Raise the Game

The competitiveness of the UK's games development sector and the impact of governmental support in other countries

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Executive Summary

This report, commissioned by NESTA from Games Investor Consulting, assesses the competitiveness of the UK's games studio sector in an international context. The report profiles the games development sectors of the UK, Canada, France and Germany, with a particular focus on policy measures from national and regional governments, identifying challenges and opportunities that have emerged as a consequence of the evolution of video game markets and technology.

Key findings

This report shows that in spite of its high levels of technical and creative skills and its continued production of world-class games, the UK games studio sector faces important structural weaknesses. They include a lack of global scale publishers, limited access to finance and skill shortages. These factors constrain the UK's capacity to generate new games ideas and innovative genres. UK developers are very talented and at the technological cutting edge, but many independent studios have to rely on third party licenses to survive. The revenue flows generated with this business model are insufficient to develop original ideas.

This situation will be difficult to sustain as the industry becomes more globalised. Creativity and innovation are where UK studios have always excelled, but these two sources of competitive advantage are being severely tested by the aforementioned constraints. It is unclear how well UK studios will be able to compete with cheaper overseas developers who are improving the quality of their output.

The situation is worsened by international competition from countries, such as Canada, where developers receive government support. Generous subsidies make it increasingly tempting for studios (particularly those owned by publishers) and developers to relocate there. This has initiated a process of decline in the UK's studio sector that is projected to intensify in the coming years, unless the sector receives more support from government.

But support needs to be properly targeted. Our analysis of those countries that have implemented policies to support the video game sector shows variable results. Some Canadian provinces have implemented generous support policies that have accelerated its studios to world-class status in a very short time. However, France found that some initiatives exacerbated problems around the French studio sector's inability to create commercially viable products. While tax incentives have been very effective in encouraging investment into Quebec, they have not been targeted at the creation of new intellectual property by Canadian-owned studios, whose original ideas remain weak. All these questions need to be taken into consideration when assessing which potential policy initiatives should be adopted to support UK studios.

Yet immediate action is needed. Video games have achieved a mass medium status, with new genres, hardware and modes of playing contributing to a rapidly expanding global market. At the same time, globalisation has created a uniquely competitive and uneven commercial landscape for video games where UK developers face serious challenges. Studios, government support agencies and universities all have a role to play in helping overcome these barriers, so that the UK sector remains at the forefront of creativity, innovation and growth in video game development.

Country profiles and policy support

There has been an 8% growth in staff working in the UK's studio sector since 2006. But numbers are now falling from a peak of 9,860 following studio closures, relocation and downsizing. This trend is expected to accelerate.

UK studios are projected to spend £450m in development in 2008, retaking third position in the global sales rankings on account of the success of one blockbuster video game, after having been overtaken by Canada in 2006 However, the UK development sector will fall to 5th position in 2009, overtaken first by Korea and Canada, and then China. This decline is tied to shortages in skills, high costs of development, lack of access to finance, limited capabilities in online development and limited government support.

In spite of this, the UK has developed a world-class games development sector which has survived consolidation and industry down-cycles. Yet even at the peak of the current cycle, the UK's studio sector started to shed jobs and faces barriers to the creation of new ideas – Intellectual Property - the engine of the industry.

Meanwhile, Canada's development headcount has grown by 42% since 2006 to 10,500 employees, with Canadian studios spending £400m in 2008, and the country set to reach fourth place in global sales rankings, before being overtaken by South Korea and China. Regional government support for games is strong, and has encouraged major relocation of studios in Canada, particularly from France but also from the UK.

France's employee headcount has grown 14% to 2,500, largely driven by online games companies. French studios will spend £111m on development in 2008, and remain in seventh place in terms of sales. Government support for games development is widespread and increasing, but its impact on studio location is expected to be small. Following an exodus of studios to Quebec, France's studio sector has remained stagnant, despite such large-scale injections of capital. It is too early to assess the impact of a new national games development tax credit, but it seems unlikely that the French development sector will become a global leader in the near future.

Germany has 2,900 developers, and spends £107m in development. German studios will grow healthily to 2013 as a result of a booming online games sector, but its eighth position in global sales rankings will not change. The German studio sector has grown organically with no public support, but is imbalanced towards the single platform of PC gaming.

An assessment of policy initiatives in other countries shows significant government support for the games development sector in Australia, China, Singapore, Korea and five US states.

Future competitive environments

Video games are now a global mass-market medium. This creates opportunities for UK developers willing to target new demographics, platforms and regions. Online gaming and cross media ventures constitute particularly promising areas.

Threats to the UK studio sector come from the diversion of development resources into cheaper or subsidised territories, as well as the sector's slow response to online gaming, falling levels of new IP and rising labour costs. In this context, government support can become a defining factor, as large publishers relocate to subsidised territories, and qualified labour migrates with them.

Globally, the industry will be defined in the future by

- the degree of balance between independents and publisher-owned studios;
- the sector's capabilities to create strong original new ideas;
- resilience to console cycles;
- strong skills in traditional and online games production;
- creative and technical expertise;
- the availability of a skilled labour pool;
- improvements in efficiency through outsourcing and other development strategies; and
- the level of support from national or regional governments.

By 2012, the UK's studio sector will be smaller and more consolidated but will have begun to exploit opportunities for profitability, stability and IP creation in online gaming.

Key challenges for UK studios will be:

- Balancing original ideas with third party licence work
- Managing rising development costs
- Increasing access to finance
- Maintaining a flow of new company start-ups to revitalise the sector
- Improving the quality of graduates
- Accessing new markets and demographics
- Promoting a supportive policy environment

To respond to these challenges, key strategic goals for the UK studio sector should be:

- Increasing the flow of original new ideas
- Exploiting the massive potential of online gaming
- Exploiting synergies between converging media
- Protecting UK creative jobs while exploiting international development capabilities through outsourcing
- Increasing the calibre of graduates
- Increasing diversity in development teams
- Increasing support from public funds

Introduction

Report rationale

In September 2008, NESTA commissioned Games Investor Consulting (GIC) to assess the impact of major competitor games development markets on the UK's studio sector. Many national and regional governments substantially assist their games development industries. This report profiles and assesses each of four major games development territories, the UK, Canada, France and Germany ("the target territories"). We analyse a selection of trends, provide an update on the policy measures in use in each territory and assess their impact. In the light of this intelligence, we then consider the capacity of the UK to remain as a major player in games development now and in the future. Our update contains new research, data and analysis, but we have deliberately not replicated the level of detail found in our 2007 report *Playing for Keeps*, commissioned by UKTI, BERR and TIGA.

This new report has the following goals:

1. **Assessment of the UK sector vs. competitors:** Assess and quantify the UK games development sector's strengths and weaknesses in comparison with its major current and future competitors.
2. **Policy measures**: Profile the range of policy measures, including tax breaks, in place in these competitor territories.
3. **Impact of policy measures**: What evidence is available of the impact of those policy measures on the games development sectors of these countries?

Chapter overview

This report takes the form of five chapters:

- **Chapter 1:** Updated profiles of the UK, Canada, France and Germany, with scored capabilities in key areas.
- **Chapter 2:** Updated profiles of governmental support for games development in the UK, Canada, France and Germany, with brief updates to the availability of governmental support in other countries
- **Chapter 3:** Analysis and evidence of the impact of these government support measures
- **Chapter 4:** Future competitive factors required for a successful games studio sector, mapped against projections of each target territory's capabilities.
- **Chapter 5:** Conclusions, challenges and strategic goals

Chapter 1: Assessment of the UK versus its competitors

This chapter provides updates the country profiles of the games development sectors of the UK, Canada, France and Germany. The choice of territories was driven by availability of governmental support for games development (Canada and France), and to illustrate how a booming online games sector is improving future German competitiveness.

United Kingdom

Sector snapshot

The UK sector has been growing modestly[1] in recent years, and its world-class studio sector maintains a high level of high quality output across most genres and platforms. While the UK will return to third place in the sales rankings by country of origin in 2008, it faces significant challenges. There are already worrying signs of decline.

The studio sector today presents a healthy balance between highly talented independent and publisher studios. But there are serious structural weaknesses. The UK has only a small presence in the booming online games market. There are too few indigenous UK publishers of global scale. The sector as a whole faces skills shortages, poor access to finance, too few original new games and almost no governmental support in a global market where such support is increasingly commonplace. As a result, the UK sector is expected to decline over the next five years, in stark contrast to most of its competitors whose development sectors are expanding rapidly in parallel with growing international games markets.

Historical outlook

The UK sector has undergone significant upheaval in the last decade. It suffered from a global oversupply of studios in the transition between console generations, exemplified by the PlayStation 1 and PlayStation 2. Over-sized, poorly-run, weakly financed, inefficient, non-viable or plain unlucky developers went to the wall between 2000-2006, with no access to the lifelines or bail outs available in more subsidised countries such as France. But this was no bad thing. The result was a leaner, more efficient sector with studios that had learned to manage their costs, plan for the gaps between projects, utilise outsourcing to keep rising development costs in check and effectively sell their studios' services to global publishers by demonstrating track records of globally strong product, experienced and highly creative teams, and well-tested proprietary technology. So, even as large numbers of staff were made redundant when nearly half of the UK's studios went out of business, experienced staff were more likely to stay in the UK to join other, more viable and growing studios.

However, more recently, these viable studios have come under growing pressure from structural problems that make competition increasingly difficult. First, costs have risen, exacerbated by the weakness of the US dollar. Recent fluctuation in the dollar exchange rate and the fall from the peaks of the last few years have made the UK more competitive, but the long term trend in rising production costs is bound to impact the sector negatively. Recruitment issues have reduced UK companies' ability to grow. The industry has relied on an advance recoupment model, where a project's development costs are paid upfront and then recouped by the publisher before the originating studio receives any royalties. But rising production costs have made this model increasingly unsuitable for the viability of independent studios. The result is that most independent studios are creative service companies working for hire with another company owning the copyright. These studios rely on production margins rather than royalties, which are usually not enough to allow the investment in innovation that made the UK sector's name. The result is that the number of new UK-created games and products – the engine of this industry – has been falling.

[1] Compared to other territories. 8%: UK; 43%: Canada; 14%: France; Germany: NA.

Access to finance lies at the heart of the UK sector's structural problems. UK companies have always struggled to persuade non-industry finance sources to invest in new ideas, not least because previous investments failed to deliver value. This has resulted in a lack of interest from the City in financing the creation of original new consoles or PC games. Unlike their US or French counterparts, UK publishers have also failed to raise the levels of funding necessary to break into the top tier of publishing, with the result that local studios don't benefit from the presence of so many large indigenous clients. This has led many studios to seek safety as subsidiaries of global publishers. Some of the largest studios creating original new IP are now in global hands. This would not be a problem if the balance were maintained by a strong independent sector, traditionally the source of much original innovation. But, that balance is becoming increasingly skewed in favour of globally owned studios.

Scale of UK games development sector

Development staff: 9,860. There are currently 4,350 staff in 47 publisher studios, 4,150 in 166 independent studios, 550 staff in 73 services companies and an estimated 800 freelancers working in active development roles.

Although the number of staff working in games development has grown by 8% since 2006, the numbers are set to fall in the future. A period of stability in development staff numbers in 2008-2009 hides some high profile studio closures or downsizing (an estimated 400 development staff job losses in 2008[2]) that should be largely balanced out by growth in other studios. As the table shows, this is likely to result in a small fall in staffing numbers. However, as the console cycle[3] downturns and more studios come under pressure from international competition, the trend for overall numbers for development staff in the UK is downwards, with an estimated net 1,250 job losses projected by 2012. By contrast, most other games development territories are project either to grow or retain the size of their indigenous development bases. The anticipated UK decline reflects overall growth trends in the UK industry that are outlined later in this chapter. Although both independents and publisher studios will see job losses in aggregate, it is expected that publisher studios will be most affected, as global companies relocate lower value staff to more subsidised territories. These 1000 jobs – primarily in quality assurance and testing, represent around 10% of the work force. Importantly, they are also the first rung on the games career ladder for many budding games developers. The departure of such jobs risks eliminating a gateway for new talent for the industry, as well as driving up average wage costs in the UK.

Development expenditure

Year	2008E	2009E	2010E	2011E	2012E
Development expenditure	£451m	£446m	£432m	£411m	£390m
Number of development staff	9,860	9,758	9,466	8,992	8,543

The above chart outlines estimated development expenditure in the UK by games studios over the next five years. This expenditure includes salaries and overheads, but not major capital expenditure. Again, this reflects the growth trends outlined later in this report.

Global ranking (sales by country of origin)

Year	2006	2007	2008E	2009E	2010E
Revenues	£1.18bn	£1.29bn	£2,03bn	£1.71bn	£1.97bn
Rank	5	5	3	5	5

[2] Studio closures or downsizing in 2008 were Venom by Take Two (30 development staff), Pivotal by SCi/Eidos (100 development staff), undisclosed additional layoffs from SCi/Eidos' UK studios (estimated at an additional 150 development staff), NCsoft Brighton (58 staff), Sega Solihull (40 development staff picked up by Codemasters) and Blimey! Games became independent again after its parent 10tacle's insolvency. Activision-Blizzard is reported to be in the process of divesting itself of Swordfish.

[3] The console cycle is expected to run from 2005-2012, at which stage a new generation of games consoles is expected to be launched, Players are increasingly reluctant to buy games for existing consoles – and developers to produce them – towards the end of a console cycle.

In 2007, the UK ranked fifth amongst the largest games development territories in the world, by share of global network and retail software sales. The long-term trend for the UK has been to fall from third to fifth place since 2004, driven down by the rising success of Korea and Canada as centres for video game development. 2008 should see the UK retake third place in the rankings following a record year for UK studios, with revenues from UK-made games projected to reach over £2 billion, driven by the impact of Grand Theft Auto (GTA) IV from Rockstar North in Edinburgh. Although UK developers will be releasing new and promising franchises in the near future, none of them currently seems likely to reach GTA's levels of commercial success.

The UK will jostle with Canada for position between 2009 and 2010. The next GTA (assumed to be released in 2010) should push the UK back up the rankings, but the meteoric rise of China to fourth in 2010 will see the UK's overall rank peak at fifth in 2010 before revenues fall back behind Canada.

Talent pool

The UK's games industry is clustered around ten regional centres spread right across the UK, each of them dominated by a couple of large studios: Edinburgh, Dundee, Newcastle, Liverpool, Manchester, Guildford, Cambridge, Oxford, London and Brighton.

Industry recruitment sources

The UK's talent pool includes a slow but steady stream of recruits from other European countries who come to the UK attracted by the prospect of working on high profile games and earning much higher salaries than elsewhere in Europe. On the other hand, the UK loses many more experienced staff to US studios. The net effect of these two brain drains is currently still in the UK's favour.

Graduate recruitment sources

This proportion of graduates in the UK developer population is slowly increasing.[4] UK universities produce a growing number of graduates from games-specific degrees. In 2008 there are likely to have been 1,700 graduates from 81 games-specific degree courses run at 46 universities. However, only 18% of games specific graduates in 2007 succeeded in winning jobs in the industry. Graduates from some higher quality courses, particularly those accredited by Skillset,[5] are more likely to win jobs in the industry: Skillset graduates are nearly three times as likely to get a games job than those from a non-accredited course, mostly because the courses are up to date, of better quality and developed with the industry. The number of Skillset courses has been unchanged since the sector skills council was established in 2006.

UK games companies also recruit from those with generalist degrees, favouring computer science, maths, visual arts and general science courses. In recent years, the UK has experienced falling numbers of science graduates. The CBI recently released a survey showing[6] that overall numbers of science graduates had fallen by 15% between 1998 and 2008, resulting in a recruitment crisis for British firms in many sectors. However, there has been some improvement in recent years. The number of mathematics students in higher education has risen 30% between 2003 and 2006 from 26,000 to 34,000[7], and UCAS acceptances in mathematics have risen by 9.2% in 2007 and 8.1% in 2008. The number of computer science students in higher education fell by 20% from 134,000 to 107,000 between 2003 and 2006, and acceptances fell marginally in 2007 before increasing by 5.7% in 2008.[8] Although now on the rise, longer term statistics suggest that the number of applicants for mathematics and computer sciences fell by 23% from 34,000 in 2002 to 26,000 in 2005,[9] in a period when the number of applicants for creative arts and design rose by 23% from 48,000 to 59,000.

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[4] 90% of new entrants in the industry after 2000 were graduates, compared to 69% graduates in the industry in 2005 (Skillset Workforce Survey 2005).
[5] 2 courses in Abertay, and 1 each in Glamorgan and Paisley
[6] Financial Times, 18/04/08
[7] HESA
[8] UCAS, www.ucas.ac.uk/website/news/media_releases/2008/2008-10-15
[9] UCAS. Unsurprisingly, the number of successful applicants to a mathematics and computer sciences degree rose from 92% in 2002 to 97% in 2005.

Skills availability

The *Playing for Keeps* report highlighted the problems that UK studios have when recruiting highly qualified personnel, particularly experienced senior staff, but also promising trainees. Since 2006, skills shortages have persisted, with a number of studios reporting that these bottlenecks have hampered their growth potential. This problem is intensified by what is widely perceived by the industry to be a low calibre of games course graduates. The industry has been vocal in complaining about these degrees and wants more Skillset accredited courses. However, the gradual decline in UK games development staff numbers over the next five years is expected to reduce the intensity of the skills shortage.

Labour costs

The UK no longer has the highest average development costs in the world (the US is currently more expensive), although the rapid rise in the strength of the dollar could lead to changes in the situation[10]. The salary of a console developer[11] in the UK in 2008 is £30,316, which is 5.5% higher than in 2007 (£28,725). Senior salaries rose by 9% year on year, reflecting higher demand for experienced staff. On average, it is estimated that publishers' salary and overheads costs are substantially higher than those of independents (39%). This is driven by higher salaries (particularly for senior staff), greater expenditure on property and overheads in publishers, as well as cost inefficiencies. Downtime between projects can also be longer for publisher studios because of the longer turnaround times of large organisations; independents tend to control their costs more tightly, and ensure shorter downtimes between projects (which could put them out of business).

Creativity

Track record in developing new games

UK developers specialise in particular genres, including driving, action, simulation / management, role playing and mass-market entertainment titles (such as SingStar and Buzz). New studios have traditionally emerged from these older studios, usually remaining focused on the same genres. Although this kind of specialisation is common worldwide, UK developers have also been highly successful in the creation of innovative genres such as space simulations / trading games (Elite), God games (Populous or Black and White), karaoke games (SingStar) and sports management games (Championship Manager). *Playing for keeps* predicted, under current growth trends, a global fall in of the production of new games and breakthrough genres. Evidence for this has accumulated, as the number of games based on original new ideas in the 2007 charts falls (only one title was not a sequel or a franchise) and the amount of original new products released in 2007 decreases (only ten of the top 100 best selling studios in terms of UK games sales released any original games in 2007). This could explain the declining presence of UK developers in the charts. For example, although the UK games retail market recorded a remarkable 26% growth in 2007 to reach an all-time high of £1.7bn, for the first time this decade, there was no UK developed game in the British top 10 selling retail games. 2008 has seen a few major new franchises produced in the UK (the most anticipated being Little Big Planet from Media Molecule) but the downward aggregate trend has continued.

Technical strengths

The UK has a world-class technical base, with a broad range of skills across many disciplines. Most major studios have their own proprietary games engines, and many develop their own bespoke tool chains[12]. Although the proportion of service companies versus overall headcount is the lowest of the territories profiled in this report, there are plenty of games technology companies delivering specialised solutions in physics, animation, programming, graphics and peripherals. UK studios, particularly independents, have strived to optimise development efficiency through new technology and by the sort of outsourcing strategies that are now a standard feature of games production.

Technical weaknesses

[10] At time of writing, 1.50 USD = 1GBP

[11] Consisting of 20 artists, 20 programmers, 3 designers, 4 producers and 10 full time QA staff. Average salary figures sourced from Develop/MCV wage survey January 2008.

[12] The set of computer programmes used to make the game is known as a 'tool chain'.

The UK lacks a broad presence in online game markets. This is particularly acute with emerging casual genres. UK studios have embraced online gaming as an extension of their core focus – gameplay on consoles and PC - but dedicated online gaming companies that exploit these booming new markets are still relatively rare, though Jagex, Miniclip and UK/Swedish King.com are exceptions. In addition to being experts in game development for their given fields, these companies have also developed capabilities in managing live games services. UK companies have traditionally deferred such activities to their publishers, a potential handicap in the future, as online gaming demands closer attention to the customer and an evolving range of live services. This situation contrasts with other European countries that have not only established strong footholds in online gaming but are attracting significant external investment to accelerate their already rapid rates of growth.

Platform / category skills status

Platform / category	**Current skills status[13]**
Past generation console	Strong
Current generation console	Strong
Online console	Medium
PC	Strong
Online PC	Weak
Massively Multiplayer online PC	Weak
Handheld	Strong
Mobile	Medium
Casual	Strong
Casual online	Weak

Strength of UK-owned companies

Independents: The UK has a strong independent sector, which is consolidating after a period of growth, with some larger development companies acquiring struggling studios and those that were sold by their publisher owners. At the same time, some independent studios were acquired by American and other global publishers between 2005-7, reflecting the strength of their IP and their experienced teams. Some of these independent studios were subsequently sold in 2008, and the pace of studio closures is growing as global publishers rationalise their IP portfolios and channel more development resources towards subsidised territories. While start-up studios continue to form and revitalise the sector, their ability to create successful new global games on major platforms is diminishing as production costs rise.

Publishers: UK publishers have traditionally struggled to amass the financial strength to break into the higher echelons of the global publishing world via organic growth or growth by acquisition. Instead, they have often become willing acquisition targets, something frequent in the independent sector. The UK has only two medium-scale publishers – SCi/Eidos and Codemasters, both of which, in spite of owning some large brands, are outside the top twenty global publishers by turnover. SCi/Eidos has had a very difficult few years, with the departure of most of its senior management team, restructuring (25% downsizing) and the announcement of substantial losses. On the other hand, Codemasters has been recruiting new staff and expanding its online operations. Jagex is also worthy of note, as a developer/publisher of online games with a rapidly growing audience, expanding portfolio and complete independence from traditional value chains that constrain most UK publishers' growth potential.

Flexibility and sustainability of local studios

The UK has one of the strongest talent pools in the world today. However, UK studios that specialise in particular (often heavily saturated) genres such as racing and action, may find it hard to adapt as faster and cheaper development regions emerge, and online service delivery becomes more

[13] Strong = a number of studios and technology companies specialising in this area; medium = some studios and technology companies specialising in this area; weak = few studios and technology companies specialising in this area.

important. The UK's independent games developers' historic ability to create original games with global appeal has been threatened by the increasing costs and risk of games development, and limited access to sources of funding. This has led to fewer original games and more work for hire (where an independent studio produces games that are owned by someone else for lower shares of future revenues). The UK's most successful independent studios derive two thirds of their gross revenues from work for hire.[14] A reliance on this work is a long term threat to the UK sector's sustainability because it allows only a marginal profit (rather than a royalty cushion from proprietary IP), is patchy (unlike the steady cash flow from online games models) and relies on increasingly cost-conscious clients with incentives to contract projects with cheaper studios in Eastern Europe and Asia. Some UK games companies are beginning to scale back their UK teams while investing in lower cost, subsidised markets. This is not surprising, given the escalating costs in the UK, and the absence of state support.

Access to finance

In 2007, nearly £1.42bn was spent on acquisitions in the global games markets. 7.7% of the transactions originated in the UK, 13.8% of the target companies were UK studios, 12.4% of sums received were targeted at UK companies, but only 0.4% of the sums spent were by UK companies. Nearly £640m was raised for games companies in private financing rounds globally in 2007, of which 3.6% was raised by UK games companies in five funding rounds. Limited access to finance for UK companies to develop new games or make large-scale acquisitions is still a major problem. The UK has experienced almost no fundraising rounds above £25m. This is partly a consequence of the lack of large UK based publishers, most of which have either been acquired before they have been able to reach global scale or failed to raise enough capital to keep pace with a rapidly growing and increasingly international market.

Availability of government support

The UK receives relatively little government support; the current government normally prefers to provide blanket, one-size-fits-all assistance to industry, without additional support for special cases. There are important exceptions in other creative media, such as the tax break for films, and significant rebates for commercial broadcasters, each of which are worth hundreds of millions of pounds.[15] The games industry has failed to make its case as forcefully or successfully to the Exchequer as these other sectors. Despite improved engagement between various Ministries and the industry, the level of assistance remains minimal.

Even where the industry receives funding through the generic Research and Development tax credits scheme, a strict interpretation of eligibility by HM Revenue and Customs means that the industry's continuous production of games assets, technology and other games features is only rebated by 4-5% on average. Many smaller studios complain that the opportunity cost of filling in the paperwork required is higher than the value of any rebate. Additionally, a range of other generic schemes such as export assistance and some tax credits for early stage investors in start-ups have limited benefit for games companies. Tighter eligibility for the Enterprise Investment Scheme - one of the more useful investment incentive schemes to which games companies have resorted in the past - has reduced the number of companies able to apply.

A few smaller-scale schemes have provided modest assistance for the industry in specific areas. Skillset runs an accreditation scheme which has signed up four out of 81 games-specific degree courses. Courses are given accreditation after reaching industry-agreed standards. The accredited courses are located in Scotland (Abertay and Paisley) and Wales (Glamorgan), rather than being co-located with the bulk of games clusters. Four more courses are being assessed for accreditation but

[14] Playing for Keeps (GIC/UKTI/BERR, 2007)

[15] The Film tax credit was valued at £120m in 2007 by the UK Film Council, which disbursed substantial additional funds to UK film projects in 2007 from European and Lottery money. ITV's broadcast licence fee was cut in 2005 by over £130m following lobbying to the Treasury. In addition, the Broadcasting Act of 1990 imposed a 25% independent quota on all BBC and ITV commissions from independent television production companies, for which the international rights must remain with (and national rights return after 5 years to) the originating production companies, which has caused a boom in investment in the independent TV sector.

the industry has complained that the number is still too low. Over the last three years, graduates from Skillset-accredited courses have been three times more likely to get a job in the games industry.

Previous funding to help games studios exhibit at trade shows overseas has all but disappeared but partially subsidised trade missions for games companies still occur annually.

However, two new central grants schemes are now available for studios. The first is awarded by the Technology Strategy Board, and has a value of £10m in 2007 for creative industries, including games. The scheme has invested £1bn since 2004 in collaborative R&D projects across all industries. To date, a number of games-related projects have been funded, the most significant being a £1m Department of Trade and Industry (DTI)[16] grant to Blitz Games. There have also been smaller DTI allocations, including one to Eidos. In 2008, two projects worth a total of £660,000 were awarded to two games companies, Monumental and tools company, Geomerics. Others are in the pipeline. Games have thus received a relatively healthy proportion of TSB funding given the broad definition of creative industries.[17] The other scheme is 'Raising the Game', a recent initiative launched by NESTA which is making targeted interventions in games studios country-wide, piloting recruitment, mentoring and graduate internships schemes, as well as running workshops to bring various media (including games) together to discuss and promote collaboration.

Public funding assistance for games is largely channelled by regional bodies such as Screen Agencies, Regional Development Agencies and devolved national governments. Bodies such as EM Media, ITI Techmedia, Screen Yorkshire, Northern Ireland's DETI and the Creative IP Fund in Wales have established grants to fund games projects in the last five years. EM Media has disbursed over £30m in matched funding between 2006 and 2008 to media projects including games, and it plans to support five new games projects between 2008 and 2011. Only one of ITI Techmedia's games programmes survives. Screen Yorkshire has given £100,000 towards the creation of the UK's first Games Academy, introducing bursaries and internships for MSc students. During 2006-8 it has disbursed £250,000-£400,000 to local games companies for production and business development (such as rights acquisition) grants, and intends to target serious games in future. Both DETI and the Welsh Creative IP Fund have each supported a games company in the last five years, but there are very few other candidates in their regions, so future grants for the sector seem unlikely. Some of the other regions of the UK with games clusters (North West and North East England) have games business support agencies that run conferences, training and networking events, but don't currently offer funding.

Canada

Sector snapshot

The Canadian sector nearly doubled in size in the last two years alone, taking an increasing share of global revenues and housing some of the world's largest studios. While Canada was pushed out of third rank and into fifth place by the UK and Korea in 2008, its long term position in the top echelons of the world's great development territories seems assured. Canada's sector is dominated by US and French-owned companies, and its independent sector's potential to create globally successful new games is limited. The lack of indigenous publishers therefore leads to a very imbalanced games sector. The government support that has powered Canada, particularly Quebec, high in the global rankings shows no sign of slow-down; indeed it is increasing.[18]

Historical outlook

[16] The DTI has since been replaced by the Department of Business, Enterprise and Regulatory Reform, with its science and innovation work now managed by the Department for Innovation, Universities and Skills.
[17] Covering architecture, performing arts, TV and film, fashion, music and publishing
[18] Since Quebec first announced its tax credits, several other provinces have followed suit, and Ontario recently launched a major investment fund that includes more tax credits for games studios.

In the late 1990s, the Canadian games industry was scattered across a few provinces but had only a handful of studios able to create global hits. Canada's only sold a fifth of the games it sells today, and the industry employed fewer than 2,000 developers. In 1997, the Quebec government closed bilateral discussions with Ubisoft, who decided to open a new studio there. This deal was the blueprint for subsequent incentives to attract other global firms. In 1998 these initiatives were formalised into a package of tax breaks and incentives, as well as a marketing campaign to bring major studios into the region. As a by-product, US and French companies acquired Canadian firms, to benefit from this support.

In the past decade, Montreal's development staff numbers have grown from around 500 to over 5,300, with an estimated billion pounds in inward investment into Montreal (including developer salaries, overheads, infrastructure and other capital expenditure). The estimated cost to Quebec in terms of tax credits and grants is estimated to have been £332m. In the past four years, Quebec's growth rates have accelerated as other companies started investing heavily in a territory that has now achieved critical mass. Quebec is expected to attract an additional £2bn in inward investment over the next five years, at a cost of £660m in tax breaks and grants.

Scale of Canada games development sector

Development staff: 10,500. There are currently 6,700 staff in 25 publisher studios, 2,500 in 130 independent studios, 900 staff in 50 services companies and an estimated 500 freelancers working in active development roles. Canada's development sector industry has grown from a handful of major studios in the late 1990s located in Vancouver, Edmonton and Toronto, to three major clusters in Vancouver, Toronto and Quebec. The total number of staff working in games development has grown by 42% since 2006, a growth largely driven by Quebec. Of the total headcount, just over half of all development staff are in Quebec, where companies have grown by 52% from 3,500 staff in 2006 to 5,300 in 2008. The widespread availability of generous tax incentives for games development companies in Quebec has seen global games companies relocating there. With 1,800 staff each Ubisoft's Montreal studio and EA's Burnaby studio are the world largest and fastest growing studios. Ubisoft has announced that its Montreal studio will grow to 3,000 staff by 2012, and overall Canada's games development community is expected to grow by at least 25% by 2010.

Development expenditure: £401m in 2008. This expenditure includes salaries and overheads, but excludes major capital expenditure and the 30-37.5% tax credit on developer salaries available in Quebec.

Global ranking (sales by country of origin)

Year	2006	2007	2008E	2009E	2010E
Revenues	£1.2bn	£1.48bn	£1.77bn	£1.95bn	£1.96bn
Rank	4	4	5	4	6

Canada currently ranks fourth amongst the largest games development territories in the world, by share of global software sales (after US, Japan and Korea). Canada rise from fifth to fourth place since 2004 has been driven by successful recruitment efforts aimed at attracting global companies with tax incentives. Canada's continuing growth in global sales is a consequence of the increasing number of studios producing world class games with the support of tax credits that seem to have acquired a permanent status in several Canadian provinces. However Canada is facing a gradual fall in sales rankings: projections suggest it will be beaten by the UK in 2008 (as a consequence of Grand Theft Auto IV's commercial success) and 2010, and after regaining fourth position in 2009, it will be beaten to sixth place by China's inexorable rise, back behind the UK in 2010.

Talent pool

Canada's games industry is centred in four major clusters: Alberta (Edmonton and Calgary), British Columbia (Vancouver), Ontario (Toronto) and the largest cluster, Quebec (Montreal). There are minor clusters in Manitoba (Winnipeg) and Prince Edward Island (Charlottetown).

Industry recruitment sources

Canada's talent pool includes a positive flow of developers from French studios (which were decimated by Quebecois tax breaks) as well as a revolving door of staff from global publisher studios, particularly Ubisoft which rotates its staff through the rapidly growing number of studios it has located in lower cost territories. Like most development territories outside of Asia, Canada loses experienced staff to the US.

Graduate recruitment sources

Canadian universities produced 25,914 graduates from science, maths and computer science, and 7,845 from visual and performing arts courses in 2005.[19] There were 134,970 enrolments in science, maths and computer science courses in 2005/6, and 37,242 in visual and performing arts. Canada saw a 21% fall in applicants for maths and computer science degrees between 2001/2 and 2005/6, but a 21% rise in general science applicants. Visual and performing arts applicants rose by 33% over the same period.

In 2008, 1,100 graduates will be graduating from games-specific degree courses run at 48 universities, most in Ontario, British Columbia and Quebec. The most celebrated course is run in Quebec by a joint venture between Ubisoft, Cégep de Matane and the Université de Sherbrooke. The Ubisoft campus trains 100-120 students each year over a 45 week course in cutting edge technology and production techniques. The courses are closely tied with Ubisoft's Montreal studio, and Ubisoft hires the majority of the graduates, covering their tuition fees as long as they stay with the company for a set period. Over five years, Ubisoft and the Quebec Government have respectively invested £8.4m and £2.8m.

Skills availability

Competition for experienced staff in Canada is generally high, with the major studios run by publishers like EA, Ubisoft, Activision, Eidos and THQ generally taking the cream of the crop. Access to experienced staff is supported in Montreal by additional government incentives to foreign specialists including five-year income tax holidays and salary tax credits (tapering from 100% over 4 years). In Montreal, expatriates are estimated to number around 30% of the workforce. The availability of graduates is relatively high, but competition for them is fierce. Montreal's success in recruiting global publishers has put pressure on the skills supply, and led to rising salaries.

Labour costs

Despite such rising salaries, Canada's labour costs remain competitive, despite the Canadian dollar gaining against the US dollar in recent years. The average games development salary in Canada in 2008 is now £29,200. Despite Canada's cost of living remaining lower than its neighbour, Canadian developers' salaries are expected to rise above inflation on a yearly basis. Although entry level salaries remain very competitive, experienced staff costs are closing on the US average in a bid to prevent staff migrating south of the border for better paid jobs, and as a consequence of competition between major publisher-owned studios with high budgets.

Creativity

Track record in developing new games

Canada's studios do not specialise as intensely in particular genres as those of other territories. Major studios prefer to focus on increasing their internal capacity and accumulating experience across a wide range of genres. Canada has produced world class games in the role playing, action, driving, sports and strategy genres. Due to the its weaker independent sector, the dominance of the publisher studios and its relative youth as a global centre of games development, Canada's overall capacity for

[19] Statistics Canada

the creation of innovative genres and independently produced new games is relatively weak. Tax breaks in various Canadian provinces do not target original IP generation by Canadian-owned businesses; this has benefited studios owned by foreign publishers. Instead indigenous studios have tended to inherit or build on existing genres and franchises to create best sellers. The relative weakness of the independent sector does not bode well for the potential for new game creation in the future, although government-funded national games competitions have enjoyed some success.

Technical strengths
Canada has strong and broad technical skills, particularly in the well-funded and cutting edge publisher studios. Although the independent sector is slightly more reliant on third party technology, the larger studios dedicate significant resource to technology research and development, creating cutting edge engines and toolsets. Canada has a strong tools and services sector, particularly in Montreal, with many world-leading providers such as Autodesk (development tools), Qazal (multiplayer middleware), Bug Checker (testing) and Babel (localisation and testing). Canadian studios have been slightly slower than other territories in adopting outsourcing strategies, due to their lower cost base.

Technical weaknesses
Canadian-based studios focus predominantly on current generation console development, rather than on developing games for handheld and PC (including online gaming). The proportion of development staff working in services companies is relatively low, but the range and strength of cutting-edge technology companies based in Canada is good.

Platform / category skills status

Platform / category	Current skills status[20]
Past generation console	Strong
Current generation console	Strong
Online console	Strong
PC	Medium
Online PC	Medium
Massively Multiplayer online PC	Weak
Handheld	Medium
Mobile	Strong
Casual	Strong
Casual online	Medium

Strength of Canadian-owned companies

Independents: Canada's independent sector has been raided by global publishers, and the stronger studios have been acquired by US companies. Formerly independent studios such as Bioware, Relic, New Horizons Interactive, Radical and Beenox have all accepted multinational bids. A few more mature companies cling to their independence, notably the Foundation 9 co-founder Backbone. The generous funding environment has also strongly benefitted many independents, with large studios growing rapidly from relatively humble beginnings. Many of the larger studios, such as A2M, Frima-Humagade, Propaganda, Next Level, Digital Extremes, HB Studios and Ludia, have survived difficult times. While some have built viable businesses, others are expected to depend on government support for their survival. Only a few of these independent studios are actively engaged in the creation of original new IP, while most of them work on licenses.

Publishers: Canada has almost no significant indigenous publishers. A number of medium-scale publishers were acquired by global companies in the early 2000s as a way of gaining a foothold in the Canadian market, but almost none remain. In the online space, Canada produced one of the world leaders in virtual worlds, New Horizons Interactive, (creators of children's phenomenon Club

[20] Strong = a number of studios and technology companies specialising in this area; medium = some studios and technology companies specialising in this area; weak = few studios and technology companies specialising in this area

Penguin). Disney's £380m acquisition of NHI in 2007 represents one of the largest transactions in Canadian games history. An outcome of this structural imbalance is that Canada does not retain the value of the games copyright created by studios located in the country.

Flexibility and sustainability of local studios

Despite being skewed heavily towards working either for hire or in internal publisher studios on US and French-owned copyright, the Canadian sector seems to have a healthy future both in terms of its flexibility and future growth potential. Its studios have been able to rapidly become global leaders in a wide range of genres. Quebec's long-term investment in games shows no signs of decline, but it is debatable whether Quebec could retain such high levels of games studios without the tax credits. Certainly some Canadian-owned studios have survived longer and grown larger than they would have otherwise. The creation of original new games is a challenge in every western territory, and in this regard Canada's tax regime has not encouraged an increase in original IP creation, particularly in the independent sector. This may be due to a combination of factors including culture, the territory's relative immaturity as a development centre, the high proportion of the work force retained by publishers, the fact that the tax breaks do not target IP creation specifically as well as a global context that does not favour the development of original games on consoles and offline PCs.

Access to finance

Access to finance in Canada is good, largely due to local government assistance for games studio costs in key provinces, which has attracted a number of large studios run by global publishers. The wide array of public financial support in key provinces such as Quebec has suppressed the need to access non-public sources of finance, and the relative weakness of indigenous games companies has resulted in few mergers and acquisitions. In 2007, nearly £1.42bn was spent in acquisitions in the global games markets. 1.5% of the transactions originated in Canada, 7.7% of the target companies were Canadian studios, 47.4% of sums received were targeted at Canadian companies, but 0.1% of the sums spent were by Canadian companies. The wide array of federal and provincial financing schemes has allowed a burst of company start-ups in Canada, which have largely not needed to rely on private finance either in Canada or across the border. As a result, of the £640m raised for games companies in private financing rounds globally in 2007, only 0.3% was raised by Canadian games companies in one funding round.

Availability of government support

There is only limited federal funding available for games. Until 2008, Telefilm awarded comparatively generous (£200,000-£400,000) production grants and loans for games through the Canada New Media Fund. In 2007, Telefilm organised the £1m Great Canadian Games competition, and another government department ran the Trade Routes cultural export assistance programme. However, such support is now falling. A conservative government first elected in mid-2006 has been cutting government spending on a range of programmes. In 2008, it cut the Canada New Media Fund and the Trade Routes export assistance programme, amongst wider cuts to cultural support initiatives. No further rounds of the games competition are expected.

However, Canada's provincial governments are second to none in their support of the games industry, and they have publicly announced games as a high priority. Video games are perceived as a high growth target for inward investment and are being supported through generous tax credits for games production, as well as other assistance. Topping the list is Quebec, which has run a wide-ranging support programme specifically targeting games for a decade. Quebec is estimated to have spent over £500m in tax credits and grants between 2004 and 2008 on just three companies – Ubisoft, Electronic Arts and Eidos, releasing an estimated £1.5bn in new investment in Quebec.[21] A provincial sales team travels the world to attract games studios to locate or relocate to Montreal. It offers specific Francophone benefits, including an enhancement of 7.5% in the tax credits for French-speaking companies. Quebec is not alone. Four other provinces offer tax credits specifically for games whilst another cuts bipartisan incentive deals for games companies. British Columbia's support is more limited, although local games firms have successfully lobbied for a provincial R&D tax credit definition covering games developers specifically.

[21] Gross; e.g. £1bn in net investment, and an additional £500bn rebated by Quebec tax credits.

France

Sector Snapshot

The French sector has been growing in recent years, largely due to the advent of a handful of online games companies, but remains fragile following the mass exodus of developers to Montreal after 2000. Since 2004, the sector has grown driven largely by a young but thriving online games sector. The development industry is heavily reliant upon Ubisoft and its contractor studios. A recent national tax break should have a positive influence, but the sector's high costs, its dependence on widely available hand-outs and its inability to create globally successful products are still significant challenges.

Historical Outlook

The story of France's games development industry is a tale of two cities. One, the independent sector story, is of subsidies distorting and exacerbating a weakness in the sector's average[22] ability to create global product. The wide range of French grants and subsidies helped produce a generation of commercially unviable studios reliant on public funding, thus laying the sector open for its mass exodus to Quebec. The other story is of a French publishing sector that through access to massive private finance was able to build itself into a world class, globalised industry, mostly developing outside France.

The publishing story is of a few tiny, regional publishing companies being transformed by access to hundreds of millions of pounds of mostly (convertible) debt finance, which they used to acquire large global publishing companies, thus rising to global stature. When government support became available in other territories, particularly Canadian provinces, these companies were amongst the first to locate or acquire studios. There they largely remain today. Ubisoft is the only publisher retaining a major presence in the French market, but even it is expanding more rapidly overseas.

The dotcom collapse saw a global consolidation of games studios with high studio mortality in every major development territory. Those that survived continued in the business with improved efficiency, selling more work for hire services to publishers and not growing so much as to risk collapse in the downtime between projects. Quebec's sales drive was perfectly timed for a global studio sector struggling with rising development costs, consolidation and the need to invest strongly on the next generation of console hardware. France development sector lost more staff between 2000 and 2004 than any other territory – 60% of developers were either laid off by collapsing studios or went to work overseas. Many ended up in Montreal.

Today, the sector remains weak and completely imbalanced due to the independents' reliance on Ubisoft, for whom 60% of the sector works either directly or indirectly.[23] The viability of original new IP is still weak, and the independent sector is still receiving grants and subsidies from regional agencies, albeit at a lower rate (due to the lower number of surviving companies). However, the consolidation has also improved their viability by removing weaker studios. This is particularly the case with the larger studios, who work for hire on global products.

Scale of the French games development sector

Development staff: 2,500. There are currently 800 development staff in 38 publishers and their studios, 1,200 development staff in 75 independent studios, 350 development staff in 28 services companies and an estimated 150 freelancers working in active development roles. Although the number of staff working in development has grown by 14% since 2006, most growth has been in support staff for online games companies like Ankama and Prizee, rather than developers in the traditional games sector. The total number of staff is still well off its peak of around 4,000 in the early 1990s. French development was massively impacted by targeted Canadian recruitment as well as the

[22] A handful of studios do successfully create globally successful product but they are not the norm.
[23] Guillaume de Fondaumière, President of the French games developers association, SNVG, Develop, July 2007

dotcom crash after 2000, when 45% of French studios and 60% of its staff were lost. The traditional games sector is still struggling, despite large injections of grants, subsidies and a new 20% tax credit for the development of cultural games introduced in 2007. The sector is imbalanced, with three large publishers' studios, ten large scale independent studios and most others employing fewer than 30 staff. As already noted, 60% of the work force is employed directly or indirectly by Ubisoft (the largest French publisher, Activision Blizzard, majority owned by France's Vivendi, does not employ large numbers of staff in France). Ubisoft grew its French headcount by 20% in 2006 alone, largely through recruiting newly available staff following the collapse of some independent studios.

Development expenditure: £111m in 2008. This expenditure includes salaries and overheads (overheads are higher in France than any other territory profiled herein), but not major capital expenditure, and does not include the 20% tax credit on some games' development costs.

Global ranking (sales by country of origin)

Year	**2006**	**2007**	**2008E**	**2009E**	**2010E**
Revenues	£297m	£434m	£530m	£582m	£588m
Rank	7	7	7	7	7

France currently ranks a distant seventh amongst the largest games development territories in the world, by share of global software sales (after US, Japan, Korea, UK, Canada and China). France is not projected to grow substantially, although the release of games partially funded by the tax credit may lend a slight increase. Even this seventh place is likely to be threatened by Germany's rapidly growing online games companies from 2011 onwards.

Talent pool
The French games industry is centred on four major clusters of Paris, Lyon, Nanterre and Montpellier. Paris is easily the largest cluster, with over 50% of French companies and 40% of the staff.

Industry recruitment sources
The French industry's growth is split between traditional studios and online studios. Traditional studios have been growing very slowly as a result of competition, the supply of graduates, and the slow return of staff from Canada. Online studios have been growing very fast, mostly through support staff recruited from outside normal industry sources whose development skills are negligible.

Graduate recruitment sources
There are around ten degree-level games courses producing around 100 graduates per annum, with a further 70 short courses from 30 educational institutions in France, producing an estimated 200 additional people per annum. There are many more 'multimedia' courses in France, but they focus largely on web development and offer little value to aspiring games developers. 167,000 students were enrolled in general science degrees in French universities.[24]

Skills availability
Studios find it hard to recruit talented developers from a relatively small talent pool. A contributing factor is that job mobility in France is generally low, due to labour market rigidities linked to French workers' expectations of job longevity, described by one development worker as 'job for life'. There are also high regulatory barriers to exit for French companies which need to downsize. This often means that companies have to go into receivership to shed staff. These regulatory challenges have limited average studio sizes, contributing to low output on current generation consoles, which require large teams that are uncommon in French studios.

Labour costs
Although France's salaries compare relatively favourably with its competitors, with an average developer's salary of £29,000, the cost of doing business in France (statutory benefits and social

[24] French Ministry of Education

security total at least 55% on top of basic salary and bonus) raise the total costs of labour above UK levels.

Creativity
Track record in developing new games

France's track record in generating new games is poor for a country with 25 years of development history, with only a handful of million sellers. Opportunities for success have been further reduced by the collapse of the independent sector more recently. This has substantially reduced France's games output, particularly original new games. However, these structural difficulties are not the whole story. Language and cultural barriers have made it difficult for an undoubtedly creative industry to connect with global markets. French studios have created adventure, racing, comic, narrative, action and, more recently, online titles, but there are only a few successful examples in each genre. Therefore, France's ability to create entirely new genres and new independent games is currently weak. Many of the remaining developers work for hire, many on Ubisoft titles, which reduces the amount of new IP that can be generated. The government's latest support for games development should make French studios more competitive. As the tax credit targets games owned by French companies, this should also stimulate original ideas. However, there is no indication that easing the financial burden of developing original games in France will solve the deeper issue of creating original new games with global appeal.

Technical strengths
The French sector's technical skills have been weakened by studio collapses and the major brain drain to Canada. Ubisoft's 450-strong internal studios have cutting edge technology, and the few larger independent studios do have well-developed technology and tools. However, skills and jobs have been transferred to the multimedia sector, and many former games studios are now web development or advertising agencies. In contrast with the studio sector, the services sector is relatively strong, with a range of high quality games tools and middleware providers, one of which (Kynogon, an artificial intelligence games middleware provider) was recently acquired by US tools giant Autodesk. A group of technology companies recently won national and local government funding to create a suite of games middleware and tools in Paris.

Technical weaknesses
The lack of large studios outside Ubisoft-owned or partnered studios (such as Ubisoft's four studios, Infogrames' Eden Games, Lexis Numerique, Darkworks and Quantic Dream) means that the majority of studios have less experience working on games for the latest generation of consoles or the associated, up-to-date technology. French studios unfamiliarity with the latest generation of games engines, and, to a lesser degree, tools and middleware is a long-term risk to their survival. Many French studios have moved downstream to specialise in handheld development. A handful of studios have specialised on online development and service management, but these have had little impact on the wider games studio sector, which remains generally weak in online games.

Platform / category skills status

Platform / category	Current skills status[25]
Past generation console	Strong
Current generation console	Medium
Online console	Weak
PC	Strong
Online PC	Weak
Massively Multiplayer online PC	Weak
Handheld	Medium
Mobile	Medium
Casual	medium

[25] Strong = a number of studios and technology companies specialising in this area; medium = some studios and technology companies specialising in this area; weak = few studios and technology companies specialising in this area

Casual online	Medium

Strength of French-owned companies

Independents: The state of the French independent studio sector is fragile.[26] Although some larger developers are working for hire on licences for global publishers, French companies' capability to develop original new globally appealing games is weak. French studios are often started or maintained through government grants without ever reaching commercial viability. The sector hopes that the targeted tax credit will create a more fertile environment for games development. But real questions remain about whether products will be commercially viable, and whether games developers working for hire will benefit from it?

Publishers: France has three major publishers, Activision-Blizzard (52% owned by Vivendi), Ubisoft and Infogrames, all of them majority French-owned. Activision-Blizzard is the world's largest publisher by turnover, Ubisoft in the world's top ten, and Infogrames in the top twenty publishers in the world. Ubisoft has been expanding rapidly and is now the third largest publisher by headcount, with 20 studios on five continents and over 3,600 staff (of whom 450 are based in France) Infogrames plans to divest its powerful distribution network and focus exclusively on games distributed online. These companies' historic access to substantial finance[27] is one of the critical factors that has allowed French publishers to rise to the top of the world stage, sometimes from unlikely beginnings. Vivendi was a utilities company before it diversified into media and games. The latter has only a small development presence in France, with most studios located in the USA and UK, although it has been divesting staff since its merger with Activision.

Flexibility and sustainability of local studios

The French sector is imbalanced and still relatively fragile after the major studio and developer exodus to Canada. It heavy reliance on Ubisoft raises questions of long-term sustainability. Future growth will require stronger ties with other publisher clients, increasing the number of globally successful products created in France, and learning from the online sector. Already benefitting from a wide range of national and local assistance schemes, French companies will be further sustained by the tax credit. The degree to which state agencies will define which games receive funding will impact on companies' viability. The cultural test is defined so loosely that a fair proportion of French-made games are expected to benefit, bringing the costs of development in France in line with other European territories. The result will be that the tax credit will effectively defray the large cost in statutory benefits and other overheads of doing business in France.[28]

Access to finance

Access to finance in France is good, with government, industry and financial sources. While Ubisoft has until now favoured organic growth, Infogrames has been restructuring and Activision-Blizzard is very active in the acquisitions market. Its majority owner Vivendi has repeatedly accessed the financial markets for billion dollar sums, and its current financial health relies on a major restructuring of €35bn in debt after two years of €10bn+ losses. However, 2007 was a relatively quiet year for French companies. In 2007, nearly £1.42bn was spent in acquisitions in the global games markets. 7.7% of the transactions originated in France, 1.5% of the target companies were French studios, 0.1% of sums received were targeted at French companies, but 1.6% of the sums spent were by French companies. In 2007, no French games companies raised private financing.

Availability of government support

The French government vies with Canada in its provision of wide ranging support for games development companies, not least because the Quebecois have drained a large proportion of France's formerly strong games development community through a programme of marketing and incentives. The 2007 tax credit allows some games made by French-owned or based studios to receive a rebate

[26] Confirmed by the Chairman of the French industry trade body SNVG in August 2008.
[27] By 'substantial' we mean in the region of several hundred million US dollars.
[28] The current Sarkozy government is attempting to reduce this, but encountering significant resistance.

on production costs (though its implementation had to wait until December 2008 because it required European Commission agreement in December 2007 that some games were worthy of the cultural exception to state aid.) In the interim, the Ministry of the Economy commissioned a report into how R&D tax credits would be implemented. Once the tax credit was cleared by Brussels, France implemented the new system and began setting up the bureaucracy to manage the tax credit via the French Film Centre.

For several years France has offered games companies a wide range of assistance from games-specific federal programmes, including prototype funds, R&D grants and IP funds. The generic tax credits and a tax credit to stimulate start-ups are also useful vehicles for French games companies. In addition, the Sarkozy government that has been in power since 2007 has committed itself to lower the social security and mandatory benefit burden for French employers.

The departmental funding for games is largely limited to the two major clusters of Paris and Lyon. Departments such as Paris benefit from a range of national funds disbursed through regional funding bodies. The main programme to support games in Paris is the Cap Digital, which has targeted tens of millions of euros of support for games companies over the last decade. Lyon's more modest Imaginnove programme has not generated as much financial support.

Germany

Sector snapshot

The German sector has grown organically. It now focuses heavily on PC gaming, largely to the exclusion of other important games platforms. Its rank as eighth in the world's development territories over the next five years belies major growth in its online games companies, some of which are leaders in the European market. Despite the lack of global scale console studios, publisher-owned studios and publishers, the sector is healthy and growing, in part because German studios are more likely to retain their copyright than those in other territories.

Historical outlook

The German games industry has grown without any targeted government support. The result has been a small, frequently self-sustaining but ultimately insular industry that has largely serviced its domestic games market, which is dominated by hardcore PC gaming. In part due to the social stigma still attached to games in Germany as well as the relatively poor performance of the German console sector, German studio staff have focused on developing games for themselves, which could explain why the sector has not matured, and diversified into wider platforms and demographics. German talent has suffered a modest brain drain to stronger territories but the insularity of the sector has shielded it from the ravages of wider international competition.

Scale of German games development sector

Development staff: 2,940 in 161 development and publishing companies. There are currently 950 staff in 26 publisher studios, 1,550 in 68 independent studios, 440 staff in 28 services companies. There are 39 publishers in Germany without development resources. Although we estimate that Germany has seen over 20% of its independent studios close over the last five years, we believe that the total number of development staff nationwide has increased. This is due to two factors: firstly, Germany's independent studio sector has historically comprised small, PC-focused studios whose closures have not impacted the overall employment figures; secondly, during the same period but in the last two years in particular, Germany has seen substantial growth in the number and size of its online games (primarily massively multiplayer online games or MMOGs) studios. Indeed, Germany's development headcount can be considered one of the fastest growing in Europe (7% CAGR to 2012) almost entirely due to its MMOG companies. Germany's 17 MMOG companies (most of whom are categorised as publishers or publisher studios, as most self-publish) represent 11% of the total number of games companies in Germany but employ 20% of the country's development staff. We believe this latter number will grow to over 30% by 2012. Unlike France and the UK, Germany has very few publisher-owned studios. EA (Phenomic), Ubisoft (Blue Bytes) and Disney (Living Mobile) are all relatively small publisher studios (the result of acquisitions) and none is being grown aggressively.

Development expenditure

£107m in 2008. This expenditure includes salaries and overheads, but excludes major capital expenditure.

Global ranking (sales by country of origin)

Year	2006	2007	2008E	2009E	2010E
Revenues	NA	£230m	£287m	£350m	£393m
Rank	*NA*	8	8	8	8

In 2007, Germany was the eighth largest games development territory in the world, by share of global retail and network software sales. There is a substantial gap between eighth and seventh in the global rankings and despite the forecast growth in the value of German developed games, Germany is expected to remain in eighth position until 2010 at least.

Talent pool

Germany's games industry features five regional clusters although these only represent 53% of the development base by employee number (and 35% by company number) with the rest spread evenly across the rest of the country. The centres are largely based around major metropolitan districts: Hamburg (17% of employees), Berlin (14%), Frankfurt (11 %), Karlsruhe (6%) and Munich (5%). These clusters tend to house the country's largest development studios including the single biggest (Crytek, with 200 employees) in Frankfurt.

Industry recruitment sources

With the exception of a small number of the largest development studios in the country, Germany's talent pool is largely comprised of local German-speaking staff. On the other hand, some larger studios such as Crytek operate in English, a decision which has allowed it to attract developers from 31 different countries reducing its proportion of national staff to less than half (Crytek also owns a studio in the Ukraine). Germany's high average salaries and additional statutory employment benefits reduce incentives to work overseas although the high standard of English spoken by Germans as well as the appeal of larger, more established and better known employers in other European territories (as well as North America) has led some developers to migrate.

Graduate recruitment sources

Germany has few formal academic courses based around games development. A number of courses have been initiated and subsequently shut down and although aspects of games development may feature in the curriculums of some information technology courses, there are no dedicated games development degree courses offered in any of the state-run universities. The reason for this is attributed by German games developers and academics to a combination of the poor social image of games and their non-recognition as a sufficiently serious or sizeable industry. Aspiring developers have to turn to private institutions such as Berlin's Games Academy and the German branches of QANTM in Munich and Berlin. These private schools barely produce 300 graduates each year.

Germany is, however, an effective producer of graduates from more general disciplines which are relevant to games development. Its respected UAS7 applied science universities train some 75,000 students at any particular time and a small number, notably in Hamburg, include optional games development streams, usually in partnership with local games companies. Similar but smaller initiatives are run at universities in Berlin, Cologne and Braunschweig. The UAS7 universities contribute to Germany's 40,000 pure science graduates each year.

Graduates comprise a large proportion of German development staff, in particular those with Computer Science and Maths degrees. Thus, the vast majority of German games development staff receive their games development training on the job. Some receive more formalised skills training (including in programming) from larger companies outside of the games industry (betriebliche Ausbildung) which helps their integration into development companies.

Skills availability

In general, there are few signs of skills shortages in Germany. Given the disproportionate focus of Germany's indigenous development sector on PC games (around 55% of its companies and staff versus around 35% for multi-platform development), one might argue that there is a shortage of console games development skills. However, since few of the multi-platform developers create games for high-end current generation consoles (which arguably require the highest quality development skills), we do not believe that such a shortfall should be problematic. In addition, the casual MMOG focus of many of the fastest growing studios in Germany requires a diverse range of skills which can be readily sourced and adapted from adjacent industries such as web and graphic design.

Labour costs

German labour costs are above average within Europe due to the relatively high cost of living and the greater statutory benefits. The average games development salary is £26,400, a figure which reflects the increasing reliance on less specialised and lower cost developers for PC gaming and the booming casual MMOG sector. However, the relatively high statutory costs of employment in the country raise the total costs per games developer up to a level parallel to most other western games development territories. There does not appear to be the sort of competitive wage inflation found in other Western games development territories.

Creativity

Track record generating new games

Germany has a very limited track record generating globally successful new games. This is in part due to the fragmentation of the PC games market on which most of its development studios are focused. The few German console developers are mainly focused on porting and lower-end platforms (such as handhelds and last generation consoles). Arguably the most globally successful global game to originate from Germany has been the first person shooter Far Cry. The original PC version was developed by Crytek whilst console ports were handled by Ubisoft. The game achieved over three million unit sales and was due to spawn a sequel in late 2008. However, the copyright to the brand name was retained by Ubisoft rather than Crytek in the original publishing agreement and the game has been developed by Ubisoft (in Montreal) instead. Crytek's follow-up title, Crysis, reputedly the most expensive game ever made in Germany, has managed over a million unit sales despite being PC only, and requiring high specification hardware. Apart from Crytek games, most of Germany's other notable IP success stories have been in the Real Time Strategy genre; Sunflowers' Anno franchise and Blue Byte's Settlers series are two PC exclusive titles that have sold millions of units over multiple iterations. Germany's booming MMOG development sector[29] is also beginning to spawn titles with wide international appeal such as Travian, Gameforge's Gladiatus and Ogame, and Bigpoint's Seafight.

Technical strengths

Germany's technical strength lies in PC games development and increasingly online games development. There is also a console development sector specialised in porting. Germany is well represented in the online arena, with dozens of mobile, casual online and MMOG developers. Although Germany's development services sector comprises a large proportion of the overall development headcount, it is less mature, featuring a small number of international outsourcing companies and a range of middleware companies.

Technical weaknesses

Germany lacks high-end console development expertise with only a dozen studios creating Xbox 360 or PS3 titles. Of the three studios owned by major international publishers, only one, EA Phenomic, is creating games for current generation consoles. The absence of a globally competitive console

29 MMOG = Massively multiplayer online games – those that have thousands of online players at once.

development sector has undoubtedly reduced the ability for Germany to rise up the global rankings ladder.

Platform / category skills status

Platform / category	Current skills status[30]
Past generation console	Medium
Current generation console	Weak
Online console	Weak
PC	Strong
Online PC	Medium
Handheld	Medium
Mobile	Medium
Casual	Weak
Casual online	Medium
MMOG	Strong

Strength of German companies

Independents: Germany's independent developer sector has seen a significant number of small companies failing over the last five years. There are 68 independent studios at present with the largest 10 companies employing some 45% of total development staff. There have been few mergers and acquisitions involving independent German developers and almost no private equity funding.

Publishers: The European headquarters for Nintendo and Konami are located in Germany, although neither company operates development studios in the country. Most of the largest international console games publishers have sales and marketing offices in Germany but only three operate studios there. Germany has no indigenous publishers of global scale although it does have a number of smaller publisher/distributors with growing international aspirations such as Koch Media. The most significant trend in recent years has been the remarkable rise of Germany's casual MMOG companies. Classified for the purpose of this report as publishers (as they are self-funding and self-publishing), these companies have not only fuelled the growth of the indigenous German development market, but have also begun to change the shape of the European MMOG market. Their growth has been a mixture of organic (such as Travian) expansion, private equity backing (such as Gameforge and Bigpoint) or and through the support of substantial media company parents (Hubert Burda Media's Alaplaya and Axel Springer's Gamigo).

Flexibility and sustainability of local studios

The relatively high proportion of self-funding and self-publishing indigenous games developers and publishers in Germany has made the country considerably less reliant on overseas publisher finance than the UK or France. The most important reason is the financial success of the online games companies, most of which have been able to fund ongoing development from existing cash flow or venture/parent company capital. Although there are still a large number of independent studios that operate a work for hire model, it is expected that any independent studio failures will be compensated for by the continued rapid growth of the indigenous MMOG companies. These companies' skills requirements do not appear to have been impacted by the low numbers of game-specific graduates and, given the population size and generally high level of general education in Germany, we believe that the number of games development staff in Germany will grow steadily over the next three years.

[30] Strong = a number of studios and technology companies specialising in this area; medium = some studios and technology companies specialising in this area; weak = few studios and technology companies specialising in this area.

Access to finance

Of the £1.4bn spent on 65 games company acquisitions worldwide in 2007, less than 1% was attributable to German companies either as acquirers (twice) or as targets (on three occasions). Of the £640m raised privately by 61 games companies worldwide in 2007 only 3% by volume and less than 1% by value was attributable to German companies. There are currently three listed games companies in Germany: publishers CDV and 10tacle, and games peripherals company Splitfish. 10tacle has recently gone into liquidation.[31]

Germany is also home to a small number of dedicated games production funds. These funds offer generous tax breaks for high net worth German citizens and although original conceived as games development funds they now encompass intellectual property rights acquisition, licensing and international marketing as well as development. German investment firm BVT in conjunction with German alternative games funding specialists Attaction are currently operating their fourth games fund (the £35.3 million BVT Games Fund IV Dynamic). The funds have historically been used by European publishers (rather than developers) such as French Infogrames and Austrian JoWood to reduce their production risk and manage their cash flow (by delaying the outlay for games production until the games have been completed).

Availability of government support

Central government support specifically targeted at games development in Germany is limited to sponsorship of trade missions and conference representation (such as the Made in Germany stall at GDC 2008 in San Francisco sponsored by the Federal Ministry of Economics and Technology, BMWi). Germany also provides a standard slate of generic funds, subsidies and tax breaks mostly funded by the EU (and governed by its rules). Some of the most generous schemes are reserved for Eastern Germany, where investment allowances for new companies can return up to 50% of their start-up and R&D investment. German developers contacted for this research pointed out that many of the generic support schemes are too convoluted to be practical, with the application costs surpassing the expected returns. Germany, one of the biggest investors in R&D in the world, has no R&D tax credit system that can be exploited by games companies.

Games have historically had a poor image within German government, whose interaction with the indigenous industry has been limited when compared to other countries. Strict guidelines regarding the portrayal of violence in games (as well as Nazi imagery) have been imposed. This has made it necessary for many publishers to release versions of the game specially modified for the German markets, and some games are not released in Germany. However, this is beginning to change. Following lobbying by G.A.M.E. (Germany's games development trade body) the German Cultural Council finally accepted that games were a valid media industry (rather than a technology industry, as it had been classified previously). In August 2008, they were formally included as a state-recognised part of Germany's cultural heritage and future. According to G.A.M.E., this is a crucial first step towards receiving a greater level of central government support and possible tax breaks.

The only local government initiative for games companies is Gamecity Hamburg, designed to support the city's games industry. Hamburg represents the single largest cluster of games publishers and developers in Germany, by number of both companies and development employees. Gamecity Hamburg provides regular lectures, networking and developer/publisher "speed dating" events. In addition to promoting its local games companies nationally and internationally, it also operates a prototype funding scheme allowing local developers to access up to €100,000 in interest-free loans for early-stage development work. Gamecity Hamburg has also teamed up with the local Hamburg University of Applied Sciences to launch GamecityLab, a games development academic programme. Whilst not a degree course in itself, the programme aims to improve the games development skills of its applied science graduates.

[31] It is understood that some parts of the company's operation remain going concerns at present.

Competitive indicators table[32]

In 2008, the leading development territories have the following competitive features, each scored in comparison to its peers. These scores are a subjective assessment by this report's authors based on current data on each territory's strengths and weaknesses.

	USA	Japan	Korea	Canada	UK	China	France	Germany
Strength of independent studio sector	10	9	10	3	6	4	3	2
Strength of publisher studio sector	10	9	10	8	7	4	5	3
Strength of indigenous publishing sector	10	10	7	1	3	5	7	2
Strength of services sector	8	7	3	7	7	5	4	4
Resiliency to last console cycle falls	7	5	10	6	4	10	3	5
Global sales ranking	10	9	8	7	6	5	4	3
Creative strength of talent pool – offline	10	8	1	8	10	1	4	3
Creative strength of talent pool – online	9	4	8	4	4	3	3	7
Technical strength of talent pool - offline	10	7	1	9	9	1	5	4
Technical strength of talent pool - online	9	4	10	4	4	8	3	7
Skills availability (graduates)	10	8	7	9	4	7	3	2
Skills availability (experienced staff)	10	8	7	5	7	2	4	4
Labour costs	3	3	8	8	3	9	3	4
High-end platform experience	10	10	2	9	9	1	4	2
Low-end platform experience	10	10	5	7	7	4	4	
Online game experience	9	3	10	3	3	8	3	5
Availability of government support	6	4	7	10	2	5	8	1
Access to trade finance	10	9	8	8	6	5	5	2
Access to non-trade finance	10	6	7	4	4	7	3	4
Total	**171**	**133**	**129**	**120**	**105**	**94**	**78**	**64**

32 Key for scoring

Scale of independent development sector	Number of staff and studios working in independent sector
Strength of publisher studio sector	Number of staff and studios working in publisher sector
Strength of indigenous publishing sector	Number of indigenous publishers
Strength of services sector	Number of local tools, technology and outsourcing companies
Resiliency to last console cycle falls	Numbers of companies lost between 2000-2007
Global sales ranking	Position in global sales charts (2006-2008)
Creative strength of talent pool – offline	Ability to create new IP and genres in offline games
Creative strength of talent pool – online	Ability to create new IP and genres in online games
Technical strength of talent pool - offline	Technical ability on offline games platforms
Technical strength of talent pool - online	Technical ability on online games platforms
Skills availability (graduates)	Graduate output (generalist and games-specific)
Skills availability (experienced staff)	Mobility of experienced staff
Labour costs	Total staffing costs (including overheads)
High-end platform experience	Current generation console and PC experience
Low-end platform experience	Handheld, mobile and casual games experience
Online game experience	Multiplayer or casual online game development and delivery
Availability of government support	National and regional government support
Access to trade finance	Access to publisher/distributor funding for new IP / licences
Access to non-trade finance	Scale of listed/private fundraising

Chapter 2: Update on policy measures

This chapter summarises the most prominent governmental support measures available in the main target territories of UK, Canada, France and Germany, as well as snapshot of the policies targeted at video games in other countries.

Target territories

Territory	Measures
UK	**National** • Generic R&D tax credits which typically return 4-5% of development expenditure. • The Technology Strategy Board allocated £10m to a creative industries R&D fund, of which £660,000 has been allocated to games technology firms in 2008. • NESTA recently announced a £450,000 programme of assistance for games studios, offering pilot projects in recruitment, mentoring, internships and multimedia commissioning workshops. NESTA has also commercially funded a small handful of games projects between 2006 and 2008. • Some generic export assistance for new exporters. **Regional** • 5 regional funds (EM Media, ITI Techmedia, Screen Yorkshire, Northern Ireland's DETI and the Creative IP Fund in Wales) valued at roughly £24m targeting all media, with an explicit reference to games production, and games disbursement estimated at between £3.5m-£4m between 2006 and 2008. The funding available is expected to fall to £500,000-£1m per annum from 2008. • A range of local business support and networking agencies, most notably Codeworks/GameHorizon in Newcastle and Game Alliance in Manchester. **Non-governmental finance** • Medium level access to private equity and debt finance. • Medium level access to listed equity finance. • Good levels of trade capital. • The 4 Innovation for the Public (4IP) fund from Channel 4 is targeting development of new media IP, including games, that deliver against Channel 4's public service broadcasting remit. Channel 4 has committed £20m and received commitments from funding partners for an additional £20m from regional screen agencies.
Canada	**Federal** • Telefilm's games competition disbursed £1m to start ups for new games IP in 2007, but has not announced another round. • Telefilm's £7.5m Canada New Media Fund commercially funded games research, production, and marketing (to £286,000 per project) amongst other media projects. In 2006, it funded 35 games projects (out of 88), but overall its budget for new media was reduced in 2007. In September 2008, this programme was ended as part of wide scale federal budget cuts, with the last grants due in March 2009. • A federal export development programme called Trade Routes will also end soon. • Generic R&D tax credits with reasonably generous definitions. Between 20-35% of qualifying expenditures, but no double dipping with provinces' own R&D tax credit schemes. • Other grants (IRAP, New Media R&D Fund) support R&D.

<table>
<tr><td></td><td> Regional

Montreal subsidises 30-37.5% of games companies’ salaries for 5 years, has generous R&D tax credits and start-up subsidies, significant loan guarantees and project grants, income tax holidays for foreign experts of 75% for 5 years and tax credits on salaries tapering from 100% over 4 years.
Ontario subsidises 30% of games production salaries, offers grants and prototype funds, has R&D tax credits for up to 60% of production costs, and recently established a £605m fund to create jobs in technology, environmental and digital media companies.
Prince Edward Island subsidises 35% of games production salaries, and offers grants and tax credits on exports
Manitoba subsidises up to 45% of labour costs, and runs an IP fund.
British Columbia offers R&D tax credits with definitions specifically designed for games production as well as a 30% tax credit for investment in new media projects.
Nova Scotia offers up to 35% tax credit for games companies.
Newfoundland has offered individual deals, including £1.25m in 08 to assist a US games company to locate a studio there.

Non-governmental finance

Medium level access to private equity finance, particularly in Montreal and from US, however private rounds of finance are uncommon in Canada.
Limited access to listed and equity finance.
Strong access to trade finance.
</td></tr>
<tr><td>France</td><td> Federal

National games production tax credit (CIJV) covers 20% of most production costs on games that pass a cultural test (assessment by the French Film Centre – the CNC) for French-registered firms. CIJV is awarded as a deduction against corporation tax. Numbers of applying firms have not yet been published.
National Prototype Fund (FAEM) disbursed £2.4-3.4m per annum between 2003-2006, and was valued at £2.4m in 2007. In 2008, FAEM became the National Video Game Fund (FAJV) which funds up to 35% of game prototypes.
£5.7m Research and Innovation programme (RIAM) disbursed £190,000 to games companies in 2006 and £198,000 in 2005.
The Young Innovative Company (JEI) tax incentives assist start-ups with holidays or immediate rebates on social security, income tax and some local taxes during the first 3-5 years of their life, as well as 100% capital gains tax holidays for minority investors.
R&D tax credits (CIR) rebate 5% of R&D expenditure as well as additional expenditure. There are other grants (such as a Ministry of Culture grant for new games IP) which have prioritised games since 2005.
A range of smaller national grants, loan guarantees, export grants and incubators for games and multimedia.

Regional

Paris has the publicly funded £220m venture fund Cap Digital (which claimed to have spent £90m on 34 games projects by 2004). It raised £19m for multimedia projects in 2006, and currently funds 8 games projects out of the total of 100 candidates.
The PlayAll scheme, a £5.1m grant funded by Cap Digital scheme and the Ministry for Industry, to create shared tool chains and middleware.
Lyons assists with games education and export grants, and has subsidised
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	production through innovation grants from the Imaginnove agency. • Marseilles appears to have cut the number of deals to assist local games studios. **Non-governmental finance** • Medium access to private or listed equity finance and medium levels of access to trade capital from French publishers, singularly Ubisoft.
Germany	**National** • A range of individual tax breaks are available for high risk media ventures, resulting in funds using groups of high net worth individuals who finance TV, film and games projects. • Non industry-specific grants and funds. • Generous tax breaks for high net worth German citizens are used by some funds to invest in media IP, including games. **Regional** • Substantial regional development tax credits, particularly for Eastern Germany. • A small number of municipal games have implemented industry support schemes. The most advanced of these (Gamecity Hamburg) offers loans of up to £800,000 for prototype development. **Non-governmental finance** • Medium level access to private equity and debt finance. • Poor to medium access to listed equity finance. • Poor levels of trade finance as Germany has few major high-end multiplatform developers. • Some fairly large German games IP funds exist and have been accessed largely by European publishers.

Other territories

Territory	Measures
Australia	• National games venture fund raising £11.4m per annum, partly state-funded • Generic R&D tax credits and grant programme that has funded 1 games technology provider with £2.9m. • Tax deductions for investment in multimedia, film and TV. • Availability of tax breaks, grants and cash-flow facilities in Victoria, Queensland, Australian Capital Territory and Western Australia. • Low-medium level access to private and listed equity and trade finance.
China	• A range of bilateral assistance is available from local government (especially Shanghai) to assist with office space and recruitment costs. • Strong access to private and listed equity finance.
EC	• The MEDIA fund will disburse £2m for games prototypes each year, of which 5 UK developers received 7 grants in 2008.
Other EU territories	• At least one other EU territory is thought to be close to announcing games tax credits on the same grounds as the French credits. • This form of tax credit is expected to become widespread in multiple EU territories.
New Zealand	• Some research grants and export assistance for games companies.

Nordic region	• Nordic Game Program disbursing £530,000 in grants for new games IP over 6 years.
Norway	• Norwegian Film fund disburses roughly £28m each year for film, TV, internet and games projects, of which interactive projects won roughly £500,000 in 2005.
Singapore	• Undisclosed but substantial grants (in the millions of dollars) to games companies locating in Singapore.
Korea	• Substantial generic measures such as free economic zones and international investment tax breaks (100% tax breaks over 7 years), R&D funds and tax credits and games specific support such as the national incubator service for games companies, university grants and export assistance. • Microsoft announced a £80m programme (matched by £90m from Korean government) across multiple industries including games, expected to generate £3.6bn in economic activity.
USA	• Generic federal 100% tax credit on multiple investments to £54,000. • Federal 100% tax exemption on stock options. • Louisiana offers a 20% tax credit on games production. • Wisconsin offers a 25% tax credit on games production. • North Carolina offers a 15% tax credit on games production. • Georgia offers a 20-30% tax credit on games production. • Connecticut offers a 30% tax credit for production of digital media, including games. • Florida, Hawaii, Maine, New Mexico, Rhode Island and Texas offer varying levels of incentives and grants to film, TV and games companies. • California subsidises 10% of a project’s labour costs for 2 years. • New York subsidises new media via tax credits of £540 per employee per annum and gives 10-20% tax credits to angel investors. • New Orleans and Washington State, amongst others, incentives companies to locate there with generic tax breaks. • Very good access to private, listed and trade capital.

Chapter 3: Impact of policy measures

This chapter sets the previous discussion in the context of national policies to support video game development, and reviews a range of positive and negative trends for every sector profiled in the report. These trends show the current situation of each national sector, and in some cases constitute evidence of the impact of government policy measures.

UK

Impact of government support on UK games development industry

Unlike its French and Canadian competitors, the UK's games development market has grown organically, with insignificant levels of government support compared to those available overseas. While the UK's studio sector has emerged from a very difficult process of consolidation with fewer but stronger companies, it is now competing in a market where almost every major competitor is receiving significant government assistance. This jeopardises the current position of the UK studio sector as a global leader.

The availability of government assistance in competitor territories that are poaching UK talent has started to influence the investment decisions of global publishers. While UK independents have continued working for hire for global publishers (growing to sizes which might be unsustainable in the future), government subsidies have increasingly become the norm for independents and publishers alike in the global games industry. Global publishers, the source of the vast majority of project finance, base their investment decisions on the availability and cost of talent. Subsidised territories such as many Canadian provinces, France, some US states, China and Korea have become increasingly capable of delivering high quality globally successful games, as well as graduates with relevant skill sets. This exerts more pressure on the UK studio sector, whose creative and technical talents are world class, but whose costs, even after currency fluctuations, remain high. Staff and studio numbers have already begun to fall as companies relocate or shift development resources overseas.

Evidence of impact of government support

Despite a lack of governmental support, the UK has a world-class games development sector that has survived consolidation and industry down-cycles. However, at the peak of the current cycle, the UK's studio sector has started to shed jobs and experience a continued fall in original IP generation. The following indicators show the evolution of a sector lacking any government support.

Positive trends

- **Scale:** UK's development community has grown by 8% between 2006 and 2008 and is still one of the largest in the world.
- **Strength of talent pool:** The level of experience in developing world-class product is exceptional and equivalent to the world leading locations of US, Japan and Canada.
- **Investment:** Investment in development in the UK has grown by 8% from £417m in 2006 to £450m in 2008.
- **Location activity:** Growth in the UK development community will peak in 2008, with few new studios locating here.
- **Sales position:** The UK will rise to fourth amongst world's best-selling development territories in 2008 powered by the success of one blockbuster game release (GTA IV), before falling back to fifth in 2009 behind Canada and then sixth in 2010 behind China.
- **Many commercially viable studios**: UK's studios produce major global hits, including 2008's best selling retail game globally. These studios have survived major consolidation to emerge stronger and more efficient.

- **Competition has resulted in more efficient studios**: UK studios are some of most efficient in the world, developing new production methodologies, tools and technology.
- **Good employment environment**: Flexible labour markets enable companies to adapt their team sizes more easily than in other territories.
- **Geographical location**: The UK is the home to the European headquarters of many of the world's largest games companies. UK-based studios have quick access to their head offices or clients.
- **Cultural affinity with world's largest games market**: The US is the largest games market in the world and the UK has been successful at creating games that sell well in the US.
- **Online studios raising finance**: A few studios with strong online propositions have been successfully raising finance during an investment boom in networked companies.

Negative trends

- **Fall in studio jobs began in 2008:** The UK studio sector lost 400 jobs when publishers divested previously acquired studios or downsized their development operations. Some of these were subsumed into existing studios that are still growing, but the overall effect is projected as a net 1% fall in staff in 2008, equating to 200 staff.
- **Decline in studios and employees accelerates:** The decline in developer numbers is expected to accelerate from 1% in 2008 to between 3% and 5% per annum as global studios relocate investment and staff from the UK to subsidised territories. This trend particularly threatens lower end jobs such as in quality assurance and customer support.
- **Cost and availability of talent still diverting investment from UK:** The UK has been growing much more slowly than other territories, particularly US and Canada (8% here v. 43% in Canada between 2006-2008) in terms of studio employees.
- **Decreasing original games creation:** UK studios have been less able to create original games in recent years and ongoing decline of original games creation on major platforms is expected to be only slightly offset by slowly rising creativity on online platforms.
- **Access to finance is constrained:** Most UK studios lack access to finance in the UK, and this hinders growth potential, as well as constraining resources available for the generation of original new games.
- **Recruitment crisis eased by falling staff numbers but salaries continue to rise:** The recruitment crisis of recent years has begun to ease as staff are made redundant and thus available for other studios to pick up. However, this will contribute to rising salary levels in the UK
- **Quality of graduates still below industry requirements:** There is a perceived shortage of graduates with the range of skills that the sector requires.
- **Brain Drain:** Studio relocation abroad and incentive schemes to migrate such as those available in Canada will intensify the outwards brain drain of experienced UK developers

  Falling global ranking: The UK development sector has traditionally relied on its capability to create globally successful games. As original game generation falls as a consequence of constrained access to finance, skill shortages and the prevalence of commercial models which force independent developers to adopt work-for-hire strategies in order to survive, it seems likely that the UK development sector will continue sliding down global sales rankings.

Canada

Impact of government support on Canadian games development industry

Canada, particularly Quebec, is the clearest example of how large scale pump priming of a well-located, commercially viable games industry with public funds can improve a sector's global status. Canadian provincial subsidies have driven its industry rapidly into the top echelons of the global games development industry. Quebec's massive injection of funding into games has resulted in a two for one return on its investment, with £500m in tax credits generating a net £1bn in new investment into Quebec. This has resulted in the founding and growth of the world's largest studios, and one of the fastest growing development headcounts in the world.

Although the generic nature of the tax credits available in a number of Canadian provinces has favoured all kinds of companies, the chief beneficiaries have been larger studios either working for hire for publishers, or publisher-owned studios themselves. Thus these policies have failed to address the longer-term problem of original game generation by Canadian-owned companies.

Interestingly, the British Columbian provincial government's investment in games is substantially less than its East coast peer, but it has managed to generate a fairly substantial development industry based on lower labour costs, high quality talent, greater proximity to major US games clusters and generic business incentives. However, the growth of the Burnaby and Vancouver clusters in British Columbia has easily been surpassed by Montreal, which has undoubtedly won business, and may have stripped staff from British Columbia. Indeed, most of the future growth in Canada's games industry is projected to benefit Quebec, leaving provinces without tax breaks facing a plateau or even decrease in scale.

Evidence of impact of government support

Canada's games industry has expanded at an unprecedented pace in those provinces where government support is more widely available. Canada is thus expected to ride the peak and trough of this industry cycle with a positive influx of new studios relocating there. These trends look at Canada, but focus on the province with the greatest level of support, Quebec.

Positive trends

- **Scale:** Canada's studio staff overall have grown 43% between 2006 and 2008. Montreal's development community has grown by 960% from 500 to 5,300 in ten years.
- **Strength of talent pool:** Canada's games developers have rapidly acquired the capabilities necessary for the creation of world-class product.
- **Investment:** Investment in development in Montreal has grown by 1280% in ten years from £21m in 1999 to £290m in 2008.
- **Return on Investment:** Quebec is estimated to have generated a net £667m in inward investment over the last decade from an outlay of £332m.
- **World's biggest studio:** Ubisoft's Montreal studio, the world's largest with 1,800 staff, is being expanded to 3,000 staff by 2013 via a new £210m investment. Ubisoft built a graduate school in 2005 with the goal of generating 2,000 new jobs over five years. This required an investment of £8.4m, complemented by £2.8m from the Quebec Government.
- **Location activity:** Very strong, with overall development headcount projected to grow rapidly over the next five years as more studios announce their location or expansion there.
- **Sales position:** Canada's position at number 4 in the world's best-selling games development territories will be retained until 2010, when China is expected to overtake it.
- **Long-term assistance:** After ten years, there is no announced end point for tax credits in Montreal and the government is adamant that they will persist for years to come.
- **Geographical location:** Canada's position next to the world's largest games market and strongest source of publisher finance creates beneficial effects.

Negative trends

- **Global firms main beneficiaries:** The main beneficiaries of the tax credits have been non-Canadian companies, who dominate the games sector in terms of output and employment.
- **Low independent original IP output unaffected:** Although the independent sector has benefited from favourable policy support, it has been largely unable to increase its output of original new IP.
- **Work for hire predominates:** The independent sector is still largely focused on work for hire, which does not allow studios to build rapidly the reserves required for original IP creation.
- **Financing activity disproportionate to scale**: Canadian games companies have raised only modest amounts of finance from listed and private capital sources relative to their development market size.

- **Studio efficiency is questionable**: Generous tax credits reduce the pressure to adopt efficient development practices in studios, leading to increases in costs (including developer salaries).

France

Impact of government support on French games development industry

France's independent games industry was unstable before its more viable firms were targeted by Quebecois sales representatives. Through the mid-late 1990s and early 2000s, a wide range of funding sources was made available both by the two major clusters' regional funding agencies as well, increasingly, from the French national government. Such funding was usually in the form of grants and subsidies for half or more of a project's costs – effectively hand-outs that had very little to do with the applicant studio's commercial viability (or that of its products) and more to do with the applicant studio's location. Although some grants required match funding from other financial sources (which might elsewhere have hindered commercial viability), many recipient companies appear to have found other public funding sources to make up the difference. Though other studios self-funded the remaining costs, the sheer scale of grants made available in Paris suggests that the state was funding a large proportion of games projects while French games were not exactly global bestsellers. As a result, many games companies became overtly reliant on public subsidies.

France's sector, weaned on subsidies but poor on global sales, was hit by both the global studio consolidation and the brain drain to Canada. The industry successfully lobbied for more assistance from national government from 2005, leading the French Parliament to legislate for a tax credit in early 2007, which was ratified by Brussels in late 2007. A hand-up rather than a bail-out, the tax credit rebates 20% of a qualifying project's costs, and is expected to assist French companies struggling with high costs and the ongoing lure of Montreal. It will not solve the weakness of the French sector's ability to create globally successful products, but it should help more games developed in France reach the market.

Evidence of impact of government support

France's development sector has remained stagnant, following an exodus of studios to Quebec, despite large-scale injections of capital. It is too early to assess the impact of the national games development tax credit, but the commercial viability of French-made games is still doubtful.

Positive trends

- **Scale:** The French development community fell between 2000 and 2005 but has since grown by 14% between 2006-2008 (outside any of the subsidised clusters and largely in online companies).
- **Medium strength of talent pool:** Commercial viability of French studios seems to be increasing gradually, and while some of the larger studios still receive assistance from grants, work for hire on globally successful product is increasing.
- **Investment:** Investment in development fell between 2000 and 2005 and then has been growing modestly from £100m in 2006 to £111m in 2008.
- **Sales position:** France's position at number 7 among the world's best-selling games development territories will be retained until 2010, after which its position will be threatened by Germany.
- **Strong tools and middleware sector**: France's technology developers are generally stronger and more viable than many studios, and some have been acquired by global companies. The Parisian PlayAll tools and middleware scheme is a targeted intervention that should promote the development of cutting-edge technology.
- **Cost reduction from the tax break**: The new tax break will reduce the studio sector's costs, effectively countering the high cost of doing business in France.

- **High employment costs for French companies gradually reducing**: The Sarkozy government is trying to increase the attractiveness of France as a place to do business by reducing or abolishing some of the many social security and statutory benefit costs imposed on companies. Together with the tax credit, this should increase the competitiveness of French studios, and make France a more attractive location for other companies.
- **Original games occasionally breaking through**: A few studios' original games (such as Quantic Dream's Heavy Rain) are receiving good coverage and the narrative ability of some French developers may create opportunities for the sector as games converge with traditional media. The tax break targeting French IP should further assist original games' generation.
- **Tax credit is a hand-up not a bailout:** The nature of the French tax break is partial assistance rather than a lifeline for failing companies, and is structured to avoid the complete public funding of projects. This should create incentives for the development game with expectations of commercial success
- **Fairly low barriers to entry for tax credit:** The scoring criteria to pass the cultural test for receiving the tax credit are set fairly low.

Negative trends

- **Subsidies failed to stem wide scale studio failure:** At the beginning of the decade, France suffered the largest closure of studios and loss of staff, despite major regional support.
- **Dependence on hand outs created more instability for independents:** Studios weaned on grants and subsidies rather than commercial revenues collapsed when the subsidy ran out
- **France still struggles to create successful global games:** Despite some isolated examples, French games have mostly failed to perform well in global charts.
- **Location activity:** No major surge in studio locations in France is expected, despite the tax break.
- **High employer costs:** Despite the tax break and government attempts to alleviate employers' costs, France still has very high social security and mandatory benefit overheads, which impacts negatively the flexibility of French studios.
- **Control of tax credit disbursement:** The French National Film Centre will control which projects are eligible for the tax credits, weeding out weaker projects.
- **French film tax credit has not produced major global hits:** The French assistance for its film agency, under the same cultural exception rules as the games tax credit, has failed to produce a globally viable film industry for France, but guaranteed the survival of the French art house cinema industry. There is a significant chance that the same will occur for games.

Germany

Impact of government support on German games development industry

German studios are more self-reliant than their European peers, and have not emulated them until recently in seeking or relying on tax incentives. As we have seen, legislators have yet to take a positive view of the sector, although this is gradually changing with growing industry lobbying. As seen in most territories with growing online games development sectors, its MMOG companies have been able to grow rapidly into fresh gaming genres without government subsidies, tax credits or other support. This is because in the online games market, commercial models can yield early returns from which independents can grow without sharing their revenues, or relinquishing their copyright to traditional publishers.

Evidence of impact of government support

The German games development industry has grown without any assistance from government, but is imbalanced in favour of PC gaming. As there has been no government support for games, these trends reflect a path of organic growth.

Positive trends

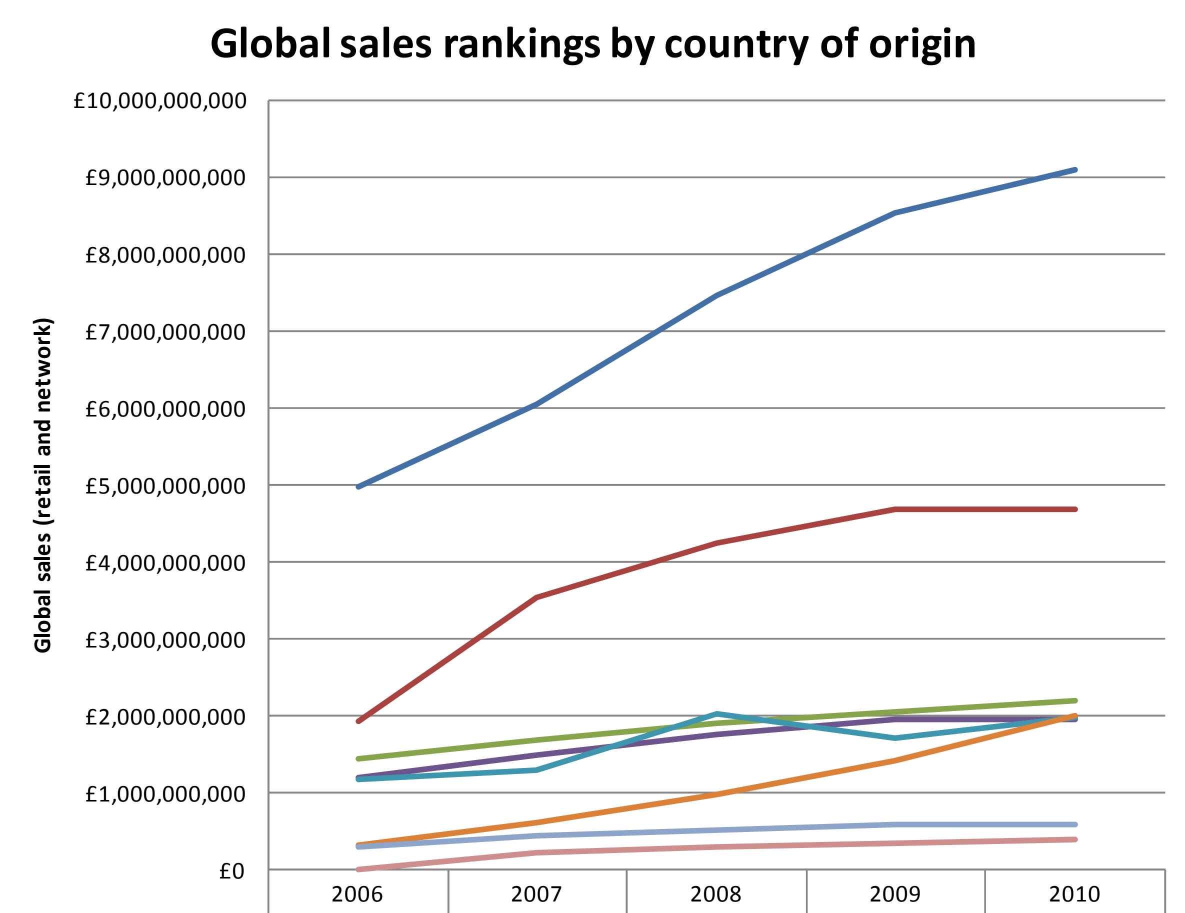
- **Small-medium scale:** Although the German studio sector is relatively small, it has been growing thanks largely to the new online games studios, which are the engines of future growth in German games development.
- **Sales position:** Germany should retain its position at number 8 in the world's best-selling games development territories until 2010, after which it is expected to catch up with France.
- **Leadership of European casual MMOG market:** Germany has emerged as a pioneering force in the European MMOG market attracting a substantial user base for its casual MMOGs. With 17 MMOG companies in the territory, Germany is the leading MMOG developer and publisher in Europe and should consolidate its position following a spate of acquisitions and investment rounds.
- **Self-sufficiency and original copyright ownership:** Many of the largest German independent and publisher studios self finance their games development allowing them to retain the copyright to their titles. This gives them the option to self-publish and sell direct to consumers, avoiding the cycle of dependency on third party publishers that tends to trap developers in the work-for-hire 'IP poverty trap'. Continued success will allow them to broaden the use of this business model and increase their self-sufficiency and capability to develop original games.
- **Access to emerging European markets:** The European games market is growing both in scale and breadth with Russia and central/eastern Europe in particular playing increasingly important roles as both consumers and content providers. Germany's geographic and cultural proximity to these territories - and its willingness to cater for them - gives it a natural advantage over other major games development territories.

Negative trends

- **PC focus and lack of console skills:** A large proportion of Germany's developers are focused on a single market - PC retail - that has steadily diminished in value over the last decade. Germany has limited console development capabilities, in particular for high-end consoles. Although online PC and MMOGs are faring well, Germany is missing out on the current console market boom.
- **Not the first choice for EU HQ:** Aside from a small number of companies, Germany is not the first choice for EU headquarters for international games companies and so is potentially missing out on not just investment in internal development but may also be facing constraints in the levels of investment in independent developers (as publishers have historically sided towards local development partners).
- **Continuing image problem:** Games have historically suffered a serious image problem amongst parents, academia and within the government. Although this is changing, prejudices about the value of a strong indigenous games industry could hamper its growth.
- **Limited academic support for games:** Although it is not yet perceived to be a problem, the ever-growing sophistication of games development might increasingly require specific games development skills that will become harder to source with so few specialist courses in Germany.
- **Limited government support for games:** Of all the games development territories covered in this report, Germany is the least supported by central or local government. Only minimal trade show representation, one regional industry support initiative of note and no tax incentives or subsidies are available to games companies. Germany risks becoming increasingly uncompetitive as the developers in other territories gain more support.

Global sales rankings

The chart below contains the sales projections for the largest games development territories in the world, by share of global network and retail software sales based on country of origin[33].



	2006	2007	2008	2009	2010
USA	£4,969,712,288	£6,034,308,725	£7,467,272,566	£8,541,562,827	£9,091,892,959
Japan	£1,938,620,832	£3,540,279,337	£4,248,335,204	£4,673,168,724	£4,673,168,724
Korea	£1,441,733,333	£1,684,524,306	£1,894,900,139	£2,044,907,547	£2,185,988,056
Canada	£1,201,034,035	£1,484,758,959	£1,773,258,319	£1,951,472,563	£1,960,468,652
UK	£1,179,887,654	£1,294,818,223	£2,034,542,762	£1,710,601,085	£1,973,841,922
China	£315,438,889	£598,056,944	£983,374,583	£1,415,162,613	£2,005,707,963
France	£297,649,045	£434,583,102	£520,191,309	£582,642,383	£588,872,645
Germany	£0	£230,273,663	£286,832,484	£349,562,879	£392,951,635

Commentary

USA: Although the USA is still the clear leader on most platforms, its market lead is shrinking as new Asian players such as Korea and China catch up.
Japan: The Japanese retail market is driven by Nintendo's internal output. This company is expected to remain dominant over coming years.
Korea: Korea's domination of the Asian online gaming market continues, however, its formerly strong influence in China is falling.

[33] Germany's share of global sales based on country of origin in 2006 is unknown.

Canada: Canada's chart position changes rapidly over the next few years, but its influence in console games for western markets will still support growth. On the other hand, the absence of a strong online gaming sector might constrain access to this new and booming market.
UK: The UK climbs in the rankings in 2008-9, powered by GTA with estimated sales of over 15m units. The UK's global influence is however falling.
China: Its meteoric rise is driven by a booming domestic market increasingly controlled by indigenous companies.
France: There are no major change indicators for France's position, despite the advent of tax breaks.
Germany: Germany's growing sales reflect the rising influence of German online games companies in Europe.

Chapter 4: Future competitive indicators

This chapter provides a rapid assessment of the UK's assets, competencies and industry-supporting policies in the context of the future evolution of an expanding and increasingly globalised games market.

Changing market conditions

Opportunities

- **Mass-market medium**: The size of the game market has expanded dramatically with the emergence of new mass-market and casual genres, the success of Nintendo's Wii and DS platforms, and the increasing popularity of online gaming. These trends should help to soften the impact of the console cycle, and create opportunities for developers able to cater to demand from new demographics entering the market,
- **Strengthening dollar:** This has already assisted games development deals for non-US studios that typically contract in USD with predominantly US-owned publishers. The growing strength of the dollar has also seen the US back in top position as the most expensive location for development and incentivised US publishers to look for more global partners.
- **Sustained market growth:** Strong growth in the retail and network games markets will keep demand for games high, in spite of the current financial difficulties and the downturn of the console cycle in 2010-2011.
- **A promising cross-media landscape:** Games have attracted interest from traditional media companies such as music publishers, broadcasters, online service providers and film studios. Many of these companies are making significant investments in gaming, mostly on the network side of the business.
- **Developing games in an online world:** The advent of online gaming on all platforms, the slow but inexorable growth of online distribution with its opportunities for reaching customers directly, and changes in customer demographics require studios to change how they are staffed, managed and funded, and are already leading to the emergence of new models for game development, distribution and support.
- **The opportunity of online distribution:** 70% of the market is currently retail compared with 30% for digital distribution (including MMOGs, Mobile, hardcore and casual online PC and console games). This retail proportion will continue to fall as the digital distribution infrastructure for console and PC starts to offer a viable alternative over next five years. Although new intermediaries should emerge in the online environment, studios may prefer to distribute games directly to consumers 'cutting out the middlemen'.

Threats

- **Console cycle downturns**: Although growth in gaming markets should soften the impact of the anticipated 2010-2012 downturn in the games console cycle (ahead of the new generation of consoles in 2012), publishers are expected to continue investing in new technology, focus on more internally developed titles and become more risk averse towards third party IP.
- **Publishers divert resources to cheaper territories:** Publishers are increasingly reacting to improved conditions in emerging, cheaper games development markets. They are also being attracted to subsidised territories, and this has already resulted in belt-tightening and divestment of studios acquired between 2005-7 (several in the UK) that are now surplus to requirements, or too expensive to maintain.
- **Policy impacts the playing field:** Cost and access to talent drives most global companies' investment decisions, and as younger territories mature, their subsidies may divert investment, studios and headcount away from more expensive, less subsidised territories such as the UK.

- **Overseas incentives for relocation:** A number of territories such as Canada and Singapore have successfully attracted mature companies and individual (particularly senior) staff from more expensive territories with strong programmes of incentives and subsidies.
- **High studio and workforce mobility:** Games staff face far lower barriers to emigration in an increasingly globalised and footloose industry. The work force's ability (and willingness) to move to territories where employers will pay better for skill sets in high demand is increasing. In addition, the mildness of clustering effects[34] – although talent pools build up around studios, games companies largely do not need to be co-located – means that companies as well as staff face fewer geographical constraints when deciding about their location.
- **Slow speed of response to online gaming opportunities:** Some territories, including the UK, have responded slowly to the opportunities created by the highly profitable online gaming market.
- **Falling levels of new games on traditional platforms:** As production costs continue to rise on consoles, the number of studios that can afford to create new games on these platforms decreases.

Features of successful studio sectors in 2013

By 2013 the competitive landscape of the games sector will be substantially different. We would expect the following features present in any strong and successful national development sector.

Strength of independent studio sector

A healthy independent studio sector is necessary in order to create original new games and innovative genres that challenge the status quo. A strong independent sector also improves job mobility and adequate training, facilitates knowledge transfer and dissemination of good practice, and encourages collaboration between specialists (which also supports service and technology companies). Whilst some companies will continue working for global publishers on increasingly large games for the next console generation, an increasing proportion will have created more stable (and sustainable) revenue flows by going direct to consumer via digital distribution. The most successful and profitable will develop and support their own online services.

Strength of publisher studio sector

Publisher studios will increasingly form the rump of a territory's studio sector, growing to significant scale and providing a training ground for new staff (who might eventually leave to start their own independent enterprises). In mature territories, they will often represent the best opportunity for staff to work on the latest technology and games platforms. In new territories, these studios will form the foundations of future studio sectors.

Strength of indigenous publishing sector

A healthy indigenous publishing sector will increasingly prove an essential component of a successful games sector, and for many territories online gaming presents a real opportunity to step up a gear. Developer/publishers such as Jagex and Codemasters will thrive in these market conditions, and attract acquisition interest. These companies represent the best opportunity in over a decade for the UK to reach the medium tier of global publishers, or even (through merger or creation of a blockbuster online franchise) the top tier (with World of Warcraft and Club Penguin).

Strength of services sector

The services sector does not tend to be geographically tied to its customers, but instead to high quality talent pools. By 2013, technology companies will continue spinning out of universities. They will be specialising in games production tools and middleware including procedural content generation, animation and networking technology that reduces the cost of next generation console development. High-end outsourcing companies in art, animation, programming, localisation and quality assurance will be fairly thin on the ground in mature territories due to the ability of lower cost territories to deliver comparable results.

[34] In other words, games firms and their suppliers are not as likely to be co-located as in other industries.

Resiliency to the changing console cycle
A successful studio sector will have balanced its reliance on console development, particularly work for hire, with a focus on lower-end platform games on mobile, handheld and online. The console cycle will directly affect just over 50% of companies by 2013 as new digital platforms start to dominate. Development on the next generation consoles will require ever larger teams and budgets, and the number of titles major publishers can afford to release on these platforms will continue to reduce. Publishers themselves will start to hedge their bets focusing on lower cost, lower risk, higher margin platforms by building or acquiring their own digital distribution channels.

Global sales ranking
Maintaining position in the global sales rankings will require increasing presence in the online games markets, which will dominate the global markets. Korea and China's rise into the top rank of the global development market is entirely driven by their strong online capability. Without a strong foothold in online gaming, currently lacking in the UK, a top 5 position will not be possible.

Creative strength of existing talent pool - offline
This is a permanent requirement for success, although the platform focus will change as the market grows. As high-end games reach wider audiences and are judged with similar criteria to those applied to film or television, offline games will need to access, acquire or develop their capabilities for narrative, scriptwriting, emotional engagement and episodic storytelling.

Creative strength of existing talent pool - online
The skills required for online development (particularly in continuously updating games) will lead to change in profile of the average developer. This will usually mean a decrease in the average proportion of highly trained and expensive creative staff (from their current proportion of above 90% to around 60%). There will be a consequent increase in less well-trained lower value support staff. This will require restructuring some studios' staff profiles and could even result in some redundancies amongst companies making the transition from offline to online games development.

Technical strength of existing talent pool - offline
Another permanent success factor, this will increasingly focus on production efficiency in an ever-diversifying platform base, using methodologies based on rapid iteration and prototyping. Visual quality requirements in video games will continue increasing. The new generation of games consoles will require major investments in new technologies, as well as new approaches for their effective exploitation.

Technical strength of existing talent pool - online
The technical skills required for online gaming are markedly different for those necessary in traditional development, but at this point they should be well understood by most studios. The technology and skills required for online disciplines – networking, matchmaking, customer support, account management, customer relationship management and billing (some transferrable from other sectors such as multimedia and web design) - will become increasingly common.

Skills availability (graduates)
Graduate staff will continue to be in high demand, but the number of staff positions in high-end console games development will grow more slowly than those required for customer support in online games. There will be a boom in the population of lower skilled staff working in the service side of the industry, either inside publisher-developers or in outsourced service providers.

Skills availability (experienced staff)
Experienced staff with a specialisation in platform, technology or genre will remain highly sought after. It is expected that an elite of short term contractors will join more permanent teams working on specific parts of games projects, particularly on high value / cost services such as script-writing, games design, artificial intelligence, physics and customer relationship management or data mining. It is also expected that skilled staff will be instrumental in initiating changes in working practices which still entail large amounts of unpaid overtime, particularly in the UK and US. Territories that adopt a healthier approach to work-life balance will be better able to attract experienced staff.

Labour costs
The pressure of international competition and the improved capabilities of lower cost development territories will keep western salaries from major inflation, but salary costs for major projects are expected to dampen output amongst publishers and lend a natural cap to the viable scale in an independent studio.

High-end platform experience
Around 40% of the total games market's sales will derive from high-end platforms such as TV consoles, hardcore PC games and high-end MMOGs, so experience in these platforms will be important to part of the market. Sales will not fall (beyond the usual cyclical effects as new consoles are launched or old ones retired) but the number of titles will be reduced.

Low-end platform experience
Around 30% of the market will be in the handheld consoles and casual PC area. These markets will become more important for mass audiences.

Online game experience
Casual online games, virtual worlds and mobile games will constitute the remaining 30% of the market. The number of titles competing in these areas will continue to increase exponentially.

Availability of government support
Government support for games development will become an important differentiating factor between major (and mature) games development territories, particularly those that focus on offline development. The exception to this is the US, where not all states with major games clusters will have enacted such tax credits, but where the access to finance and the scale of the domestic market still allow unrestricted growth. It seems unlikely that tax credits will be approved in the UK, and this will have contributed to the UK's decline in development staff headcount and global sales ranking.

Access to trade finance
As the online game sector grows, studios will have more stability to self-finance and self-publish titles, trade finance (publishers funding production via advances) will become less important, supplying funds to the 50% of studios creating console and high-end PC games.

Access to non-trade finance
Although many online games companies are self-funded, they will often require financial assistance to reach scale, and it is expected that online games companies will increasingly access global capital markets to raise the necessary funds.

Future competitive indicators table[35]

In 2013, on current trends, the leading development territories are projected to have the following features, each scored in comparison to its peers. These scores are a subjective assessment by this report's authors based on current data and projections on each territory's strengths and weaknesses.

	USA	Japan	Korea	Canada	UK	China	France	Germany
Strength of independent studio sector	10	9	10	6	5	7	3	2
Strength of publisher studio sector	10	9	10	9	6	7	5	5
Strength of indigenous publishing sector	10	9	6	1	4	7	7	3
Strength of services sector	7	6	3	7	6	5	4	4
Resiliency to the changing console cycle	8	7	10	6	5	10	3	5
Global sales ranking	10	9	7	5	6	8	3	4
Creative strength of talent pool – offline	10	8	2	9	10	4	4	3
Creative strength of talent pool – online	10	4	8	6	6	7	3	8
Technical strength of talent pool - offline	10	8	2	9	9	3	5	4
Technical strength of talent pool - online	10	4	10	6	6	9	3	8
Skills availability (graduates)	10	8	7	9	5	8	3	2
Skills availability (experienced staff)	10	8	7	7	6	5	4	4
Labour costs	2	3	8	7	3	7	4	4
High-end platform experience	10	10	2	10	8	1	4	2
Low-end platform experience	10	10	7	6	7	3	5	4
Online game experience	9	4	10	4	5	8	4	8
Availability of government support	7	4	7	10	2	5	8	2
Access to trade finance	10	8	8	8	6	8	5	2
Access to non-trade finance	10	6	7	5	4	8	3	6
Total	**173**	**134**	**131**	**130**	**109**	**120**	**80**	**80**

[35] Key for scoring

Scale of independent development sector	Number of staff and studios working in independent sector
Strength of publisher studio sector	Number of staff and studios working in publisher sector
Strength of indigenous publishing sector	Number of indigenous publishers
Strength of services sector	Number of local tools, technology and outsourcing companies
Resiliency to last console cycle falls	Numbers of companies lost between 2000-2007
Global sales ranking	Position in global sales charts (2006-2008)
Creative strength of talent pool – offline	Ability to create new IP and genres in offline games
Creative strength of talent pool – online	Ability to create new IP and genres in online games
Technical strength of talent pool - offline	Technical ability on offline games platforms
Technical strength of talent pool - online	Technical ability on online games platforms
Skills availability (graduates)	Graduate output (generalist and games-specific)
Skills availability (experienced staff)	Mobility of experienced staff
Labour costs	Total staffing costs (including overheads)
High-end platform experience	Current generation console and PC experience
Low-end platform experience	Handheld, mobile and casual games experience
Online game experience	Multiplayer or casual online game development and delivery
Availability of government support	National and regional government support
Access to trade finance	Access to publisher/distributor funding for new IP / licences
Access to non-trade finance	Scale of listed/private fundraising

Gap analysis for the UK

Strength of independent studio sector

Year	2008	2013
Score	6	5

The UK's independent sector, already weakened by acquisitions of some major studios and consolidation of others between 2004 and 2008, will continue to decline as larger studios managing or creating important brands are acquired by their publisher clients. This trend will be exacerbated by studio relocations to subsidised territories. Work for hire will remain the mainstay of the revenues of most independents working on high-end platforms. Despite a few studios growing strongly, overall staff numbers in independents will continue falling as a consequence of rising production and labour costs, constraints in access to finance and limited government support. This contributes to an ongoing decline in the independent sector's ability to originate new games IP on major platforms. However, those studios that have succeeded in the making transition to online games development and service provision will be better placed to achieve higher rates of profitability, blurring the boundary between independent developers and developer/publishers.

Strength of publisher studio sector

Year	2008	2013
Score	7	6

Publisher studios are also expected to start to decline, under the same pressure as the independent sector. Global publishers' barriers to exit are inherently lower than independents and the siphoning of development resources from the UK that began in 2007-2008 will continue, with the lowest value jobs in QA, support and testing under greatest threat from relocation to subsidised territories. This will reduce the supply of trainees who typically join the industry in these lower value roles, increasing wage and cost pressures, and encouraging talented individuals to emigrate to healthier development territories. While a handful of acquisitions of independents will limit the decline in this area, the remaining studios will survive as producers of key new games for publishers. The need for ever larger teams (some of them simply experienced teams working on minor titles), which drove some publishers' acquisitions between 2004-2008, is not expected to benefit the UK during the next console cycle as much as other cheaper, maturing territories.

Strength of indigenous publishing sector

Year	2008	2013
Score	3	4

As the opportunities for publishers to go direct to consumer become apparent and the greater availability of finance for networked propositions triggers the creation of more developer/publishers, the UK sector is expected to benefit mildly from this form of indigenous publishing. Companies like Jagex, MiniClip and Codemasters (if they remain independent) will be the UK's most successful developer/publishers, but their inability to access major rounds of financing that could propel them into the top tier of global publishers will stop runaway growth.

Strength of services sector

Year	2008	2013
Score	7	6

While UK technology companies will remain world class and continue to grow their headcount and profitability, the population of UK-based providers of outsourced development services such as art and animation will decrease, concentrating on high end work, while competitors located in India, China and Eastern Europe will become dominant in the provision of most art and animation outsourcing solutions.

Resiliency to the changing console cycle

Year	2008	2013
Score	4	5

The UK's studio sector will slowly begin to adjust to the opportunities of new platforms less exposed to the console cycle. Some of the largest studios will remain focused on work for hire on next generation consoles, which will be reaching mass-market penetration by 2013, but the numbers of studios will be lower than they are now. Many UK studios will instead focus on handheld, PC and casual online console games. Mobile gaming is expected to remain relatively poorly represented in the UK, where a new generation of touch screen handsets will only slowly counter the value chain congestion, market consolidation and falling consumer interest of 2006-8. In aggregate terms, the UK studio sector will become marginally more resilient to the impact of the console cycle.

Global sales ranking

Year	2008	2013
Score	6	6

Sales potential from UK-made games is still relatively healthy and growing between 2008 and 2013, but its sales ranking will fall behind China, whose massive domestic market will power its studios' output into the top 4 (and eventually top 3) of the world sales charts. While competing fiercely with Canada, the UK is expected to retake its fifth position in the world rankings in 2010. These rankings are heavily influenced by the strength of a few global blockbuster franchises, such as Grand Theft Auto, which is assumed will remain being developed in the UK. This obscures a gradual decline in the UK sector's global sales profile compared to other territories.

Creative strength of existing talent pool – offline

Year	2008	2013
Score	10	10

The UK's talent base, while it may become smaller and more concentrated, will remain world class. The UK will start to reap the benefits of being co-located with two of the world's most mature traditional media industries, television and film. Increasing cross-fertilisation between these media will result in new genres and new IP opportunities. However, barriers to entry for new IP will remain, thus confining these new genres to online and lower end platforms.

Creative strength of existing talent pool – online

Year	2008	2013
Score	4	6

The UK will slowly improve its capabilities in this area, as more studios specialise in or extend their products to online platforms. However, to do so will require many companies to shift their focus to adapt to the very different requirements of online platforms, a process which will be gradual.

Technical strength of existing talent pool – offline

Year	2008	2013
Score	9	9

Although the studio sector may become smaller and more concentrated, its technical capabilities for offline development will remain world class.

Technical strength of existing talent pool – online

Year	2008	2013
Score	4	6

The UK will increase its presence on the online gaming market. Much of the back-end infrastructure required for online games provision and maintenance will be acquired from other territories, leaving the UK's developers to focus on project specific requirements.

Skills availability (graduates)

Year	2008	2013
Score	4	5

The UK's availability of graduates is expected to improve as games-specific degrees become more relevant following a major push from the industry in this area. The dilution in average skill requirements for the growing services side of online games businesses is expected to have only a minor impact, because many companies will simply source these services from cheaper territories overseas.

Skills availability (experienced staff)

Year	2008	2013
Score	7	6

Here the expected brain drain and relocation of studios to subsidised territories is expected to take its toll, with a gradual fall in overall numbers of experienced staff. Global companies' high demand for experienced western staff to assist in setting up new studios are expected to attract senior developers and managers impacted by downsizing. These staff are attracted by the higher job availability, income tax holidays, quality of life and gentler working practices found in some subsidised territories such as Canada. Game development using temporary contractors is expected to remain relatively uncommon in the UK, due to the small pool of freelancers and the attraction of the high US wages.

Labour costs

Year	2008	2013
Score	3	3

Labour costs in the UK are expected to continue rising in parallel with the other major development territories. However, the UK is likely to face an intense wage inflation following the loss of many junior roles (and gateway roles such as quality assurance and testing) to other territories, and the resulting drop in new industry entrants to fill new positions. In this context, the UK will not able to sustain many super-studios with over 400 staff.

High-end platform experience

Year	2008	2013

Score	9	8

The rising production costs and team sizes for games production on next generation consoles coupled with the falling numbers of studios able to invest in new technologies will reduce the population of studios with this level of experience at the start of the next console cycle. However, 2013 is likely to be the middle of the next console cycle, by which time more studios should have acquired the requisite experience. The resulting picture should be a slight decline in number of studios with this experience compared to today.

Low-end platform experience

Year	2008	2013
Score	7	7

The same factors (illustrated above in high-end console platforms) will drive more UK developers down the value chain, and into cheaper platforms that can be targeted with smaller teams and costs.

Online game experience

Year	2008	2013
Score	3	5

Although some developers will specialise in this category of game, most will acquire new capabilities to support online gaming alongside their other platform offerings. The UK is not expected to turn into a powerhouse of online gaming without a major change of direction, which seems unlikely given the inertia of many UK studios.

Availability of government support

Year	2008	2013
Score	2	2

Despite such support becoming standard for most development territories, including Europe, major additional support for the games development industry in the UK seems unlikely.

Access to trade finance

Year	2008	2013
Score	6	6

Trade finance availability will slightly decline under rising cost pressure from cheaper, rapidly maturing or experienced but subsidised territories. The value and bankability of the UK's talent pool will still attract fairly decent levels of work for hire and the occasional investment in original new IP.

Access to non-trade finance

Year	2008	2013
Score	4	4

Online games companies have in recent years proven better able to raise finance based on business models that generate steadier, more sustainable revenue streams. The gradual rise of UK online games companies should increase the sector's overall access to this form of finance.

Chapter 5: Conclusions

Key challenges for UK games studios

The landscape for games development is getting more crowded and much more competitive with the advent of major new development territories, particularly those more mature development territories with studio sectors supported by governments. Over the next five years, the UK's studios face the following major challenges:

Balancing original game creation with third party licence work
Most small games firms survive by winning work for hire on third party licences held by global publishers. Over recent years, the proportion of revenues deriving from work for hire has increased while the number of original games has fallen. To maintain the UK's position as a significant generator of original new games, a healthy balance between the two types of work needs to be maintained.

Managing rising development costs
Despite decreases in the cost of development on current generation consoles as a result of enhanced development processes and learning, and improvements in competitiveness with a weaker pound, the long-term trend for costs is still upwards. This brings challenges to western-based companies in a rapidly globalising industry. As publishers begin to cast their net wider for studios able to deliver quality games at reasonable costs, the UK's higher comparative costs must continue to be justified by the strength of its talent pool and the quality and originality of the games produced.

Increasing access to finance
To achieve the first two goals and maintain a viable independent sector that, UK companies must become more proficient raising finance from outside the standard industry source of trade capital from publishers. Companies with stronger financial backing should be better positioned to retain control of their copyright, less reliant on work for hire, less vulnerable between projects and better able to take a strategic view about their long-term direction (as opposed to being stuck on the work for hire 'poverty trap').

Maintaining a flow of new company start-ups to refresh the sector
The industry's health relies on start up companies, often but not always founded by veterans, that challenge established assumptions about games genres, create original new games that succeed on the world stage, revitalise the industry and help maintain the overall balance between independent and publisher-owned studios. The life cycle of acquisitions of UK studios by global publishers is cyclical, natural and arguably healthy for the UK industry, but it relies on a pool of viable independent studios being refreshed by company start-ups.

Generally low quality of graduates
The UK industry strongly believes that students are being largely let down by universities offering degree courses that are often not fit for purpose. Despite a few outstanding examples, many of which are Skillset accredited, most games-specific degrees are a wasted investment by young people keen on breaking into the games industry because so few succeed due to poor training.

Stopping brain drain weakening the sector in the long term
The potential exodus of British talent to territories that deliberately target them with incentives constitutes an important threat for the UK studio sector. In a globalised industry where talent is very mobile and in high demand, British developers unable to find a job in the dwindling UK development sector will simply emigrate, as many have done before. This drain of highly capable knowledge workers will impact the longer-term sustainability of the sector. Countering it requires a range of hard

and soft measures, including a transition towards more progressive working practices with less expectations of long unpaid overtime as part of game development.[36]

Accessing new markets and demographics

Some of the fastest growing sectors of the games market include mass-market, social gaming and the Asian games markets, both of which offer major opportunities for companies able to develop games that address the demand from new demographics (including female and older gamers) and regions. Encouraging race and gender diversity in UK production teams is one strategy that could contribute to bridge these cultural divides.

Lack of governmental support

The approach commonly adopted by governments to bypass constraints in access to finance and skills in this important knowledge industry in most western territories (except the federal US) is targeted intervention by national or regional government. The market reality is that such support is widespread and growing in almost all major competitors territories (including many states in the US), and the UK government's current unwillingness to assist the industry should be expected to reduce its competitiveness against subsidised territories.

Rising to the challenge

This review of policy measures and market conditions in the UK and some illustrative competitor territories illustrates how the current market opportunities can also be seen as opportunities for the UK games development sector which has the capabilities and talent to remain at the top of the global rankings. In order to achieve this, a number of actions to address current structural weaknesses and react to processes of technological change will be necessary.

Increasing the flow of original new games

As we have shown, if the industry is to remain viable and world class, its output must be balanced between original games and work on 3rd party licences. Restoring that balance means finding more viable commercial models for the financing and production of games on high-end platforms, increasing access to finance to promote the stability and innovative potential of existing and start-up studios, and exploiting opportunities for original IP creation on new platforms.

Exploiting the massive potential of online gaming

Online gaming is the fastest growing segment of the video game markets. Some of the UK's fastest growing; most stable and profitable companies are those with a strong presence in online gaming. They have also demonstrated they are better able to raise finance,[37] create original new games and retain copyright (in some cases by adopting some functions traditionally undertaken by publishers) and attain greater financial stability. The UK's ability to deliver major releases on consoles and PCs is critical for the technical and creative strength of the UK's studio sector and must be maintained, but across the sector as a whole, more companies need to exploit emerging opportunities in online games.

Growing the online games services sector

In order to make the move towards online gaming, the UK games sector will have to add a substantial services component into development. These functions are based on the less technical skills of customer support and community management but also database design and customer relationship management, both of which might become a new gateway for talent in the industry.

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[36] IGDA's 2004 survey into quality of life found that 51% of development staff expected to leave the industry within 10 years, crunch time was omnipresent, for over 1/3rd of respondents lasted over 65 hours per week, and for nearly half of respondents was uncompensated.

[37] Three of the biggest rounds of private financing in the UK studio sector in the last 3 years have been conducted by Codemasters, King.com and Real Time Worlds, all of whom have substantial online gaming propositions.

However, the transition to new company structures with a smaller proportion of creative workers might be problematic.

Exploiting synergies between converging media

UK studios are well placed to create strong new games in collaboration with traditional media such as television and film. While games on most platforms, particularly on current generation consoles and higher-specification PCs, are pushing the boundaries of what is technically possible, developers should strive to acquire or partner to utilise narrative and storytelling skills in order to increase their audiences' emotional engagement. Convergence between games and other media has the potential to remain a huge growth area.

Increasing the calibre of graduates

The overall quality of graduates from games-specific as well as general science, mathematics and arts degrees must be increased to service the sector's needs. A range of measures, including more wide scale Skillset accreditation, Centres of Excellence and greater promotion of maths and science at degree level could contribute to achieve this longer term goal.

Protecting UK creative jobs while exploiting globalisation

As the UK's talent pool becomes more expensive, its value must be maintained by a range of measures that highlight its creative value while continuing to exploit the opportunities for outsourcing lower value work overseas. This will require further innovations in development processes and methodologies, in which the UK's sector currently excels.

Increasing diversity in development teams

Studios that want to exploit the huge potential of mass-market gaming or the booming Asian domestic games markets should benefit from hiring and training a more diverse workforce that instinctively understands these new markets.

Increasing the availability of more substantial support from public funds

A change in government could result in alterations in the way that Skills Councils and Regional development agencies are funded. These are currently the only sources of support for the games industry available in the UK. If these agencies stop assisting the video game industry through their current range of initiatives, we should expect the sector's competitiveness to further decline.