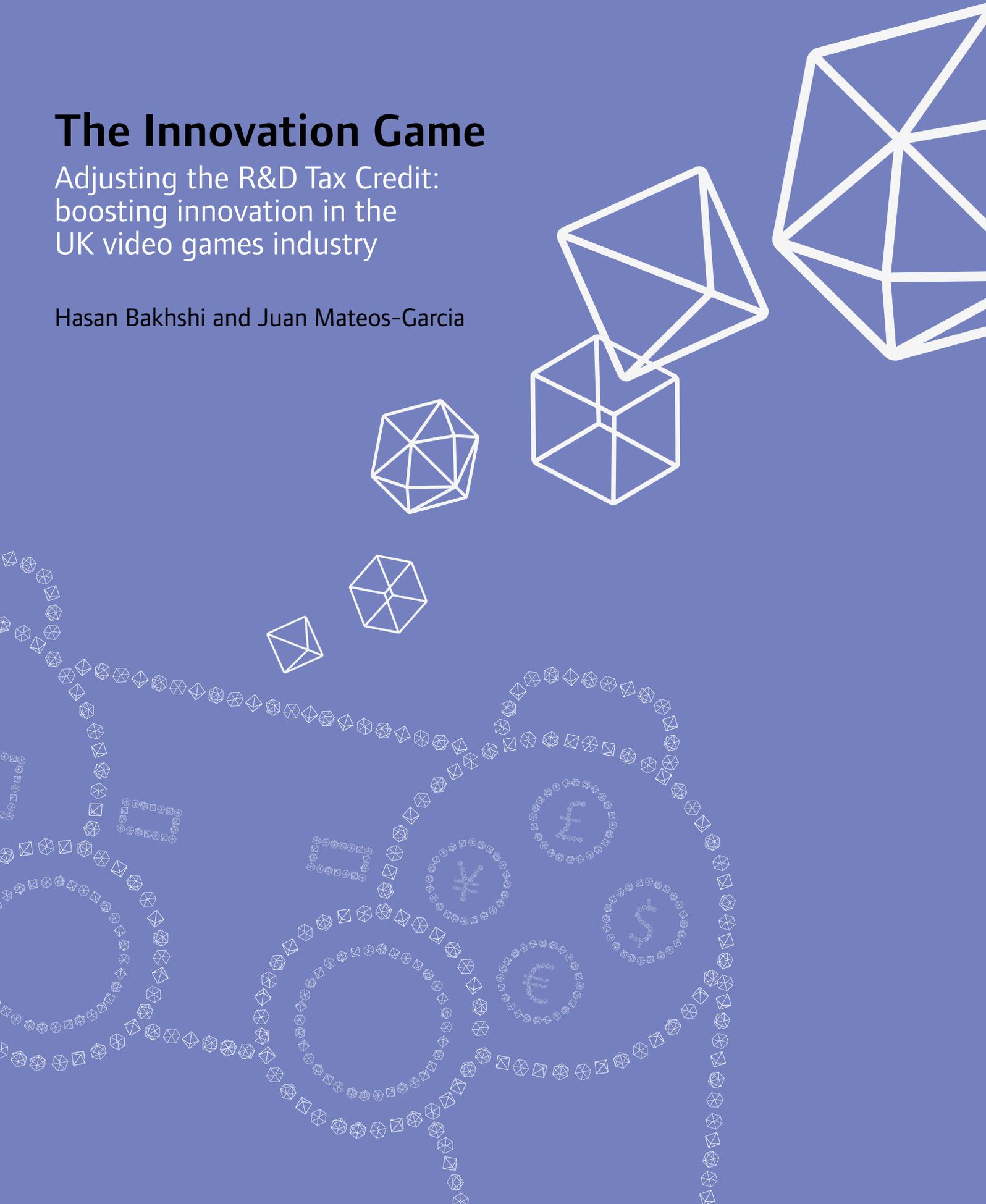


The Innovation Game

Adjusting the R&D Tax Credit:
boosting innovation in the
UK video games industry

Hasan Bakhshi and Juan Mateos-Garcia



Executive summary

Beyond the production tax credit

The UK is home to a renowned video games development industry and is a place where global publishers have historically wanted to do business. But in recent years making video games in the UK has become less attractive, as overseas territories have introduced generous tax breaks in a bid to retain and bring in investment and talent. This seems to explain the UK's decline in the global league tables, from 3rd in 2008 to perhaps 6th place in 2010.

The UK's fiscal environment rules out the introduction of a production tax credit for the sector for the foreseeable future. But it is also forcing policymakers to think hard about how to better target existing measures such as the R&D Tax Credit and Venture Capital Trusts to support economic growth. In a real sense these measures, as currently configured, fail to support the innovation activities of the video games industry – one of the UK's unsung great economic success stories.

Our earlier policy briefing, *The Money Game*, proposed changes to financing schemes to draw in more project finance into the video games industry. This policy briefing recommends modifications to the R&D Tax Credit that would remove unintended obstacles that make it harder for UK video games companies to benefit from the scheme. By grounding our policy recommendations in the distinctive nature of the industry's R&D processes, we ensure that they have only limited implications for other sectors – and hence the Exchequer – but at the same time promise to significantly boost innovation by video games companies.

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The Innovation Game

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1. Chatfield, T. (2010) 'Fun Inc.' Cambridge, MA: MIT Press.
2. Tsotsis, A. (2010) '200 Million People Are Playing Facebook Games Monthly.' Available at: <http://techcrunch.com/2010/09/21/200-million-people-are-playing-facebook-games/> [Accessed 6 October 2010].
3. Huling, R. (2010) 'Gamification: Turning Work into Play.' 'h+ magazine.' Available at: <http://www.hplusmagazine.com/articles/art-entertainment/gamification-turning-work-play>.
4. Games Investor Consulting (2008) 'Raise the Game.' London: NESTA.
5. 'Investing in the Future: a Tax Relief for the UK Video Games Development Sector', London: TIGA.
6. Crossley, R. (2010) 'Braben fears UK's drop to sixth in dev league.' 'Develop Online.' 21 January 2010. Available at: <http://www.develop-online.net/news/33703/Braben-fears-UKs-drop-to-sixth> [Accessed 10 September 2010].

1. The UK video games industry at a crossroads

A video games century

Video games have become a creative medium to be reckoned with, both economically and culturally.¹ This success has been driven by sustained innovation in technology, user interfaces, distribution platforms and business models. These days, video games of all sorts – from blockbusting spectacles to bite-sized casual experiences – are consumed across myriad platforms. The sector has led the creative industries in the development of digital distribution platforms and business models, with online audiences already in the hundreds of millions.²

The sky seems to be the limit: the adoption of video games technologies in education, training and health shows great promise.³ Video games dominate the application ecosystem of many social media, as well as smartphones and thinkpads. The advent of cloud computing gaming platforms such as OnLive and Gaikai, innovative motion controllers from Microsoft and Sony, and geo-location games in mobile phones might well usher in an even stronger era of growth in the sector. The question is, will UK businesses – traditional leaders in video games development – be there to reap the rewards?

A success story for the UK, at least until now

The UK has a longstanding tradition of video games development going back to the 1980s, when a legendary generation of 'bedroom coders' harnessed the potential of cheap programmable computers to create a raft of innovative and commercially successful products. They planted the seeds of what

would grow to become a global development powerhouse behind landmark titles such as *Elite*, *Tomb Raider*, *Grand Theft Auto*, *Fable* and *Little Big Planet*.

As recently as 2008, the UK was the third largest video games development territory by revenue, after the USA and Japan: that year, the sector employed around 10,000 people, generated £2 billion in revenue and contributed £1 billion to GDP. An assessment of the UK's competitive strengths commissioned by NESTA that same year singled out our 'creativity' and 'technical excellence'.⁴

But in recent years the UK has fallen behind in development rankings and future prospects are not good

The Independent Games Association (TIGA), a trade body for the sector, reports that in the year to July 2009, the UK video games sector shed 4 per cent of its workforce; 15 per cent of all video games companies in the UK went to the wall during that period.⁵

Clearly, this period was a bad time for the UK economy, hit by the hardest recession in decades. However, according to the industry, this decline is part of a longer-term trend caused by fierce competition from other development territories – particularly Canadian provinces such as Quebec and Ontario – where video games companies receive generous public subsidies. This uneven international playing field has been blamed for the UK's decline in the global development rankings; down to 6th position according to some industry insiders.⁶

A NESTA survey of video games companies undertaken in August 2009 lends support to this view. It showed that high development costs compared with subsidised territories are

Table 1: Comparative disadvantages of developing video games in the UK

Disadvantage	Percentage of all respondents* (n=24)	Percentage of all independent studios (n=14)
High development staff costs	50%	79%
Low quality education system	38%	50%
Skills shortages	33%	50%
Limited/No government assistance	25%	36%
Exchange rate fluctuations	21%	29%
The brain drain to other territories/inability to retain staff	17%	21%

* Respondents were made up of 14 independent studios and ten publishers

perceived by both developers and publishers as the UK's main weakness.⁷ According to some respondents, skills shortages in the industry, which bid up wages, are being intensified by a brain drain of experienced UK video games professionals to competing territories (Table 1). Many video games developers have repeatedly called for urgent action to stave off this decline, in the shape of a production tax credit in the UK.

The international playing field is indeed uneven

It is hard to deny that UK video games studios face an uneven international playing field: governments overseas, keen to promote high-growth sectors, have lavished generous subsidies on the industry (see Table 2 for a summary).

In addition to tax rebates on development costs (which in the case of the Canadian

7. NESTA (2009) 'Time to Play.' London: NESTA.

Table 2: Summary of fiscal incentives for interactive content production (including video games) in Canada and Europe*

Territory	Montreal	Ontario	France
Available measures	Tax Credit for the production of Multimedia (rebate up to 37.5 per cent on 90 per cent of all eligible expenditures)	Ontario Interactive Media Tax Credit (rebate up to 40 per cent of all labour expenditures) Intellectual Property Development Fund (rebate 30 per cent of eligible early-stage development activities, capped at C\$150,000)	Production Tax Credit for cultural video games (20 per cent of qualifying labour expenditures for projects that pass a cultural test)
Levels of expenditure	£500 million between 2004 and 2008 (including tax credits and other grants)	C\$12.43 million spent on the Interactive Tax Credit between 2008 and 2009 C\$10 million spent on the Intellectual Property Development Fund between 2009 and 2010 C\$263 million incentive package to Ubisoft over 10 years	€170 million in 2008

* Thanks to Nordicity for its assistance in putting together this table.

province of Quebec can amount to 37.5 per cent of qualifying labour expenditures), many territories provide additional incentives for video games development: they entice foreign experts with tax holidays, support independent video games studios with Intellectual Property Development Funds and directly subsidise publisher investments in their territories. In some cases, such as British Columbia, they also favour investments in the sector through tax incentives for venture capitalists.

The amounts involved are staggering. Quebec's government has injected £500 million into the sector in recent years,⁸ while Ontario has granted a single publisher a C\$263 million incentive package over ten years to set up a studio in the province. In 2008, France had already disbursed €170 million via its Production Tax Credit for video games that pass a cultural test.

However, other development territories have managed to remain competitive without government support

Something not often recognised is that Japan and South Korea are still at the top of the global rankings without bespoke, large-scale support for video games companies. German studios too have attained healthy rates of growth in spite of their government's apathy – some would argue even hostility – to video games. Similarly, the Nordic countries and Australia have established themselves on the global map of video games development, and attracted substantial levels of foreign investment, without the sort of measures available in Canada and France.

That other arguably 'expensive' countries are succeeding globally suggests that government subsidies overseas are only part of the explanation for the UK's decline in global rankings. This policy briefing sets out to tell the rest of the story, and puts forward some policy recommendations which can help change its ending from one of industrial decline to one of growth.

Structure

Part 2 examines the reasons for the decline of the UK as a global leader in video games development. Studios in the UK face competition from both emerging markets with natural cost advantages, such as Eastern Europe, China and Singapore, and western territories where development is in some cases heavily subsidised. This cost disadvantage, compounded by skills shortages, explains why

the UK is becoming a less attractive place to invest in video games development.

Innovation in technologies, content and business models can stave off this decline, by making UK video games companies more productive and efficient, and helping them to develop new products and services ahead of their cheaper competitors overseas.

HMRC's Research and Development (R&D) Tax Relief scheme is one of the main mechanisms through which the UK government encourages innovation in the private sector. In Part 3 of this briefing, we look at the R&D Tax Credit, arguing that, as currently configured, it is particularly difficult to access for video games companies with their distinctive R&D processes.

In Part 4, we propose adjustments to the scheme that can help UK video games companies benefit from it. We do this mindful of the current fiscal environment: the reforms we propose would make it easier for video games companies to offset *bona fide* spending on R&D for tax purposes without opening the floodgate to claims from other sectors, thus bounding the cost to the Exchequer.

2. Competitive advantage in the video games industry: a costs game and an innovation game

Long on costs, short on skills

UK video games developers have to compete against both naturally cheaper territories such as Eastern Europe, China and Singapore, and others, particularly Canada and France, where generous public subsidies artificially push down costs. This creates obvious challenges for the UK, considering that global publishers look to maximise net returns when making their foreign investment decisions (where to make video games, and who to work with).

Skill shortages only intensify this problem. The UK video games industry has long complained about the low quality of specialist video games courses at universities. Indeed, only 18 per cent of those who graduated from these courses in 2007 managed to gain a job in the sector.⁹ A third of respondents to NESTA's 2009 survey reported that 'skills shortages' remain one of the main barriers to making video games in the UK (Table 1).¹⁰

8. Games Investor Consulting (2008) 'Raise the Game.' London: NESTA.

9. Games Investor Consulting (2008) 'Raise the Game.' London: NESTA.

10. NESTA (2009) 'Time to Play.' London: NESTA.

The consequence of this is that many UK studios prefer to recruit from generalist courses such as computer programming, physics and mathematics. Competition from employers in other sectors such as IT, financial and business services pushes salaries – and the development costs of the UK video games sector – even higher. Despite the recession, surveys suggest that the average salary for a UK video games developer grew between 2009 and 2010.¹¹ Skillset data from 2008 show that the average income for personnel in the video games sector is 16.4 per cent higher than the average for all creative media sectors.¹²

Ian Livingstone's Independent Skills Review for government will set out actions to upgrade the supply of talent for the UK video games sector

Now that a production tax credit for video games studios has been ruled out for the foreseeable future, it is especially important that the education system produces the right workforce skills and competencies the UK needs to compete in global markets.

Ian Livingstone's Independent Review for Ed Vaizey, which NESTA is leading, is tasked with producing a blueprint to transform the UK into the best source of talent for video games production in the world. The Review is examining the talent pipeline for the video games (and visual effects) industries, beginning with schools, through to Further and Higher Education and into industry itself. It will make recommendations to government, education providers and businesses which will leave these industries better placed to react to, and shape, future changes in their technologies and markets.

But innovation will be essential

Innovation can give UK studios a competitive edge over cheaper and subsidised territories. Indeed, it is what drew global publishers to these shores in the first place. But there are some worrying trends: original IP development for consoles has ground to a halt¹³ and, with the exception of a handful of companies such as Jagex, Playfish, King.com and Kongregate, the UK video games sector is lagging behind in its transition to online and mobile markets.

In our previous policy briefing, *The Money Game*, we argued that this 'innovation deficit' is linked to the UK's overt reliance on publisher-funded development activities.¹⁴ To address that, we called for changes to existing incentives schemes for external investment in innovative companies – Venture Capital

Trusts and Enterprise Investment Schemes – in order to help video games companies tap into external sources of finance.

This briefing looks at the R&D Tax Credit and its support for innovation in the UK video games sector

For the rest of this briefing, we focus on the R&D Tax Relief scheme, the main fiscal incentive to support innovative activities in the UK. In order to determine whether the scheme is fit for the video games sector, we produce a 'lifecycle' of a tax relief claim and map it against the characteristics of the sector and its R&D processes. We argue that distinctive features of video games development make it harder for the industry to benefit from the scheme. We propose modest changes to the R&D Tax Credit, and to the way in which it is administered, to increase its relevance for UK video games companies in particular. We do not in this briefing explore arguments for wider reform of the R&D Tax Credit, as considered, for example, in James Dyson's Review of science and technology policy.¹⁵

3. The R&D Tax Credit and innovation in the UK video games industry

An existing fiscal incentive for innovation

It has long been acknowledged that business spending on R&D generates benefits (positive spillovers) that are not fully captured by the firms undertaking it. In a free market, the level of investment in R&D is lower than is socially desirable and, as such, there is market failure that may justify government intervention. Governments in increasing numbers of countries are resorting to fiscal incentives to encourage R&D.^{16,17} In the UK, HMRC introduced an R&D Tax Relief scheme in the year 2000 (see Box 1 below for a primer). In the 2010 Budget, the Chancellor announced that in the autumn the Government would be undertaking a review of the scheme and how it impacts on innovation.¹⁸

Video games is a high-innovation industry

Video games companies tend to be high-tech, innovative businesses, with around 80 per cent of their workforce being graduates.¹⁹ Many of these deploy their STEM skills to push forward the technology – as well as artistic – frontier. Skillset reports that 26 per cent of graduates working in the industry have a Computing or IT degree, and 12 per cent have degrees in Science or Mathematics.²⁰ Thirty-eight per cent

11. French, M. (2010) '£30,442 – that's the UK's average games development salary.' Available at: <http://www.develop-online.net/news/31461/30442-thats-the-UKs-average-games-development-salary> [Accessed 6th October 2010].
12. Skillset (2008) 'Creative Media Workforce Survey.' London: Skillset.
13. NESTA (2009) 'Time to Play.' London: NESTA.
14. Bakhshi, H., Gatland, T. and Mateos-Garcia, J. (2010) 'The Money Game.' London: NESTA.
15. Dyson, J. (2010) 'Ingenious Britain.' Available at: http://www.conservatives.com/News/News_stories/2010/03/--/media/Files/Downloadable%20Files/Ingenious%20Britain.ashx?dl=true [Accessed 6 October 2010].
16. Most recently President Obama has called on Congress to expand and make permanent the R&D Tax Credit in the US (costing around \$100 billion over ten years). See <http://www.ft.com/cms/s/0/91a6cad2-b912-11df-99be-00144feabdc0.html>.
17. Estimates of the impact that R&D Tax Relief has on R&D spending are notoriously wide-ranging. EIB (2009) surveys 31 studies and gives a range of 0.25 to 3.33 for the impact that a 1pp increase in tax relief has on business spending on R&D. See Mairesse, J. and Lentile, D. (2009) 'A Policy to Boost R&D: Does the R&D Tax Credit work?' Luxembourg: European Investment Bank.
18. See http://www.hm-treasury.gov.uk/d/junebudget_complete.pdf, page 26.
19. Skillset (2010) 'Computer Games Sector – Labour Market Intelligence Digest.' London: Skillset.
20. Skillset (2010) 'Computer Games Sector – Labour Market Intelligence Digest.' London: Skillset.

Box 1: A primer on the UK's R&D Tax Relief Scheme

The UK R&D Tax Relief scheme allows UK firms undertaking R&D to deduct from their corporation tax an amount proportional to their qualifying R&D expenditures. Small and medium-sized firms can reduce their tax receipts at the end of the accounting year by 175 per cent of their qualifying expenditures or, if they have made a loss, claim a cash tax credit from HMRC. Large firms can reduce their tax bill by 130 per cent of their qualifying expenditures.

Following the OECD's Frascati Manual, HMRC's guidelines define an R&D project as one aimed at achieving "an advance in science and technology through the resolution of scientific and technological uncertainty". These advances are considered at the level of the scientific field or technology area, not at the level of the company. Qualifying costs include those incurred in activities that directly contribute to resolving scientific or technological uncertainties within the project – for instance, the creation and adaptation of software, materials and equipment, as well as planning, design and testing. There are also some 'indirect activities' that qualify for R&D tax relief, including training and research services commissioned from universities.

In the case of 'mixed' expenditures (for example, an employee working half of her time in an R&D project), only the share of the cost pertaining to the R&D project qualifies for relief.

In order to benefit from R&D Tax Relief, claimant companies crucially need to describe the scientific or technological uncertainty that the R&D project set out to address, and the methodology that was implemented with this aim when they submit the claim at the end of their accounting year. The SME R&D Tax Relief scheme is administered by specialist HMRC units located in seven cities across the UK; a different unit takes care of claims from large companies.

One important feature of the R&D Tax Relief is that claimants can still benefit from it even when a project setting out to advance the state of knowledge in science or technology fails to achieve its goals. It also acknowledges the time lag between investment in innovation and commercial returns by enabling small and medium-sized enterprises to receive a tax credit even if they make a loss at the end of their financial year. This makes it a particularly valuable measure to encourage innovative projects with uncertain outcomes.

Although the R&D Tax Relief scheme has been modified and augmented several times since its introduction in 2000, James Dyson's review of high-tech manufacturing published earlier this year highlighted that more work needed to be done to ensure that 'the right companies' benefit from it. In particular, by refocusing the relief on smaller high-tech firms and start-ups that find it harder to fund their innovation activities, and by streamlining the application process.

Sources: <http://www.hmrc.gov.uk/ct/forms-rates/claims/randd.htm> [Accessed 13 October 2010]; also Dyson, J. (2010) 'Ingenious Britain.' Available at: http://www.conservatives.com/News/News_stories/2010/03/~media/Files/Downloadable%20Files/Ingenious%20Britain.ashx?dl=true [Accessed 6 October 2010]; also OECD (2002) 'The Frascati Manual.' Paris: OECD.

21. TIGA (2010) 'State of the UK Video Game Development Sector 2010.' London: TIGA.

22. Ibid.

of the 78 video games companies surveyed by TIGA in 2010 claim to invest in R&D.²¹

There are also many examples of spillovers from the innovative activities undertaken in the sector. Technologies initially developed by video games companies are being applied in areas as diverse as training, visualisation and simulation.

But does the R&D Tax Credit work for video games companies?

As a high-innovation sector one might expect its R&D activities to fall within the scope of the R&D Tax Relief scheme. Indeed, 29 per cent of all those surveyed in 2010 reported having benefited from it to some degree.²² The sector has, however, complained that, as currently designed and administered, the R&D Tax Relief

scheme is not sufficiently supportive of their innovative activities. Seventy-three per cent of respondents to the TIGA survey stated that “a more liberal R&D Tax Credit” would be helpful for their business.²³

The rest of this section discusses ‘grey spots’ in the R&D Tax Relief scheme that unduly limit its relevance to UK video games companies in particular. It does not consider wider-ranging changes in the definitions that underpin it – such as what constitutes R&D, or whether altogether new types of expenditures should qualify. We restrict our focus to pinpointing areas where changes can be made to the existing scheme to remove unintended biases against video games companies reflecting their distinctive features and R&D processes, thus limiting the overall cost to the Exchequer.

The R&D Tax Credit lifecycle

We have drawn on HMRC’s documentation to produce a ‘lifecycle’ of an R&D Tax Relief claim (Figure 1) which describes the key steps in its administration. Afterwards, we show how the distinctive features of R&D processes in the UK video games sector make it difficult for genuine R&D investments it undertakes to qualify.

i. Awareness and Eligibility: A potential claimant needs in the first instance to be aware of R&D Tax Relief, and establish whether or not they are eligible to benefit from it. HMRC seeks to support innovation across the whole of the economy with this scheme: Table 3 gives a breakdown of claims awarded by sector in 2007–2008.

As a rule, HMRC makes no sector-specific provisions (with the exception of additional relief for vaccine-related research).²⁴ It aims to encourage firms that are not currently investing in R&D to do so, as well as to spur those firms already undertaking R&D to invest in more.

ii. The decision to apply: Companies aware of the scheme, and that are eligible to benefit from it, have to decide whether it is worth their while preparing a claim. Naturally, when doing so, they take into account the expected benefits (the amount they will be able to offset for tax purposes) and costs (legal and consultancy fees, salaries and human resources spent etc.) of making a claim.

Importantly, there is a degree of uncertainty about whether a claim will be approved by HMRC, as well as about its value. Other things being equal, the greater the uncertainty, and the longer the lag between claim and tax relief, the less likely is a company to file a claim.²⁵

In the initial design of the scheme, and through subsequent revisions, HMRC has sought to increase its take-up and usefulness by striving for ‘simplicity’ (reducing the costs of managing the scheme for claimants) and ‘certainty’ (making tax relief predictable so that it can be factored into private investment decisions, thus encouraging R&D projects that would not otherwise be undertaken).

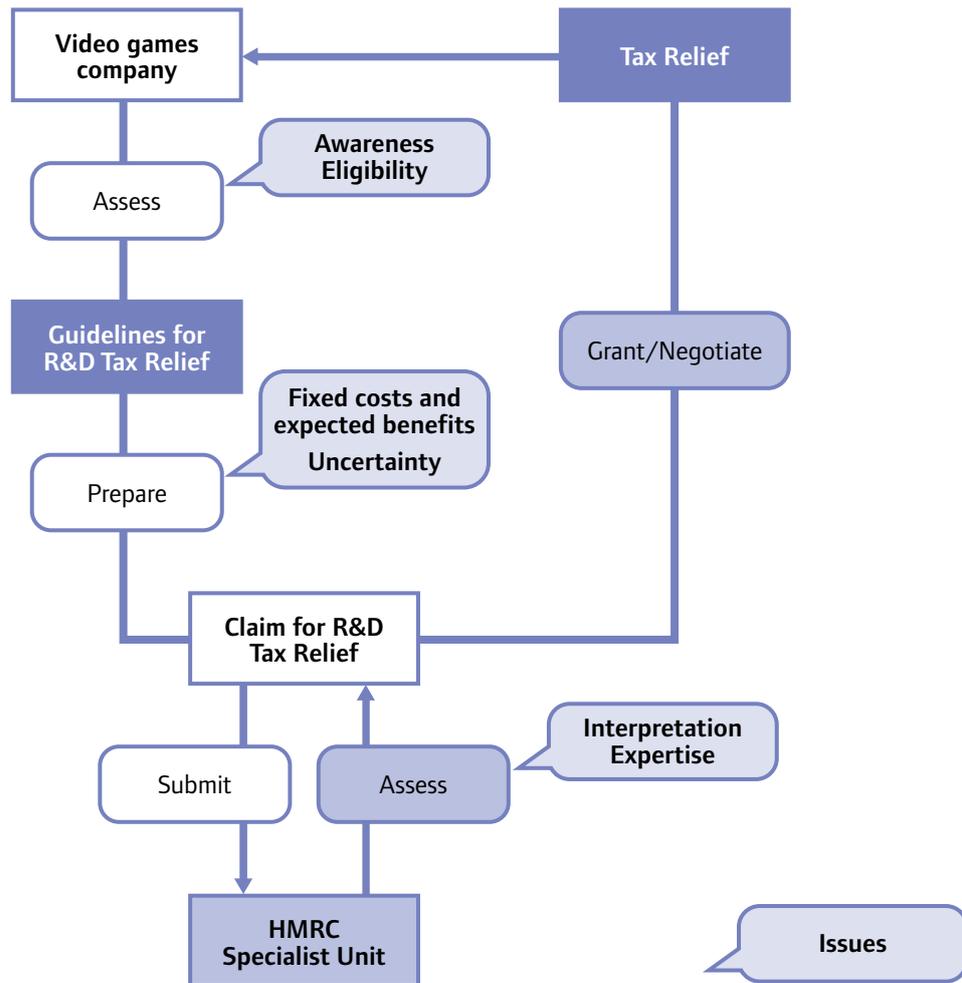
23. This is not far off the 84 per cent that claimed that more general tax breaks for video games production would be beneficial for their business. See TIGA (2010) ‘State of the UK Video Game Development Sector 2010.’ London: TIGA.
 24. HMT/HMRC (2005) ‘Supporting Growth in Innovation: Next Steps for the R&D Tax Credit.’ London: HMT/HMRC.
 25. Of course, some of the costs that a company incurs when preparing a claim (e.g. legal advice and consultancy) are aimed at reducing those uncertainties.

Table 3: Support claimed by industry and type of scheme for the financial year 2007-08

Industrial group (according to SIC code)	Support claimed (£m)	
	SME Scheme	Large Company Scheme
Manufacturing	50	250
Wholesale & retail trade, repair of motor vehicles & household goods	5	5
Transport, storage and communication	5	*
Real Estate, Renting and Business activities	130	210
Health & Social Work	5	5
Other activities not classified elsewhere	10	15
Unknown industry sector	40	20

Source: HMRC KAI Direct Business Taxes team Monitoring Note on Research and Development (R&D) Tax Credits

Figure 1: The lifecycle of an R&D Tax Relief Claim, and associated issues



26. Skillset (2010) 'Computer Games Sector – Labour Market Intelligence Digest.' London: Skillset.

iii. Interpretation of claims, appeals and negotiation: Claims are appraised by HMRC's specialist unit covering the geographic area where the claimant is based. HMRC's specialists – who are not experts in the innovation processes of particular sectors – decide whether the project applying for relief is indeed genuine R&D for the purposes of the Tax Relief. They may request additional evidence about contentious items in the claim. Claimants can respond by submitting revised claims, and appeal against HMRC's decisions if they take issue with them.

HMRC also aims to achieve 'consistency' in the administration of the scheme – this means ensuring that similar claims are treated in the same way, regardless of when or where they take place. Consistency increases the predictability of the scheme as time goes by,

because claimants are able to learn from their interactions with HMRC, for instance in terms of how key concepts in the R&D guidelines are interpreted.

The video games industry and its distinctive R&D processes

Having described the lifecycle of an R&D Tax Credit claim, we now present some distinctive features of the video games sector and its R&D activities which present obstacles for video games companies who should benefit from the scheme.

Like most other creative industries, the UK's video games sector is made up predominantly of SMEs: the latest census for the sector shows that 95 per cent of all companies employ 200 people or fewer, and 36 per cent are micro-businesses with between 1 and 10 employees.²⁶ The majority of these studios adopt work-for-

hire and/or royalty advance business models, where the publishers that contract with them own the IP generated in a project.

But there are other features which are more specific to the UK video games sector and its innovation processes that have consequences for the guidelines and administration of the R&D Tax Relief scheme.

1. Low levels of geographical concentration: Differently from other creative industries, the video games sector is evenly distributed across the UK. Although there are some notable video games clusters (such as Dundee, Brighton, Guildford or Liverpool), no region or nation hosts more than 10 per cent of the video games workforce overall.²⁷

2. Technological innovation intimately supports content delivery and business model development: Video games companies engage in three types of innovative activities:

- **Technological innovation** focusing on the development of software tools and applications for areas such as animation, rendering, artificial intelligence and network management, as well as new hardware (for instance a new console model) and peripherals.
- **Original Intellectual Property (IP) generation** focusing on the creation of novel aesthetic and narrative features that distinguish a video game in the market. Original IP is a crucial source of value in the sector, as it can be exploited in subsequent iterations of a franchise, or across several media (for example, film adaptations and toys).²⁸
- **Organisational and business model innovation** in the organisation of their development process (for example outsourcing), distribution and marketing strategies, and revenue generation. The advent of digital distribution platforms, and online and mobile gaming is driving business model innovation in the sector.

Technological innovation results in tools that video games studios deploy to produce compelling content more effectively, and platforms through which they deliver this content to consumers in new ways – it is the lynchpin of the content generation and commercial activities that take place within

the sector. Many studios develop these tools and platforms internally even though there are ‘middleware’ solutions in the market providing similar functionalities. This way they avoid paying steep licensing fees, and improve their efficiency and flexibility relative to competitors.²⁹

3. Iterative innovation processes: More so than any other content industry, video games development takes place iteratively, as studios experiment with new gameplay ideas, and produce or modify the technologies necessary to deliver them.³⁰ Even though most projects have a ‘pre-production’ stage where a team develops the initial idea for a project, prototypes technologies to deliver it, and identifies risks, their actual implementation (where a project’s technological, scientific and systemic uncertainties are in fact addressed) occurs during the production and even post-production stages of a project. This means that R&D activities are spread throughout the development process, rather than confined to a single ‘R&D stage’.

4. Interactivity: Video games are interactive artefacts. As such, it is hard to establish whether a given technological advance, or attempt to resolve a technological uncertainty, has achieved its goal – not just in terms of consumer satisfaction, but also of technical performance – until it is tested by users. This means that usability testing plays a crucial role in the R&D processes of video games companies.

5. Constant disruptions in technologies and markets: The video games industry has experienced accelerated rates of technological change over the past decade. The processing power of gaming consoles has jumped an order of magnitude with each subsequent generation introduced.³¹ New peripherals and user interfaces such as Nintendo’s Wiimote have transformed the way users interact with video games content. At the same time, the digital revolution has impacted on the development practices and innovation processes of video games companies that have traditionally worked on packaged products for retail.

By contrast, online gaming platforms require a constant stream of updates and improvements for years after launch, both in terms of new content and features

27. Skillset (2010) ‘Computer Games Sector – Labour Market Intelligence Digest.’ London: Skillset.

28. Jenkins, H. (2008) ‘Convergence Culture.’ New York: New York University Press.

29. Grantham, A. and Kaplinsky, R. (2005) Getting the measure of the electronic games industry: developers and the management of innovation. ‘International Journal of Innovation Management.’ 9 (2), pp.182-213.

30. Tschang, T. (2007) Balancing the Tensions between Rationalization and Creativity in the Video Games Industry. ‘Organisation Science.’ 18 (6), pp.989-1005; also Miles, I. and Green, L. (2008) ‘Hidden Innovation in the Creative Industries.’ London: NESTA.

31. Schilling, M. (2003) Technological leapfrogging: Lessons from the U.S. videogame industry. ‘California Management Review.’ 45 (3), pp. 6-32; also Mateos-Garcia, J., Voss, G., Grantham, A., Sapsed, J. and Steinmueller, W.E. (2010) ‘Sticking to their Guns.’ Presented at the Druid Summer Conference, London, June 16-19 2010.

for users, and in terms of improvements in stability, performance and security. Online gaming studios increasingly rely on sophisticated analytic tools to better understand the needs and preferences of their audience, and to implement successful innovation strategies.³²

The barriers to R&D Tax Relief for UK video games companies

Like other SMEs, video games companies typically lack in-house tax and legal expertise,³³ or the resources to access this expertise externally in order to make their claims (a common practice when applying for R&D Tax Relief).

The distinctive aspects of R&D in the video games sector, together with its fragmented industrial structure, geographical dispersion and rapid rates of technological change make it especially hard for HMRC to achieve its aims of ‘simplicity’, ‘certainty’ and ‘consistency’ in the case of R&D Tax Credit claims from innovative video games companies.

1. Eligibility: Who is excluded from the R&D Tax Credit?

Companies that do not own the Intellectual Property generated by an R&D project are currently not allowed to benefit from R&D Tax Relief. This excludes from the scheme video games studios working under commission from other third parties, such as publishers. The coalition government has committed to implement the previous government’s decision to abolish this requirement. Yet, the R&D Tax Relief scheme for SMEs will still exclude companies carrying out work for others, such as video games studios working for hire (it is estimated that 56 per cent per cent of UK games developers work for hire).³⁴ They may still be able to apply for the large company scheme, but with reduced benefits and no possibility to claim a payable tax credit if they don’t make a profit.

Additionally, tax relief is only available for companies spending at least £10,000 a year on qualifying R&D costs over an accounting period. This is likely to exclude from the scheme companies targeting ‘cheaper’ – but also faster growing – games markets where the UK is lagging behind, such as mobile and casual PC. As previous NESTA research has shown, projects targeting these platforms have small budgets, usually

between £25,000 and £100,000.³⁵ This means that, in order to qualify for R&D Tax Relief, companies operating in these markets would have to spend a sizeable – and possibly unrealistic – proportion of their budgets (between 10 per cent and 40 per cent) on R&D-related activities.

2. Bounding R&D in video games development is not straightforward:

By contrast to the neat and relatively self-contained R&D project described in HMRC’s guidelines, innovation in video games occurs throughout the duration of a project, and this can make it difficult and expensive to track down and apportion costs in the preparation of claims.³⁶ This is a common situation for software developers and engineers more generally. Indeed, in its review of the R&D Tax Credit published in 2005, HMRC acknowledged that its staff might require special training to address difficult issues in these sectors.³⁷

3. The R&D Tax Relief guidelines are blurry about some crucial innovation expenditures in video games development

- **Internal development of commercially available technology:** Commercially available middleware tools are generally classified as knowledge which is “publicly available or is readily deducible from the publicly available knowledge or capability by a competent professional working in the field”. This means that much in-house development of these tools – an important area of technological innovation in video games development – is excluded from R&D Tax Relief even though accessing the knowledge ‘under the hood’ of commercial (and closed source) middleware solutions can cost hundreds of thousands of pounds in licensing fees, prohibitively high for most SMEs.
- **Usability testing:** HMRC’s guidelines are insufficiently clear about usability testing activities that play an important role in video games R&D. As they currently stand, HMRC’s guidelines include two categories of qualifying costs that would seem to cover testing aimed at establishing the performance of a new video games technology (“scientific and technological testing” and “feasibility studies to inform the strategic direction of a specific R&D activity”).³⁸ But, at the same time they exclude “the range of

32. Castranova, E. (2005) ‘Synthetic Worlds.’ Chicago: The University of Chicago Press; also Wi, J. (2009) ‘Innovation and Strategy of Online Games.’ London: Imperial College Press.
33. The Skillset Survey of the Audio Visual Industry shows that respondents from video games companies reporting training needs in the ‘legal and financing’ areas are double the average for the audiovisual industries overall; see Skillset (2008) ‘Creative Media Workforce Survey.’ London: Skillset.
34. TIGA (2010) ‘State of the UK Video Game Development Sector 2010.’ London: TIGA.
35. Bakhshi, H., Gatland, T. and Mateos-Garcia, J. (2010) ‘The Money Game.’ London: NESTA.
36. The misalignment between conventional views of R&D and innovation, and actual innovation as it occurs in the video games sector is even wider for studios targeting online markets. In their case, and differently from offline products, the launch date of a given video game is only a milestone in a development process involving the release of a sustained stream of modifications, improvements and additional content afterwards.
37. HMT/HMRC (2005) ‘Supporting Growth in Innovation: Next Steps for the R&D Tax Credit.’ London: HMT/HMRC.
38. See <http://www.hmrc.gov.uk/manuals/cirdmanual/CIRD81900.htm> Paragraph 31g, Example G.

commercial and financial steps necessary for innovation and for the successful development and marketing of a new or appreciably improved process, material, device, product or service”: in fact, one of the examples given in the guidance explicitly refers to ‘user testing’ as not being R&D.³⁹

- 4. Administration of the scheme – lack of sector-specific expertise in HMRC specialist units:** Several submissions to HMRC’s 2005 consultation on improvements to the R&D Tax Credit raised concerns about the lack of scientific and engineering expertise at the HMRC units administering the scheme,⁴⁰ something echoed in recent statements by the video games industry.⁴¹

HMRC has responded that it cannot realistically be expected to maintain in-house expertise in all scientific and technological fields that fall within the scope of the scheme.⁴² And the alternative – to draw on external experts on an as-needed basis – potentially raises disclosure issues. Our analysis has nonetheless pinpointed some features of R&D in video games companies that might make claims from the sector especially hard for HMRC’s experts to interpret.

In particular, if the video games sector were concentrated in one or two regions, the R&D specialist units overseeing those regions might be expected over time to build up in-depth knowledge of its R&D processes, through their sustained interaction with video games companies making enquiries and filing claims. But in fact, as we have noted, the video games sector is very evenly distributed across the UK, which makes this kind of ‘learning by administering’ highly unlikely.

- 5. Maintaining consistency in a rapidly shifting environment:** HMRC implicitly assumes a degree of continuity in the R&D activities of innovative firms – hence the value of consistency. As companies undertake subsequent claims, they learn about the parameters of the R&D Tax Credit, increasing its predictability, and enabling them to factor it more effectively into their investment decisions.

However, and as we have highlighted above, the video games industry experiences discrete transformations with each

generation of console, peripheral and user interface, making it necessary for cutting-edge video games companies to re-engage with the R&D Tax Credit anew if they do not want to be left behind in the sector’s technological race. This also means that any knowledge about the sector that HMRC’s experts may have accumulated through past interactions risks becoming inadequate to deal with R&D activities targeting new markets. Ironically, there is a danger that an excessive emphasis on consistency in the administration of R&D Tax Relief claims from video games companies penalises them because of the cut-throat pace of innovation in the industry.

Summary: high costs, uncertain benefits

This section has argued that there are distinctive features of the video games industry and its R&D processes which mean that *bona fide* R&D activities fall under the radar of HMRC’s R&D Tax Credit. A lack of sector expertise in HMRC compounds this problem. It raises doubts in the minds of games companies about the potential benefits of applying for the Relief, and limits the scope of the claims that are made.

As one video games developer we consulted when researching this briefing put it, it can be hard to justify removing highly qualified personnel from day-to-day production activities, and into R&D, when the additional benefits of doing so, as far as R&D Tax Relief is concerned, are so uncertain.

4. Dismantling the barriers to R&D in the UK video games sector

When announcing his decision to cancel plans for a production tax credit for the video games sector in the Budget of June 2010, the Chancellor argued that the measure was ‘poorly targeted’, meaning that the tax regime should not support specific sectors, but rather encourage growth and employment across all UK industries. This policy briefing argues in similar terms that, as currently configured and administered, the R&D Tax Relief scheme is also ‘poorly targeted’, insofar as it contains in-built biases against the video games sector.

Adjustments to the scheme, such as the ones we suggest below, can go a long way to removing these barriers – and in a way that does not open the floodgate to claims from other sectors.

39. See <http://www.hmrc.gov.uk/manuals/cirdmanual/CIRD81900.htm> Example A, A3.

40. HMT/HMRC (2005) ‘Supporting Growth in Innovation: Next Steps for the R&D Tax Credit.’ London: HMT/HMRC.

41. TIGA (2010) ‘The UK Video Games Industry: An agenda for the next Parliament.’ London: TIGA.

42. HMT/HMRC (2005) ‘Supporting Growth in Innovation: Next Steps for the R&D Tax Credit.’ London: HMT/HMRC.

Raising the profile of the R&D Tax Credit in the eyes of video games companies, and improving access to information about how to apply

The government should signal to the video games industry that the R&D Tax Relief can benefit games companies that make genuine R&D investments, and that the scheme is robust enough to recognise the distinctive nature of R&D processes in the sector. One way it can do this is by providing case studies where this has happened, following the model of other industries such as Biotechnology, Product Design, Software and Microelectronics.⁴³ As it is, the only readily available information about the application criteria of the R&D Tax Relief scheme as it relates to the video games sector is reference to the BE Studios v Smith Williamson case on HMRC's website.⁴⁴ In that case, the courts ruled that a number of development activities undertaken by a video games company were not eligible for the scheme: this is hardly encouraging for those studios exploring the possibility of applying for R&D Tax Relief.

The industry trade bodies, TIGA and UK Interactive Entertainment (UKIE), as well as other networking organisations in the sector, such as Game Horizon, have an important role to play in highlighting the potential benefits of the scheme to innovative video games companies. HMRC should work with games companies that have experience of the scheme to produce templates that can be adapted by less experienced companies when preparing their applications. These should outline the information that video companies could usefully submit on their distinctive R&D activities to HMRC's R&D specialist units.

Clarify the status of important innovation expenditures for video games development

As we have argued, HMRC's current guidelines are unclear regarding the eligibility of important innovation investments in the video games sector, such as the development of middleware tools which are, in principle, publicly available, but only after paying prohibitively steep licensing fees, and usability testing aimed at gauging the performance of innovative video games technologies.

HMRC must recognise that in the process of developing bespoke tools better suited to their own production processes, video games companies might still address scientific and technological uncertainties. HMRC should clarify its stance in this respect, defining more clearly the differences between publicly

available knowledge (for instance, Open Source Software and published academic papers) from knowledge which is in effect privately held because it is only available to other businesses at a prohibitively high cost.

Regarding usability testing, there is again a need to make explicit that certain testing activities involving users genuinely fall within the scope of the R&D Tax Credit: this is when they enable companies to establish whether or not the technological uncertainties that an R&D project has sought to resolve have indeed been addressed. This should include the deployment of analytic tools to identify and resolve technical issues in online platforms, a growing market where strong investments in R&D are sorely needed if UK video games companies are to compete successfully in overseas markets.

Use data collected as a by-product of development to assess R&D Tax Relief Claims

The iterative nature of video games development means that R&D activities are hard to bound within a single stage in a project, making it difficult and expensive to apportion labour costs and other investments in R&D for the purposes of claiming tax relief. As the Confederation of British Industry (CBI) has proposed, HMRC should seek to minimise the effort of collecting data for tax relief purposes by, wherever possible, drawing on the reporting systems that businesses already use for other purposes.⁴⁵

In the case of video games, the control version systems (CVS) that developers use to manage work within a project by measuring and coordinating the coding contributions of different team members, could fulfil such a role. CVS measure objectively the productive inputs of staff in different areas of a project, potentially including those where R&D takes place, and with what intensity. HMRC should explore the possibility of making use of these data, which are produced and collected as a by-product of development, in its assessment of R&D Tax Relief claims from the video games sector.

Provide R&D specialist units with video games specific expertise

HMRC is understandably wary about committing to recruit specialist expertise for all sectors of the economy. Yet, it is crucial that HMRC's specialist units have the minimum levels of expertise required to deal effectively and rapidly with the R&D Tax Relief claims from

43. See <http://www.bis.gov.uk/policies/innovation/business-support/rd-tax-credits/case-studies>.

44. See <http://www.hmrc.gov.uk/manuals/cirdmanual/cird81300.htm>; also Charles, S. (2007) 'Researching R&D Taxation,' 16 August 2007.

45. CBI (2009) 'Impact of the R&D Tax Credit – Adding Value, Reducing Costs, Investing for the Future.' London: CBI.

the industry. The one-day training workshops that Intellect, a trade body for the UK software industry, has in the past organised for tax inspectors at HMRC's residential training centre is one possible model to follow.

Given the wide geographical dispersion of the UK video games industry – unlike other content industries – there might be value in selecting one R&D specialist unit (or setting up a new one) as a single point of contact for video games companies making claims or seeking information, regardless of whether they are located in the UK. This would enable that specialist unit to build a more robust knowledge base about the distinctive R&D processes of the video games sector, and process its claims more efficiently.

Improve access to data on the R&D Tax Relief scheme for evaluation and assessment purposes

The data on the distribution of R&D Tax Relief claims by sector are published at too high a level of aggregation to meaningfully assess

its impact on particular sectors. This presents serious challenges for evaluating the scheme. Subject to disclosure, HMRC should start reporting data on the numbers of claims made, as well as those that have been approved, at a more disaggregated level (there is a new 5-digit code in Standard Industrial Classification (SIC) 2007 which corresponds more closely to the activities of video games developers). This would help identify bottlenecks in the system (for instance, higher than average instances of rejected claims coming from particular sectors, or differences in the behaviour of specialist units across the UK) that need to be addressed.

Considered separately, our proposed changes to how the R&D Tax Credit is administered might, perhaps, have only a small impact on the amount of investment in the sector. But, when actioned together, they would provide a significant boost to video games companies who are considering making investments in R&D – investments which, we have argued, are essential for securing the UK video games industry's future.

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Published: October 2010