September 2003, Ireland's Minister for Communications Dermot Ahern said that as many as 3,500 jobs could be created in the video games industry, although this was while on a visit to Sony's headquarters in Tokyo to promote the attractiveness of Ireland as an investment centre.

In 2002, Forfás, the public policy advisory body, published a report. *A Strategy for the Digital Content Industry in Ireland* identified games as a 'high potential growth sector,' which would be targeted by both the indigenous and overseas development agencies. The report noted that "Ireland's existing strengths lay in the development, design and conversion/packaging of games together with research strengths in both games design and enablers. ... Building on these strengths, there is significant market opportunity for Ireland right across the 'value chain' from games design to games distribution." As yet, however, Irish games development seems to have little or no impact on the global market.

There are around 14 indigenous games-related companies in Ireland, employing around 300 people (although less than half of these are thought to be involved with the development of original

## 2.0 The Digital Content Industries cont.

content). The strongest are involved with the development of middleware, particularly Havok which is now recognised as an international player. (Source: FAS, 2005) In addition there are 140 Irish members of the International Games Development Association (IDGA), the international umbrella organisation for industry professionals, and an Irish chapter of this association has been formed.

The scale and cost of games development is already huge and rising. A typical development project now lasts around 18 to 24 months and requires a team of around 20 with a budget of €2-5 million, compared with a budget of a few hundred thousand pounds for a team of a dozen for 6 to 12 months in 1992. (Source: FAS, 2005) This increased cost of development has been largely driven by higher production values. Wireless and iTV games are less complex with correspondingly less upfront development time and investment required. This potentially opens up opportunities for small or early-stage developers. In addition the industry is moving towards a subscription-based model for online games, which should provide a more robust revenue model.

The games market, like its parallels in film and music, has always been hits-driven. However, this has reached new levels with 55% of all sales estimated to be accounted for by just 3% of the titles released in the UK. (Source: CTW) Combined with the rising cost of games development, this has made games production increasingly risky. Developers and especially publishers need to have multiple projects underway in order to mitigate their risks. This need to maintain multiple projects again requires a higher degree of scale than many UK or Irish games developers possess, leaving them exposed to the risks of not creating a winner, or simply avoiding the risk altogether by carrying out work-for-hire for established developers or publishers. It is perhaps interesting to note that for all its perceived value and contribution to the economy, the UK games industry only provides full-time employment to around 6,000 workers at any one time.

(Source: DCMS)

Publishers have historically been the source of funding for games developers and the rising development and distribution costs make small

UK developers more dependent than ever on publisher funding. As with the film industry, discussed above, the games industry is almost entirely dependent on the activities and fortunes of a very select band of publishers, including:

- 3DO 105
- Acclaim
- Activision
- Capcom
- Eidos Interactive
- Electronic Arts
- Infogrames
- Konami
- Microsoft
- Midway
- Namco
- Nintendo
- Sega
- Sony
- Take Two Interactive
- THQ
- Ubi Soft
- Vivendi Universal

As these publishers are taking on the bulk of the risk by providing funding, they typically also take ownership of the intellectual property rights of the game and so, much of the future potential value. Without direct access to the royalty streams from successful games, developers find it harder to fund growth and expansion. Additionally, these same rising industry costs are increasing even successful publishers' need for access to funding.

As with film, it is clear that unless a new game is already under contract to be developed in association with one of the above publishers, it will be virtually impossible to develop the game to market-acceptable standards, never mind the costs of the distribution and advertising processes that must follow.

## 2.0 The Digital Content Industries cont.

However, the industry continues to suffer from a lack of recognition, given its size and value, and understanding, especially within the financial sector and government bodies. This is especially crucial as rising games project sizes and costs mean that UK developers and publishers need to consolidate or scale up to cope but face major obstacles to raising the funds needed to do so. In the UK, the lack of players with global scale, the comparative immaturity of the industry, its highly fragmented nature, and the poorly developed industry-level infrastructure, will all restrict the industry's ability to maintain and improve its competitiveness in the face of global competition.

There is a shortage of senior-level business and management skills of the calibre required to drive companies and the industry through the next stage of development. Consolidation and investment expansion will demand stronger business skills for developing a strong position in the marketplace. Furthermore, the industry will have to improve its approach to general skills recruitment and development, including addressing a lack of role descriptions, career paths and formal entry routes.

The Irish government believes that, as the games sector expands globally, "Ireland can be the centre of choice for games companies." For its part, Sony has acknowledged that Ireland was a big part of the worldwide gaming industry, with PlayStation 2 penetration in the Republic number two in the world, at about 38%, behind only Sony's home market of Japan. But, as most of these games titles and all of the hardware are developed overseas, it is much more likely that the industry sees Ireland as an important hotbed of consumers rather than contributors.

The games industry will continue to be profitable for the very few, and very attractive to the many. But unless local developers can be supported sufficiently to be able to become proficient enough to catch the eye of the few successful publishers, or a new publishing organisation can be established specifically to take locally produced titles to market in direct competition with the established publishers, then again it would appear that there is little or no outlook for a successful or self-sustaining home-spun industry.

### 2.5 Broadband Internet and Mobile Technologies

While the broadband mobile content sector is still in very early stages of development worldwide, broadband content is beginning to emerge. Total European mobile content and service revenues are projected to grow from \$5.6 billion in 2002 to \$44.23 billion in 2005.

*(Source: Netsize Guide)*

In the consumer sector, there are a number of barriers preventing broadband content development today. The limited potential audience and high bandwidth costs make the creation of viable broadband sites extremely difficult. In the small business sector especially, there is still a lack of awareness of the potential benefits of broadband, combined with a lack of appropriate broadband access methods. As access prices fall and adoption levels increase, the market will naturally address many of these barriers and, increasingly, content will become available.

Market adoption of broadband is expected to continue to increase, particularly as broadband access prices erode, which will significantly improve the potential economics of broadband propositions. Subscriptions and micro payments may become more accepted, particularly for the already dominant content providers and publishers. Advertising yields will rise, content acquisition costs are likely to stabilise at sensible levels, bandwidth costs will fall and digital rights management (DRM) solutions will emerge resulting in higher potential revenue levels that will, naturally, encourage content providers to find a way to exploit the new markets.

Increasing the availability of broadband content has been seen as an important method of driving broadband adoption and while services providers, notably BT in the UK, are at last removing geographical barriers to countrywide roll-out, it has been argued that one of the main reasons that more users are not yet adopting broadband is that there is no incentive to do so. There is no attractive broadband content available to create a compelling experience for the user.

Mobile television too, is believed to be a potential future platform of choice, since televisions and

## 2.0 The Digital Content Industries cont.

mobile phones are now found in over 90% of homes across Europe. Mobile digital television allows users to make use of broadcast, broadband, wireless and local area networks allowing relatively cost-effective widespread roll-out and adoption. The Forfás report A Strategy for the Digital Content Industry in Ireland, 2002, identified mobile and wireless as having particular attractiveness as a potential growth sector in both consumer and corporate-based markets.

Mobile phones have an 81% penetration in Ireland, with an average consumer spend of €560 per user. The global market for mobile data services is currently valued at \$55 billion, and the continued rollout of 3G technologies is expected to lead to a rise to \$235 billion by 2010. (Source: Forfás, 2003) The industry in Ireland currently comprises around 60 companies that, between them, employ approximately 4,000 people.

(Source: Forfás, 2003)

In the future, mobile content is likely to be even more social, co-operative and interactive. It will be anywhere, anytime and in a more strongly peer-to-peer fashion than it is today. There is therefore a major market opportunity for a relatively new category of player, the wireless content publisher or 'aggregator', vendors who will identify, obtain, reformat (if needed), and stream content to wireless users working closely with specific operators. It's likely that content aggregators will set up streaming servers within the wireless operators' networks, ensuring that the content is brought as close to subscribers as possible. They will work closely with mobile operators to ensure smooth handling of cell handoffs.

Due to cost and capacity issues, mobile operators are offering games, streaming music and short video clips initially. The content aggregators must therefore make decisions about which content and formats to use so as to be user-friendly to the majority of the current consumer base as well as to be potentially profitable. Cartoons and synthesized music will play a big role at first, as they do not require as much data as digitised music and video. But content aggregators can shape the market by choosing or contracting for the right content for mobile users as the customer base, and their preferred technology, develops.

There seem to be opportunities for software developers to develop the mobile user interface, enhance it, and exploit it with applications that take full advantage of its power. The mobile user interface is likely to make much more use of a variety of input and output techniques than desktop PCs or even stand-alone PDAs. There should also be opportunities for software developers that can make use of not just keypad input and display output, but also voice recognition, handwriting recognition, text-to-speech, and radio locating.

There will also be opportunities for adapting popular desktop applications to mobile environments, as well as making sure that popular mobile applications can be used on as many mobile devices as possible. It is most likely however that the most successful players in these new markets will be the same software developers, publishers and distributors that own the already market-leading desktop titles.

Wireless application service providers (ASPs) will deliver services and client software over the air. Mobile users are more likely to make impulse buys of applications and content, and ASPs could find more success in the 3G wireless market than they have found on the Internet at large so far.

Much of the content consumed by broadband consumers and businesses in the UK and around the world is merely 'broadband-enhanced'. Pure broadband content, such as movies-on-demand or live sports, is not yet generally distributed over broadband to the PC in the UK on a wide scale. Interviews with leading media and entertainment companies suggest that wholesale distribution of this type of content may be at least 18-24 months away. The one exception to this scenario is 'adult' programming, which is rapidly migrating to broadband distribution platforms.

For consumers, the Internet is used for a range of communication, information and entertainment. Broadband content potentially spans every genre. Applications enabling peer-to-peer communication are also widespread: peer-to-peer file sharing accounts for over 50% of all Internet traffic by volume, and video-conferencing is finally showing signs of taking off. Much popular broadband content today is user-generated (e.g. web cams).

## 2.0 The Digital Content Industries cont.

The majority of those telecom operators that have acquired 3G licences, despite (and because of) the high levels of debt burden that they may have as a consequence, are now obliged to work efficiently to ensure that content and applications for 3G are forthcoming. They have to find new 3G content revenue streams to earn a return on their earlier investments. Indeed most mobile providers have already begun to establish content teams (providing new employment opportunities), and many have already acquired rights to specific existing content. As with early broadband Internet strategies, the focus is currently on news and entertainment, with music, games and sports dominating the thinking at this point. Specific examples of rights acquisitions in this sector are Hutchinson's acquisition of the Premier League rights and Vodafone's deal for UK cricket content.

The relative lack of success of Wireless Application Protocol (WAP) services in the UK has led the mobile operators to examine economic models that stimulate content creation specifically for the platform. The example of the media-rich NTT DoCoMo service in Japan, where content creators and mobile operators share revenues, seems to be the favoured model today but is not yet said to be generating significant revenues in comparison with the massive investment and acquisition costs.

As with the broadband Internet, there are several content genres (e.g. health and education) that may not have as much commercial appeal to aggregators as other more obvious genres and may not be developed for several years. The critical point of debate in the mobile arena is whether the UK and Ireland, from a domestic industry skills standpoint, are significantly behind other European countries in terms of mobile applications development to support the content services. Commentators have observed that much of the skill base that mobile operators are employing for 3G applications development is actually imported from Scandinavia, or based on technologies licensed from outside the UK.

### Mobile Games Development

Modern mobile phones are small computers. They have limited processing power by desktop

standards, but enough to run a small game. Although still primarily geared for voice data, they can send and receive other kinds of data as well and this inherent ability to share information offers a unique opportunity to design games wherein players interact with other players, perhaps even on the other side of the world.

In terms of processing power and capabilities, the current generation of Java-enabled phones is close to the second generation of arcade machines, early 1990s home computers, and early handheld game machines. RAM is generally limited, typically 128 KB to 500 KB, although some of the latest phones have as much as 4 MB of memory. They also have, by comparison to PCs, limited input and display capabilities: small screens (many still black and white), keypads optimised for phone dialling rather than text entry, and limited sound handling.

But what these phones lack in raw power they more than make up for in connectivity and sheer installed base. The vast majority of the world's adult population owns a least one mobile phone and Nokia, for instance, expects to ship between 50 million and 100 million Java-enabled, full-colour devices by the end of 2004.

In 2001, the mobile games market already produced around \$400 million in revenues globally (*Source: Frost & Sullivan*) and virtually all analysts state that Asia (primarily Japan and South Korea) is responsible for 80 to 90% of these revenues, with Europe responsible for most of the remainder. (*Source: Datamonitor*) Projections are for global revenue growth to reach €5.7 billion by 2010 (Informa Media Group). Outside Asia, therefore, the market is still relatively small and investment in mobile games should be considered an investment in future growth, rather than a move that is likely to generate large returns in the near term. It is still a tremendous opportunity to establish early market leadership but one that requires enormous investment and a very high degree of accompanying risk.

Mobile game development differs from conventional game development in a number of ways. Conventional PC and console games typically require teams of 12 to 30 people but because most mobile games are less extensive than their console counterparts - mostly due to

## 2.0 The Digital Content Industries cont.

the current limitations on the type of technology common to most of the potential market - they are typically developed by teams of three to five people, and often by lone programmers-designers. Essentially, the limited display capabilities of mobile phones, coupled with limitations on application size, make it difficult to spend the huge amounts devoted to conventional games. Conventional games have budgets in the \$1.5 million to \$5 million range while most of the current range of mobile games is developed on budgets of less than \$100,000.

Conventional games may typically take two to three years to develop while most mobile games are developed in a few months. In other words, with a small team, and a small budget, is possible to develop and deploy a professional quality and market-ready mobile game. For many developers, frustrated by the conditions of the conventional game market, it is one of the mobile game development industry's strongest appeals. Currently, a majority of the games companies in Ireland are producing mobile games as an opportunity to gain skills and market recognition, with a view to moving up to console games development when the company becomes more established.

*(Source: FAS, 2005)*

Also, unlike console-based games development, which requires authorisation and support from console game manufacturers (who use their control to require high 'platform royalties' from game publishers and to control what sorts of games get developed for their hardware) in the world of wireless (as in PC game development), you are free to develop whatever sorts of games you like, without paying Nokia, Sun, or anyone else. Moreover, the standards underlying mobile game development are published, open, and available for review by developers. The exception to this is the current Nokia N-Gage platform which, although in essence is still a mobile phone, has been specifically developed to be able to play sophisticated media-rich games that are purchased and installed in much the same way as existing console-based titles.

The potential audiences for, and therefore the market opportunities of, the burgeoning mobile games industry are staggering. More than a billion mobile phones are in use today, and the number

is growing. In every developed country (except the United States), a higher proportion of the population owns a mobile phone than owns a computer. While currently only a small portion of these phones are currently Java-enabled, and an even smaller number run a sophisticated operating system, the numbers are increasing rapidly, and within a few years, Java (or even console-style C++ enabled) phones will be the norm. The potential user base is larger than the market for any other platform, including the currently ubiquitous Playstation, X-Box and GameBoy.

In the conventional games industry, as above, spiralling budgets are making publishers increasingly conservative about what they'll fund which, of course, is restricting access to development funding for potential local production companies. In wireless gaming, budgets are still relatively low (certainly while the technology base is, for the majority of consumers, limited) and nobody has really figured out yet what types of games are going to do best in this environment, thus maintaining a pioneer-style culture of experimentation and innovation.

But mobile games, like all leisure products are essentially 'hit-driven', meaning that most new games - and therefore the developers and smaller production companies - will almost certainly fail. There is no clear standard model yet in place for the generation and distribution of income and much of the existing development appears to be happening without any form of sustainable payment. Games are often available to consumers, albeit in a limited form, free of charge with the expectation that the player will elect to pay for the full game in due course. Yet analysis shows that the customer is not readily complying - preferring instead to move on to the next free experience!

As with the console games and film markets above, the mobile market's revenue generating potential appears to be firmly in the hands of a very limited number of publishers, aggregators and, uniquely to this market, network providers. Currently keen to encourage developers to submit games (usually without any advance payments or funding) these distributing companies are free to select from an ever-increasing number of titles on offer, although very few of these will ever generate sufficient revenues to invest in the

## 2.0 The Digital Content Industries cont.

developers' next titles and thus sustain their businesses. This situation looks set to continue and, if anything, get worse as the technology base improves requiring more elaborate and costly games development.

The mobile games industry is definitely one where there is a blank page for the UK and Ireland's developers to exploit but, in an as yet immature climate, there will have to be specific funding assistance and, as we have seen in all the digital content sectors so far, particular - and significant - assistance with advertising, distribution and revenue collection.

### 2.6 Music

Like most of the other creative industries music does not slot easily into an industrial classification. It encompasses composition, publishing, musical instruments (and related equipment), performance, recording and manufacturing, retailing and distribution, and education. However, any review of the state of digital music must be seen against the backdrop of the state of the music industry in general.

Worldwide, music sales are reported to be down some 15-20% (Source: National Music Publishers Association). Only 10% of all albums released sell in excess of 1,000 units and the most popular source of music listening (in hours) is neither radio nor CD - but games! (Source: Peter Spellman) But the music industry is changing and, in adopting new digital distribution technologies, including the Internet and mobile data networks, it is beginning to show signs of new growth after years of difficulty.

Globally, the music industry was worth \$32 billion in 2003 equating to unit sales of 2.7 billion.

(Source: IFPI)

According to the Department for Culture, Media and Sport (DCMS) the music sector as a whole (including the visual and performing arts) contributed \$5 billion to the UK economy in 2001 and had an export worth of \$462.1 million. Of all of the creative industries it has the second highest number of VAT registered businesses at 32,300 (in 2002). As an indicator of the number of enterprises involved, the next highest number of businesses was 10,100 in advertising.

The UK music industry contributes around 15% of the global market value, and music activities generate the equivalent of 126,000 full-time jobs in the UK. Britain has an enviable music export record with annual net earnings in excess of £435 million. Within music publishing, the UK has the fourth largest music publishing market in the world with a 9.8 % share of international revenues arising from any monies payable for a piece of music be it for buying sheet music, playing a piece of music in a shop or using music in a film or television programme.

(Source: National Music Council)

Ireland is the twenty-ninth largest international market for music, worth some €478.4 million to the economy. Of this, €268 million, or 56%, represents the earned income of recording artists who have earnings from record sales as well as live performances, while a further €144.6 million, or 30.3%, is due to the activities of performance artists. The balance of €65.8 million or 13.7% represents the added value of the support sector.

(Source: Music Board of Ireland)

The industry in Ireland supports over 8,000 jobs annually and it is claimed that there are over 1,000 musicians or groups performing in Dublin's music scene alone, at any one time.

(Source: Enterprise Ireland)

It is crucial though to appreciate that, of the total income generated by the UK and Irish music industries, 95% is earned by the top 20 selling artists only (Source: Music Board of Ireland), a figure common to both regions. The vast majority of participants therefore are sharing only a very tiny piece of the pie. Employment is therefore particularly difficult to measure in the context of the music industry because most participants have a peripheral involvement in the commercial success of the industry, only working commercially on an intermittent or seasonal basis. For example, local musicians may find a market playing for the tourist trade in the summer months, but may be inactive for the rest of the year. Similarly, young musicians may have a day job while performing occasionally in their leisure hours and then only sometimes on a commercial basis.

## 2.0 The Digital Content Industries cont.

Record companies are currently the most dominant force in the music industry; they not only provide financial backing, but also control the marketing and distribution channels. There are now only four major record companies that dominate the worldwide music industry: EMI, Sony BMG, Vivendi Universal, and AOL Time Warner. They account for almost 75% of the recorded music industry. Continual consolidation of the industry is increasing the dominance of these players, giving them even more power with which to determine the industry's direction.

The most serious impact on the music industry currently (a trend shared by most of the content creation sectors) is the increase in piracy and the resulting affect on sales. The industry is facing a serious structural shift, which will challenge the record companies to either adapt or reduce their operations in order to maintain profitability. According to independent research, album prices have continued their downward trend over recent years with latest figures showing that almost half of all CD albums now retail for under £10 and the total numbers of sales is decreasing.

This is of course changing with the effects of digitization and new distribution channels becoming ubiquitous. The number of legal music downloads now exceeds singles sales on all other formats (Source: Irish Independent) and the number of titles available for download doubled to around 1,000,000 in 2004. (Source: IFPI) Indeed, it is predicted that digital music sales could rise to as much as 25% of all music markets within the next five years.

*(Source: Jupiter Research)*

Copyright laws worldwide are gradually improving, online and offline; seizures of pirate product are sharply up, reflecting not only the problem but also the industry's heightened response to it. Hundreds of millions of unauthorised music files have been removed from the Internet. Major record labels are beginning to realise that litigation is not necessarily a winning strategy against online piracy and the key is to make it easier and more valuable for consumers to buy music legitimately than obtain it from illegal file-sharing web sites.

Again, though, any hope of economically sustainable participation in the music industry seems to depend on an artist's ability to be represented and exploited in the market by what is a very small group of distribution companies. There is little or no evidence that the industries in Ireland (and Northern Ireland specifically) are in a particularly strong position to improve their chances in this regard.

## 3.0 Emerging Technologies

It is important when analysing the current and future trends affecting the digital content industries, to be aware of any major developments in new or emerging technologies. All of the topics covered previously in this report have at some time in the recent past been identified as being the result of developing technologies or major market interest.

It is interesting therefore to compare the current observations, from analysts and tipsters alike, with previous studies. It is immediately clear that digital media content no longer seems to be stimulating the same interest levels as before. This may be due in part to a feeling that there is already a degree of market saturation in areas that have proven to be successful and also a glut of entertainment-based technologies that - while rolling out and generating huge levels of expectation - have largely yet to prove long-term, sustainable profitability.

It is true also that the much heralded and wished for global economic recovery of the last year has recently shown signs of potential weakness. Thoughts are turning to new technologies that will bring revolutionary benefits to more essential areas of society e.g. medicine, security and energy, rather than new ways to entertain and compete for the already stretched disposable income of the developed world's consumers.

With regard to the creative industries in general, some analysts think that new generation home cinema hardware will become increasingly commonplace, providing an increased challenge to some current cinema models. Film and video distribution to viewing spaces of less than five hundred seats is becoming more common in South America and eastern Europe. Home set-tops capable of delivering pay-per-view back-catalogue movies, access to an Internet service provider and other audio-visual services are already commonplace but are not yet showing signs of stimulating the production of new, financially sustainable, content.

New technology presents both a challenge and an opportunity for digital content developers. Those who can recognise the opportunities early will often develop new competitive advantages. Adoption should, however, be based on clear customer and market-focused research rather than take place in a vacuum or be based solely on assumptions. New opportunities might be found outside current, comfortable niche markets but the potential impact of any proposed product diversification should be fully understood and planned for.

The Internet was an obvious example of technology enablement for new and existing markets, resulting in an explosion of online services in a wide variety of sectors, e.g. banking, travel, healthcare and retail shopping. Maturing wireless and mobile communications will mean that these and other products and services, including crime prevention, flexible working etc., will increasingly become web-enabled. All of these provide opportunities for the digital content industries, although designers and developers need to ensure that they concentrate on providing people-centred solutions and not gimmicks that simply justify the capability.

### High Definition Television

The ability to receive and record high definition (HD) content at home will turn into a mass consumer market reality through 2006 and beyond. A surge in the availability of HDTV sets and recordable players, including the Sony Blu-Ray disc, its HD-DVD counterpart and HD personal video recorders, together with falling prices, will lead to a massive requirement for new high definition television, film and games content.

The current format competition between manufacturers is proving a bit of a roadblock to market acceptability and ongoing issues regarding copy protection and the influence of video on demand are restricting the availability of existing content. However, new HD satellite broadcasting, including the forthcoming transmission of the 2006 World Cup and the BBC and ITV plans to provide a new 'FreeSat' HD-ready non-subscription satellite broadcasting service in 2006, should lead to ubiquitous adoption in the near future.

## 3.0 Emerging Technologies cont.

### DIY Content Creation

The explosion of digital cameras, camcorders, audio players, software and printers, along with other digital imaging and recording devices has created an entirely new segment of enthusiastic consumers keen to create and share more of their own home-grown content. The market for these technologies is, at \$14 billion worldwide, worth over one third of the total sector and is set to continue to rise.

*(Source: Consumer Electronics Association)*

While on the one hand a competitive threat to established 'professional' content producers, these new technologies will lead ultimately to increased adoption of digital content generally and should provide a greater appreciation of commercial quality standards, thereby increasing industry revenues.

### Electronic Gaming

Electronic gaming is already a dynamic and highly lucrative component of the consumer electronics world, as previously discussed. The next generation consoles from Microsoft, Sony and Nintendo will serve as the cornerstone for home entertainment by incorporating HD video playback, on-demand online gameplay, and connectivity for DIY content creators, as described above.

Mobile gaming too, as we have seen, will continue to grow enormously, fuelled by the development of new more powerful handsets and innovative display screens. These will increasingly adopt other innovative technologies for portable devices, such as hydrogen fuel cells to replace batteries, RFID chips and nanotechnology.

All of this will require additional production of digital content for games and other mobile content, particularly film, animation, music and interactive gameplay. Although there are well documented barriers to Ireland's current participation in these markets, they are all undoubtedly opportunities for the future.

Other technologies or content-related issues being widely debated include digital rights management, digital content management, content distribution, digitisation, smart cards and kiosk applications. Some of these will be discussed in the following section.

## 4.0 Market Trends and Issues

### 4.1 Publishing and Distribution

Distribution is the exciting, dynamic, competitive business of launching and sustaining music, software, films etc. The digital content industries are product-driven but how do people get to know about the range of new products or services on release? The distributors' task is to connect the product with the public, to draw the widest possible audience to each individual title and to realise the full potential of the developers' work.

In the film industry, performance in the distribution sector remains highly polarised, with the top eight companies accounting for over 95% of box office earnings - a picture that is mirrored across the music and leisure software sectors also.

The games industry is composed of two distinct and potentially fragile components: a small base of UK-owned publishers (eight and potentially shrinking) competing in an increasingly global and consolidated market dominated by US, Japanese and French giants, many more than five times the size of the UK firms and often in acquisitive mood.

Clearly there are too few distributors, publishers or aggregators to be able to satisfy the needs of all of the actual or potential developers to competitively bring their works to market - a market that is already saturated with too much product and where only a tiny proportion can ever be sustainable.

Self-marketing and publishing for content developers is not an option either. The cost of advertising on UK or Irish television, which may run into many hundreds of thousands of pounds or more for a package of spots in all regions, is usually prohibitive for most products, given their potential returns. Few campaigns use only TV, but rather a range of media, as distributors strive to get their message to as much of the target audience as possible, as many times as possible.

The local digital content production industries appear to have to either compete for this insufficient and diminishing resource or hope that a new form of commercial publishing and distribution support mechanism can be created to serve their particular interests, in competition with the established giants of the industry. As the biggest global players, such as Microsoft, increasingly move to become part of the content industry, it is likely that the industry will see further mergers and rationalisation. The pyramid will become steeper with even fewer small to medium sized enterprises at the base.

### 4.2 Generating Sustainable Revenues

E-business has established itself as the marketplace of the future. Consumer demand for digital content, with its lower costs, round the clock convenience, and global accessibility, is expected to bring the market for online books, magazines, music, software, and games to \$275 billion by 2003. (Source: Forrester Research) However, many content providers, including publishers, music companies, and software and game producers have reservations about the market. They worry that, if placed on the Internet, their digital content will be used, duplicated, and distributed without authorisation and compensation, or that more traditionally profitable distribution channels may be cannibalised in the search for sustainable e-business.

There are a number of other economic barriers that may prevent the profitable development of a viable broadband content industry in the UK and Ireland. On the revenue side, providers face customer resistance towards paying for most types of content, either via subscriptions or micro payments, whilst sufficient advertising revenues are difficult to obtain.

Currently, the strongest Internet industry trend is 'free to fee', with content-based web sites rushing to try to charge users for content. (Source: Outing, 2002) Advertising isn't paying the bills so many are attempting to add price tags to some or all of their content and services. In part this is healthy; most content sites cannot sustain themselves for long by giving it away and expecting sufficient advertisers to foot the bill. Without the move to paid content, many excellent sources of news, information and entertainment will disappear over time.

## 4.0 Market Trends and Issues cont.

The trend of 'free to fee' should make content networks more of a viable strategy. But, as more publishers switch to paid content, there will be incredible competition for consumers' money. With only so much money available and little willingness to pay for online content in a wildly growing pool of content that can no longer be accessed for free, there is likely to be a serious supply and demand imbalance.

If appropriate business models are not found, digital content services will not be found. Business models should reward all players in the knowledge chain, from the developer to the publisher and the distributor. Digital technologies have transformed the copyright environment and given rise to a potentially huge market for intellectual content but consumers are reluctant to pay for the property. The market has to be convinced that high quality content must eventually be paid for and that protecting intellectual property creates value added for consumers also.

One challenge is to ensure that Irish companies design, create and publish new media products based on either original content or by adding value to existing products, harnessing the new opportunities for publishing and distribution to bypass existing industry bottlenecks to develop successful new business models that maximise sustainable earnings. (Source: FAS, 2005)

### 4.3 Piracy and Digital Rights Management

One of the digital content industries' most pressing concerns currently is piracy. As production, delivery and consumption through digital technologies become universal, opportunities for piracy multiply across the value-chain. The industry is trying desperately to safeguard copyright and maximise the impact and profitability of its release schedules without diminishing ease of access to product and customised delivery options for the consumer. It needs to re-educate the public into paying for new digital products while much of the consumer audience continues to believe that all digital delivery should be free.

As downloading speeds and home DVD-writer usage both continue to accelerate, the threat from piracy via these digital techniques rises too. In 2003 there were 70.8 million broadband households worldwide. That means hundreds of millions of consumers who can download from the Internet, have equipment that can play or trade music MP3s, or copy CDs and DVDs. (Source: Molter) Between 50% and 80% of adults reportedly believe it is legal to make backup copies of music and games CDs and video DVDs, and share them with their friends.

(Source: Boynton, R)

The UK's Federation Against Copyright Theft (FACT) estimated that the value of the pirated video sector in the UK alone in 2002 was over £950 million - assuming it had intercepted 1% of all the pirated copies in circulation!

As well as cheating consumers of the full viewing experience and diminishing future investment in the industry, pirated versions of music, films software and games are thought to be feeding organised crime. The relatively high returns and low risks associated with DVD piracy apparently make it an attractive proposition for criminal organisations and gangs who use it to launder cash and fund other activities. Today, there is hard evidence from across the UK that the people behind the sale of pirate DVDs are also connected to drug dealing, people smuggling and even terrorism.

It is also well known that terrorist groups use DVD piracy to fund their activities. For example, the Organised Crime Task Force in Northern Ireland reports: "Paramilitary gangs carry out 80% of organised intellectual property crime in Northern Ireland. Both loyalist and Republican gangs are equally involved." Of all pirate and counterfeit products seized in Northern Ireland, pirate DVDs form the largest product type. Interpol too highlights the connection between counterfeiting and terrorism warning that the link between organised crime groups and counterfeit goods is well established, but that intellectual property crime is becoming the preferred method of funding for a number of terrorist groups.

In the UK, there is already a raft of legislation attempting to protect copyright and protect

## 4.0 Market Trends and Issues cont.

against intellectual property theft: the Forgery & Counterfeiting Act 1981; the Video Recordings Act 1984; the Copyright, Designs & Patents Act 1988; the Trade Marks Act 1994; and others.

It is unlikely, though, that legislation and the limited resources of the law enforcement agencies will provide the complete answer. Ultimately there will have to be a massive shift in the consumers' mindset towards respecting copyright and the developers' right to their intellectual property and its commercial exploitation. Currently a number of the digital publishing companies are looking at trying entirely new distribution methods. These include making the product free at point of use but wholly sponsored, or charging the consumer elsewhere or in other ways, but the major weapon in this particular war seems to be the development and potential of digital rights management technologies.

### Digital Rights Management

Major established technology companies, such as Intel and Microsoft, are now aggressively pushing digital rights management (DRM) as the solution to piracy and theft of digital content. These DRM techniques allow content creators and media companies to distribute copyrighted digital works that would be protected from hackers and pirates, yet remain accessible to consumers' fair use copying. Already, technology advances have produced anti-copying schemes (much to the consumers' surprise) on some audio CDs to prevent users from duplicating music onto computers.

DRM systems can provide a variety of features including:

- encryption of content with built-in e-business cash registers;
- plug-ins that end-users must download to have access to content;
- keys to unlock encryption for which end-users must pay money or provide an e-mail address;
- access in exchange for personal information from end-users;
- watermarking of video products;
- pay-per-view formats;
- discounts for regular customers;
- free previews;
- authorisation verification;
- usage tracking;
- subscription capabilities;
- print and copy restrictions;
- time limits on access; and
- control of content sharing.

Unsurprisingly, the worldwide DRM market is expected to rise steadily, reaching approximately \$3.57 billion by 2005. The tremendous growth expected from DRM will be driven by four primary market drivers: the demand for intellectual property protection, new revenue opportunities, the protection of privacy and confidentiality, and competing standards.

Scepticism abounds about the effectiveness of DRM however, as well as criticism of the restrictions it will place on end-users. DRM technologies may seem to be good news for all digital content owners but the inevitable consequence of the implementation of DRM technologies is inconvenience and needless restrictions for users of digital media.

*(Source: Amis, 2001)*

## 5.0 Challenges and Opportunities

Keeping ahead of challenges and taking advantage of opportunities is a highly strategic process requiring constant development of tactics to react to changes in customers' needs and preferences, the market economy, new technologies and actions of competitors. Markets can often change, almost imperceptibly, until a company suddenly finds that it no longer understands what their customers want and that they have moved on.

The answer is to adopt a formal, marketing-lead, research planning and development process based on robust and detailed market research, trends analysis and new product development - all of which keeps the company in touch with market developments and customer preferences to trigger innovation and potential opportunities.

A business may find that it has gone as far as it can in a particular sector or that the customer base has changed but, by gathering information to better understand the anticipated market dynamics, by becoming "more aware of the past, the future and everything in-between" (Tom Dixon, Habitat) companies can identify a need that isn't being met elsewhere and begin to create something new, original and valuable.

Marketing planning is essentially common sense but will almost always present significant challenges of the small business. Limited human and financial resources implicit in SME's place practical constraints on the activity that can (or should) be carried out. Planning and a structured strategic approach is essential, however, as without it will be impossible to understand where you are currently, where you want (or need) to be and - perhaps most importantly - how to get there.

It is important, firstly, to understand current strengths and weaknesses and, in addressing these, optimise all available resources to maximise strengths and create new market opportunities. This capability analysis should include in depth analysis of both the wider economic, political and

technological environments and the narrower, more immediate competitive factors such as customer availability, production and distribution methods and (of course) the actions of other competitor companies; their range of services, quality levels, pricing structures etc.

Once the nature of the market is more fully understood, and the company's place within it, it is crucial to understand your objectives, e.g. what exactly do you hope to achieve; market share, increased profitability, export customers etc. Until the company's objectives are recognised and accepted it will be impossible to create and deliver a strategic course of action.

There is a tendency amongst SME's to adopt only short-term, ad-hoc planning which will lead ultimately to an expensive, reactive and wasteful 'firefighting' culture. In order to avoid the pitfalls of 'short-termism' it is crucial to ensure that the response to the identified market conditions is appropriate to and consistent with the objectives for the longer term.

Another frequent mistake made by smaller companies is to try to provide too many new products and services to too many diverse customers and segments. This will almost certainly fail because the resources available are simply insufficient for the task and will instead be spread far too thinly to be effective. It is vital therefore to be able to target a particular market segment based on research to identify which group of customers have needs that can be best addressed by your capabilities. Not all customer segments will have similar needs and focusing on a particular market niche can be a particularly appropriate and successful strategy for small businesses with limited resources.

Alternatively, it might be better to be able to concentrate on a particular service or product offering - developing a reputation as a specialist in a single area that might in turn be attractive to the wider market. Small businesses can quickly develop strong credibility as a perceived specialist, based on very a deep knowledge and expertise of the chosen discipline. The disadvantage however is that the specialist offering might only be of interest to a limited market segment and that there simply isn't enough business available to sustain the company and it would be essential to

## 5.0 Challenges and Opportunities cont.

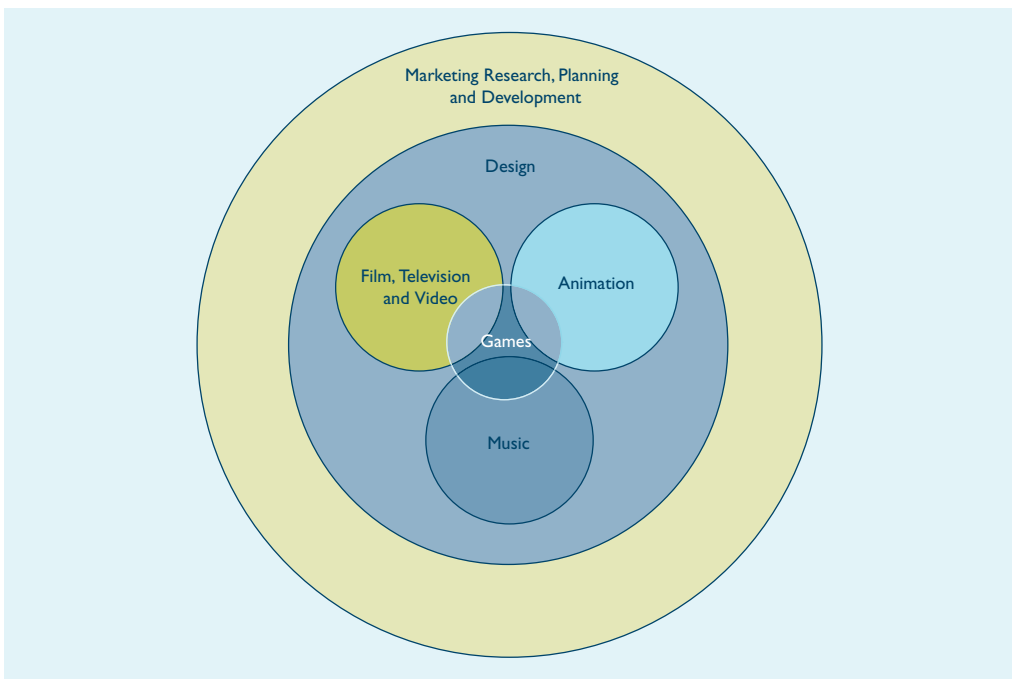
continually monitor the market environments to be able to react quickly to any other possibilities if required in a hurry!

It is important too, that small companies adopt lower risk strategies, again due to the minimal resources that might be available. These might include:

- Avoiding moving into new markets, customer segments, products etc too rapidly
- Trying to increase the customer base from appropriate and realistic market segments
- Focusing on the development of relationships with existing, profitable customers to ensure:
  - Least-expensive new business development
  - Reduced costs of account servicing

- Increased profitability through customer loyalty
- Potential for referral-based new business and customer advocacy
- Satisfaction through innovation, i.e. continually checking the changing needs of the customers and modifying the products and services to fulfil these changing needs

Satisfying customers is at the heart of a marketing approach to business development and adopting a more formal research, planning and development strategy will undoubtedly lead to the identification of new, realistic and profitable opportunities through anticipating, understanding and satisfying those customers' needs in the longer term.



### 5.1 Integrated Relationships between the Digital Content Industries

In the absence of sufficient sustainable activity in Ireland in each of the specific sectors for all potential providers, it will be necessary for producers

of digital content to identify those other markets where there may be a need, if only in part, for a realistic contribution. In order to be able to anticipate these opportunities, particularly for SME's and individual contractors, it is useful to be able to understand the integrated relationships that exist between the separate disciplines.

## 5.0 Challenges and Opportunities cont.

### Marketing Research, Planning & Development

This function is essential to each of the individual content sectors and opportunities exist for practitioners throughout the industry.

### Design

Once again, design is an important requirement for all types of digital content and designers should be able to identify multiple opportunities in both the Visual Communications and Product Development markets.

#### Visual Communications:

- Brand identity design
- Product packaging
- Corporate literature; brochures, annual reports etc
- Training, e-learning materials (including interactive multimedia) etc
- Web site design
- Advertising; print, television, web banners, cinema etc
- Direct marketing; email, SMS text, flyers, competitions etc
- Sales promotions, point of sale (POS) etc

#### Digital Content Product Development:

- Television programme production
- Film production
- Animation production
- Games design
- Packaging design (CD, DVD, Games etc)

### Film, Television & Video

While more specialised than design, and therefore more limited, there are still many opportunities for film and video producers in Ireland.

#### Visual Communications:

- Television advertising
- Corporate video production
- Training videos
- Executive media training

#### Digital Content Product Development:

- Film production
- Short film production
- Television programme production
- Animation post production
- Mobile content production
- Games production

### Animation

Opportunities for animation developers are broadly similar to those of the film, television and video sector, although the demand for animated content (perhaps due in part to the higher cost of production) is usually less than that for 'live action' footage. Animation is, however, especially necessary for games development and the same 2D and 3D modelling and animation skills, essential to programme and games markets, are always in demand for corporate visual communications solutions.

#### Visual Communications:

- Television advertising
- Corporate video production
- Training videos
- Technical drawing for design and print
- Architectural developments design and marketing
- Flash-based web site development
- Web banner advertising

## 5.0 Challenges and Opportunities cont.

### Digital Content Product Development:

- Film and television production
  - Animated features
  - Animation-based shorts
  - CGI effects production
  - Titles
- Mobile content production
- Games production

### Music & Audio

Music and audio production skills are not solely limited to the creation of original titles for commercial CD release and opportunities for producers exist across the industry.

### Marketing Communications:

- Television advertising
- Radio advertising, jingles etc
- Corporate videos
- Training & e-learning

### Digital Content Product Development:

- Music production (CDs etc)
- Television programme production
- Film production
- Games production

### Games

The Games development sector is especially limited in Ireland at present, due mostly to the prohibitive cost of commercial development and the absence of any strong publishing and distribution presence. However, while the requirements for live action, animation and audio content development have been examined above, the additional (and especially strong) capabilities of specialist games programmers might be of value to the wider software development and services industry.

## 5.0 Challenges and Opportunities cont.

### 5.2 Digital Content Industries' Routes to Market

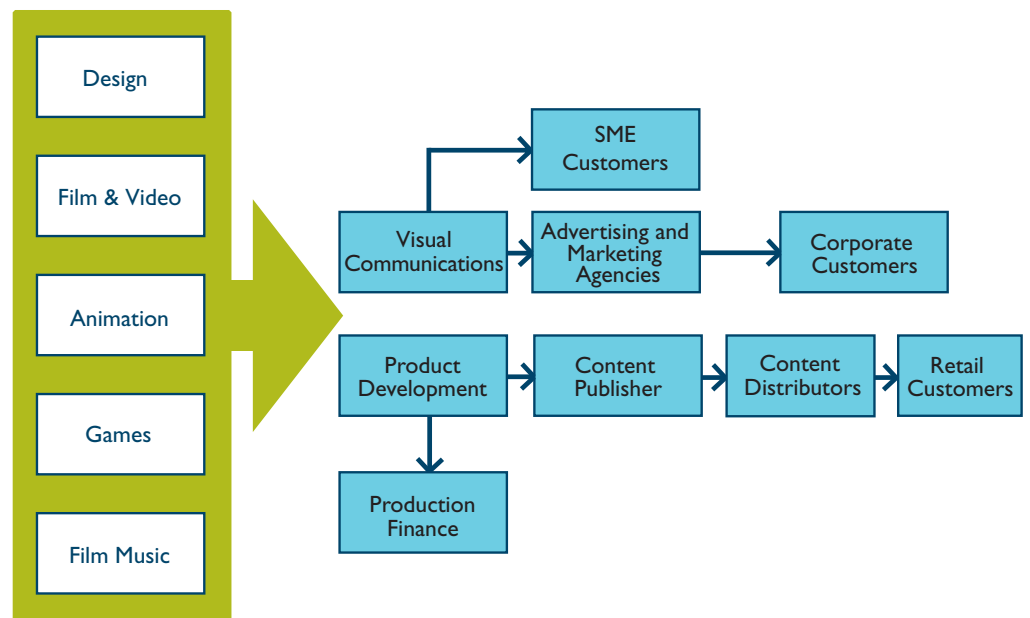
As this report has identified there are 2 clear routes to economic activity in Ireland for Digital Content producers:

- Digital Content Product Development
- Visual Communications, production and services

The markets for product development have been examined in depth and, while currently providing employment for many thousands of people in Ireland, all are experiencing issues with oversupply in the creative workforce, undersupply in some of the more business-related disciplines and difficulties in achieving growth generally - especially in respect of the development of product for export markets.

The main obstacles to growth in the product development markets would appear to lay with difficulties in obtaining development finance and the relative lack of both publishing and distribution services available to indigenous content producers.

The markets for visual communications however - including corporate marketing, advertising, training etc - are both mature and viable although these too are extremely competitive and potentially over-resourced already. There are however always opportunities for producers that are able to demonstrate unique competitive advantages through product innovation, service quality and added value.



## 5.0 Challenges and Opportunities cont.

### 5.3 Marketing Communications Expenditure in Ireland by Product Group

In order to be able to identify the best opportunities for content production, in all disciplines, specifically in respect of applications for corporate marketing communications, the following table demonstrates the typical breakdown of investment by different industry categories in these products and services:

Category	Spend	Euro (m)	Proportion of Market
1	Retail Outlets	171.3	12.5%
2	Construction / Property	122.0	8.9%
3	Telecommunications	101.7	7.4%
4	Beverages	75.6	5.5%
5	Recruitment	75.1	5.5%
6	Entertainment	72.9	5.3%
7	Food	60.0	4.4%
8	Health / Personal Hygiene	56.1	4.1%
9	Banks / Finance Houses / Building Societies	54.6	4.0%
10	Motor Trade	51.0	3.7%
11	Tourism / Transport	35.4	2.6%
12	Media	30.1	2.2%
13	Household Equipment / Furnishings	21.0	1.5%
14	Household Dry Goods	20.6	1.5%
15	Leisure / Sports Equipment	16.0	1.2%
16	Dept. Environment, Heritage & Local Government	14.3	1.0%
17	Commerce	13.0	1.0%
18	Charities	11.3	0.8%
19	Computers / Printers	10.6	0.8%
20	Agriculture & Gardening Products	8.6	0.6%
21	Educational Courses	8.1	0.6%
22	Leisure Activities	7.5	0.6%
23	Dept. Health & Children	7.3	0.5%
24	State Agencies / Semi-States	6.9	0.5%

## 5.0 Challenges and Opportunities cont.

Category	Spend	Euro (m)	Proportion of Market
25	Clothing / Footwear	5.4	0.4%
26	Domestic / Industrial Fuel	5.0	0.4%
27	Babycare	4.6	0.3%
28	Dept. Tanaiste, Enterprise, Trade & Employment	4.6	0.3%
29	Dept. Agriculture & Food	1.5	0.1%
30	Authorities / Commissions / Councils	1.5	0.1%
31	Revenue Commissioners	1.1	0.1%
32	Energy / Environment	1.0	0.1%
33	Dept. Community, Rural & Gaeltacht	0.8	0.1%
34	Dept. Arts, Sports & Tourism	0.7	0.1%
35	Northern Ireland Government	0.6	0.0%
36	Dept. Finance	0.5	0.0%
37	Dept. Communications, Marine & Natural Resources	0.5	0.0%
38	Dept. Education & Science	0.5	0.0%
39	Office Equipment	0.4	0.0%
40	Dept. Social & Family Affairs	0.4	0.0%
41	Dept. Justice, Equality & Law Reform	0.4	0.0%
42	European Union	0.4	0.0%
43	Dept. Foreign Affairs	0.2	0.0%
44	Dept. Transport	0.2	0.0%
45	Dept. Defence	0.1	0.0%
46	Chamber Of Commerce	0.1	0.0%
47	UK Government	0.0	0.0%
48	Dept. Taoiseach	0.0	0.0%
	<b>Unclassified</b>	<b>289.8</b>	<b>21.1%</b>
	<b>Total</b>	<b>1,371.2</b>	<b>100%</b>

Source: IAPI BASE/AdSpend 2004

## 6.0 Conclusion

Digital media content has become part of everybody's lives: TV, film, radio, the Internet and mobile phones are used in hundreds of millions of European households allowing users to manipulate and interact with multimedia in increasingly flexible ways.

In the content creation industries, technologies are developed to support the creation of new, compelling forms of content for interactive, creative or artistic consumption. The emphasis is on creativity and design, intuitive tools and visionary methods.

Maximising the exploitation of digital technologies is a key opportunity for the UK and Ireland to enhance their position within Europe and the global digital economy, encourage inclusion and diversity and enhance active citizenship through digital technologies.

However, in a market which is by nature global, with very low geographic barriers to supply, natural market evolution strongly favours the provision of mass market consumer content by large, international media companies who are cheaply re-purposing existing content and exploiting customer acquisition channels within a vertically integrated business model. There is concern that the presence and dominance of these large and powerful global companies reduces the opportunity for strong local skills to be developed - the very same skills that are required by our local economies to be essential export earners in the future!

Today, UK companies are turning to the US, Israel and northern Europe for key technologies and applications for PC, TV and mobile devices. Much of this content is being developed for larger, more highly penetrated markets and will eventually be exported to the UK - resulting in a growing local skills gap in content development, affecting long-term competitiveness.

Locally, the lack of players with global scale, the comparative immaturity of the industry, its highly fragmented nature and the poorly developed,

industry-level, commercial infrastructure will all restrict the content industries' ability to develop and improve their competitiveness in the face of global competition.

These issues are not, however, restricted to the UK and Ireland. In the US in 2004, many content production companies and studios are wrestling with increasing competition and tight cash flow. It's important to realise there is a significant difference between the handful of big, high profile studios, whose production pipeline is fully spoken for well into 2005, and the rest of the industry.

### The Future

There are, of course, changes afoot and things that can be done. Much of the potential value in games software resides in the ownership and exploitation of intellectual property rights. Typically, due to the publisher-funded development approach, these rights reside with publishers and if the UK and Irish content industries are to share in the value of intellectual property rights they must develop a model where developers can share in these rights. This model must be acceptable to publishers, developers and the financiers that must support the intellectual property rights acquisition.

In any successful industry, distribution pulls production behind it but public policy and the financial support provided by local governments in the past have always largely focussed on production and training. Locally developed content will have to be assisted in its journey from the studio to the consumer by being made more attractive and accessible to the all-powerful publishing and distribution companies. Alternatively, locally we can look to develop an alternative publishing, promotion and distribution mechanism to bring our work to market.

Subscriptions and micro payments will undoubtedly become more accepted, particularly for dominant content providers and aggregators. Advertising yields may rise, content acquisition costs are likely to stabilise at sensible levels, bandwidth costs will fall and

## 6.0 Conclusion cont.

DRM solutions will emerge, resulting in higher revenue levels being made available to digital content creators as a more accurate reward for the quality of their work. This will ultimately allow our digital media content companies to grow sustainably.

Previous reports into the digital content industries in Ireland have been encouraging, although perhaps optimistically so. The sector is attractive and success should be achievable but, bearing in mind the levels of international competition and local economic uncertainties it is perhaps unlikely that any significant growth will take place before the latter part of the decade.

*(Source: FAS, 2005)*

In particular, the digital content industries in Ireland will have to address the issue of skills, at both higher levels and in smaller companies, to enable greater innovation, technical knowledge and business-related awareness. The industry will also have to adopt more formal R&D practices as part of a structured marketing planning process to better anticipate and prepare for the many opportunities that lie ahead.

## 7.0 Acknowledgements

The statistical information and analysis used in the compilation of this report was accessed from the following sources:

- ABC News
- British Broadcasting Corporation (BBC)
- British Design Initiative
- British Phonographic Industry (BPI)
- British Video Association
- CAVIAR
- Centre for European & Eurasian Studies
- Computer Trade Weekly (CTW)
- Datamonitor
- Design Ireland
- Department for Culture, Media & Sport (DCMS)
- Department for Trade & Industry (DTI)
- Dr Aphra Kerr (STEM)
- Dr Terry J van der Werff, MIT
- Enterprise Ireland
- Euromonitor
- FAS
- Federation Against Copyright Theft (FACT)
- FDA Yearbook
- Film Distributors Association (FDA)
- Forfás
- Forrester Research
- Frost & Sullivan
- IBM Global Services
- IDA
- Independent Television Commission (ITC)
- Industry Trust for IP Awareness
- Informa Media
- IRMA
- Mark Thompson (Director General, BBC)
- Mediawatch
- Motion Picture Association of America
- Music Board of Ireland
- National Music Council
- National Music Publishers Association
- Nielsen EDI
- Nielsen MMS
- Nokia
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- Spectrum
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- Technology Review
- The Schosteck Group
- Trendwatch
- UK Federation Against Copyright Theft (FACT)
- UK Film Council (UKFC)
- UKFC Research & Statistics Unit
- W2 Forum

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