Policy

Migration Advisory Committee Shortage Occupation List call for evidence 2018

Response from Ukie, the Association for UK Interactive Entertainment

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Response to MAC consultation on the Shortage Occupation List

About UK Interactive Entertainment (Ukie)

Ukie is the trade body for the UK's games and interactive entertainment industry. It represents over 400 games businesses of all sizes from small start-ups to large multinational developers, publishers and service companies, working across online, mobile apps, consoles, PC, esports, virtual reality and augmented reality.

We aim to support, grow and promote member businesses and the wider UK games and interactive entertainment industry by optimising the economic, cultural, political and social environment needed for UK businesses to thrive. Our core goal is for the UK to be the best place in the world to make and play video games.

The UK Games Industry

The games industry is a forward-facing sector built on innovation, with highly technical and newly emerging skills in fierce demand. The UK immigration system, especially in the wake of Brexit, needs to reflect the reality of an ever-changing skills environment – not only for the benefit of the games industry, but for the UK overall as it seeks out new opportunities once it formally leaves the European Union. The Shortage Occupation List ("SOL"), therefore, needs to be future-proof and accurately reflect which skills are in demand.

Future of the sector

The government's latest economic figures[1] demonstrate the strength of the UK's games industry, showing that the sector grew 148.9% since 2010. The games industry figure was part of the bigger creative industries sector that broke the £100 billion mark for the first time, moving from £94.8bn in 2016 to £101.5bn in 2017, accounting for 5.5% of total UK gross value add (GVA).

The growth shown in these latest government figures mirrors the conclusions from the Screen Business report[2] that Ukie contributed to. This study showed that UK development and publishing alone contributed over £1.35bn in direct GVA in 2016, with the overall games industry contributing £2.87bn in GVA.

As it stands, the workforce of the UK interactive entertainment industry fits the profile of being the best and brightest around. 63% of workers in the video games industry are educated to degree level, with 68% of them under the age of 35[3]. Furthermore, these individuals contribute effectively to the overall health of the country – adding £83.8k per head in GVA to the overall economy[4]. But this success is in large part owing to the diversity of our workforce; two thirds of our businesses employ overseas talent and EU talent typically makes up a third of their workforce.

Our annual survey of games businesses[5] most recently indicates continued optimism in the growth of the sector with 85% of games companies predicting growth and 83% looking to add more staff to their payroll, 23% of which predicting significant expansion. Whilst this optimism is welcomed, particularly considering the potential impact of Brexit, pressure on access to talent will continue to grow. For

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[1] https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-gva
[2] https://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/screen-business-appendices-4-and-5-2018-10-08.pdf
[3] Creative Skillset, 2015
[4] British Film Institute, "Screen Business", Oct 2018
[5] Ukie annual member survey

companies employing over 50 people, 71% reported a negative trend in their ability to attract and retain talent from within the European Union and 50% from outside the EU.

There remains a long-standing and broad skills shortage for the sector, and the tech sector more generally, which is set to become more acute once the free movement of labour ends following our departure from the European Union. As a sector we are investing significantly in our future talent, from school level to University to professional development, but this alone will not solve our skills gap. We are a global sector, making content that appeals to a global audience; overseas talent is a significant part of the success of the UK games industry and ready access to that talent is vital if we are to keep competing on the world stage.

8. Proposed Shortage Occupation List roles

There are currently 16 roles relevant to games and interactive entertainment on the shortage occupation list. We ask that in addition to these roles remaining on the list, a further 11 roles are added.

We anticipate that the impact of Brexit and the cessation of free movement of labour will only serve to exacerbate the current situation so we further ask that the MAC continue to work with industry to review this list on a more frequent schedule.
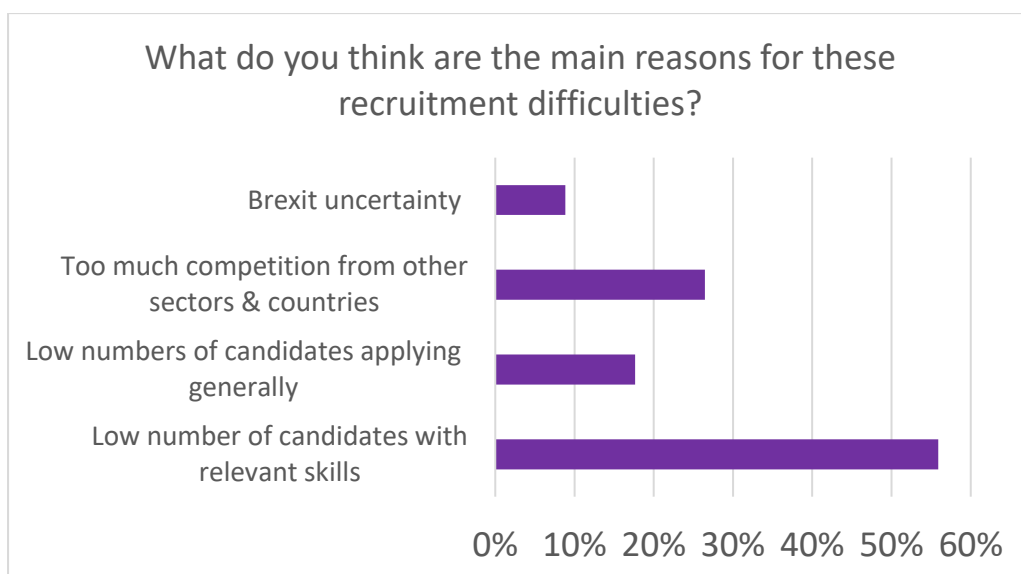
Job Title	ONS job title	ONS SOC	SOL Status
Programmers	Programmers and software development professionals	2136	Current
Server Developer	Programmers and software development professionals	2136	Current
UX Designer	IT business analysts, architects and systems designers	2135	Requested
Systems Engineer	IT business analysts, architects and systems designers	2135	Current
Data Scientist	IT business analyst, architects and systems designers	2135	Current
DevOps	Programmers and software developer professionals	2136	Requested
Technical Artist	Artists	3411	Requested
Graphic Designer	Graphic Designers	3421	Current
Character artist	Artists	3411	Requested
Animator	Artists	3411	Current
VFX Artist	Artists	3411	Requested
UI Artist	Artists	3411	Requested
Level designer	Graphic designer	3421	Requested
Community managers	IT operations technician or Customer Service Managers and Supervisors	3131 or 7220	Requested
Technical Director	Arts officers producers and directors	3416	Current
Producers	Arts officers producers and directors	3416	Current
Software developer	Programmers and software developer professionals	2136	Current

Shader writer	Programmers and software developer professionals	2136	Current
games designer	Programmers and software developer professionals	2136	Current
2D supervisor	Arts officers, producers and directors	3416	Current
3D supervisor	Arts officers, producers and directors	3416	Current
computer graphics supervisor	Arts officers, producers and directors	3416	Current
production manager	Arts officers, producers and directors	3416	Current
visual effects supervisor	Arts officers, producers and directors	3416	Current
Foreign Marketing Specialist	Marketing Associate Professionals	3543	Requested
Lighting Artist	Artists or Programmers and software developer professionals	3411 or 2136	Requested
Audio/Sound Designer	Photographers, audio-visual and broadcasting equipment operators	3417	Requested

9. What do you think are the main reasons for job shortages (answered in the question above), and or wider shortages in the sector(s)?

Access to talent

The games industry is inherently international and access to talent is one of the biggest issues affecting the UK sector today. Recruiting people who can provide the level of expertise and technical talent required in the games industry can be difficult: the games industry often requires very specialised, often niche skillsets which drastically narrow the candidate pool. Research by the European Commission in 2015 suggested that the digital skills gap is larger in the UK than anywhere else in Europe, with 250,000 ICT job vacancies expected by 2020[6].

What do you think are the main reasons for these recruitment difficulties?

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[6] http://coadec.com/news/life-after-brexit-from-the-coadec-community/

In our survey for this consultation, 56% of respondents said that they were struggling to fill their listed vacancies due to a low number of candidates in the UK with relevant skills whilst 18% stated it was due to a low number of candidates in general. Together, that means 76% of respondents found the skills or candidate pool in the UK lacking. Competition from other countries (such as the US, Canada and Europe more generally) or sectors was the second biggest concern, with 26% of respondents mentioning this in their answers as places talent was being lost to. Brexit uncertainty discouraging applicants from abroad was also raised as a concern.

> *"Low number of applicants with the relevant skills plus a downturn in European applicants means that the pool of candidates is smaller and there is often a number of competing offers in other countries."*
>
> - Survey responder

With such skills shortages in the UK, often games companies will turn to the world stage to fill their vacancies. Whilst in the long-term, we strongly believe in improving the digital skills of the domestic workforce, this isn't enough to plug the skills gap in the short to medium term. However, our respondents found it hard to compete globally for the best talent. We believe having an accessible flow of international talent is critical if the UK wishes to remain a global leader in video games. It is also important to note that our sector makes global content and to do so successfully requires a workforce with the diversity to match the audience.

Games companies around the world are competing fiercely to recruit the best talent internationally for roles which are highly specialised and forward-facing. Additionally, as a relatively young industry which relies on cutting-edge technical talent, games businesses often compete not only with themselves but with the wider technology industry – like the financial technologies sector who are often able to provide higher salaries - to secure top candidates with highly sought-after skills in emerging fields like machine learning and artificial intelligence.

> *"Both supply and demand i.e. a shortage of homegrown skills combined with massive competition in the market."*
>
> - Survey responder

In 2017, our *State of Play*[7] report found that 61% of games businesses relied on non-UK nationals[8]. Our evidence suggests that EU employees typically make up 34% of these companies' headcount with 38% of these businesses employing from outside of the EU[9] and on average these international employees making up 17% of the headcount. It is therefore crucial for businesses to continue to have access to both EEA and international candidates from outside of the EEA to fill roles where there are proven skill shortages. Having a SOL which accurately reflects the needs of the games industry can help with this greatly.

10. Please explain what measures have been taken to reduce shortages in the sector as informed by your members and or research.

Industry skills initiatives

With the support of the industry we are delivering a series of initiatives to address the domestic skills gap although it could take another generation before the industry is able to benefit. For example, the games industry is working to address the skills shortages domestically to help mitigate the skills

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[7] www.ukie.org.uk/brexit
[8] https://ukie.org.uk/sites/default/files/cms/docs/Ukie%20State%20of%20Play%20-%20March%202017_0.pdf
[9] https://ukie.org.uk/sites/default/files/cms/docs/Ukie%20State%20of%20Play%20-%20March%202017_0.pdf

shortage. Initiatives such as the NextGen Skills campaign alongside reports such as Shut Down or Restart [10] identified failings in the curriculum. Our own research has consistently found that whilst the industry does engage with universities and training providers by offering industry placements and curriculum advice, the rapidly-evolving nature of the sector and the roles available in it can often prove challenging to reconcile with universities' planning frameworks and timelines.

In schools, the teaching of computing is improving and initiatives like Ukie's Digital Schoolhouse[11] have helped increase access to effective computer science education. However, the industry has a wider need for talent across the creative arts and in overspill areas such as marketing and PR. This hasn't been communicated to schools as effectively as it could, inadvertently narrowing the talent pool.

Furthermore, at university level, video games businesses report that the quality of graduates emerging from specialist video game development courses is inconsistent. In comparison to traditional maths, computer science and physics graduates, there was a perception that graduates from video games design courses were less flexible in their skills and unprepared for the work place[12].

The Creative Industries Federation, ScreenSkills and Creative & Cultural Skills - with support from government - will launch an industry-led Creative Careers Programme in 2019. £2 million of grant funding has been made available by DCMS to kick-start the programme through to March 2020, with industry providing in-kind commitments and ensuring its sustainability long beyond this time.

The overarching outcome of the programme is to cultivate a workforce that is fit for the future by driving a stronger and more diverse supply of talent into the creative industries and wider creative economy. It aims to achieve this by helping young people and their influencers to understand the range of opportunities open to them across the creative economy, and the skills and qualifications they need to succeed when they leave school. It also aims to equip employers to diversify their workforce and plug skills shortages by developing the most urgently needed apprenticeship standards.

Industry response measures
Our survey found that our members and other games companies in the industry embarked on a wide range of measures to alleviate recruitment difficulties. These included:

1. Up-skilling existing staff
2. Engaging directly with education establishments
3. Engaging recruitment agencies
4. Engaging directly with government
5. Seeking to re-hire previous staff
6. Increasing salaries
7. Recruiting from abroad
8. Recruiting less qualified or experienced candidates
9. Attend networking events
10. Offer help to relocate candidates from other parts of the UK

However, many of these were time-consuming or incurred high costs and exerted further pressure on the businesses. For example, one respondent said that "all staff [are now] wearing multiple hats… to fill in the gaps", with another stating that training up the junior employees was placing "more strain
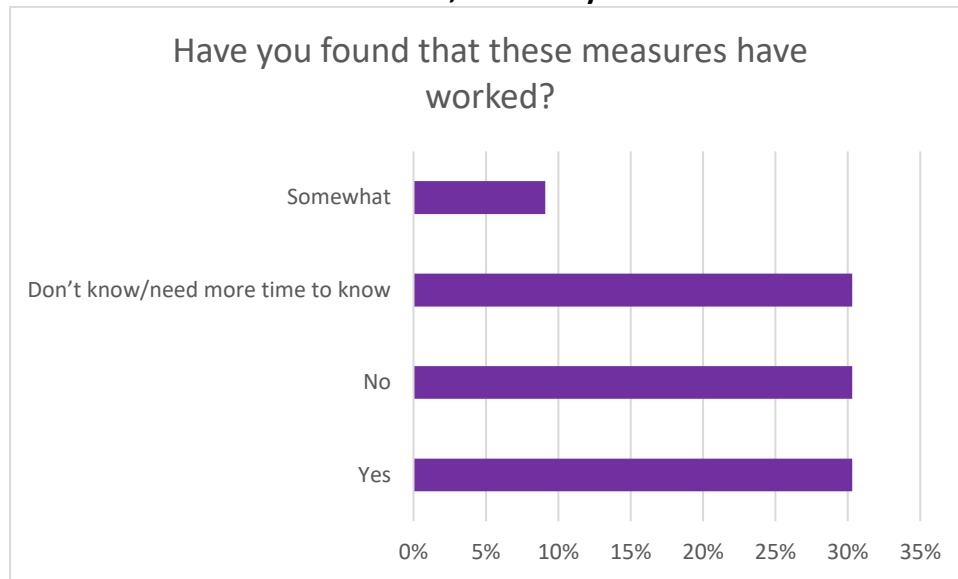
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[10] https://royalsociety.org/topics-policy/projects/computing-in-schools/report/
[11] http://www.digitalschoolhouse.org.uk/
[12] Creative Assembly, "Creative Chronicles: Industry Education", Jan 2018.
https://www.creative-assembly.com/blog/creative-chronicles-industry-education

on our already stretched leads". Of course, training up junior employees would require more seniors/mentors in the first place, causing a difficult cycle for games companies to solve.

The use of recruitment agencies was not a "cost effective approach" for some. A number of respondents stated that they were actively engaging with educational institutions such as universities and schools to help foster the development of relevant skills, which itself implies that the domestic workforce is lacking in the relevant skills to begin with. As a result, many mentioned they simply had to look further afield for suitable candidates. One resorted to "hiring foreign students on a temporary basis", whilst another was interviewing candidates from East Asia and the Americas.

11. Have these measures worked, if not why?

Have you found that these measures have worked?

Somewhat	
Don't know/need more time to know	
No	
Yes	

0%   5%   10%   15%   20%   25%   30%   35%

There was a mixed response on whether these measures were successful. Whilst nearly a third said that these measures did help, others said that they only partially worked to solve the problem of skills shortages. One said that: "every little helps [to] bring a couple more applicants in, but not nearly enough of a high standard to let us recruit as we'd hope". Another said that they had "never been in a position" to "pick between multiple different candidates". One respondent, who previously stated their measure was to recruit foreign students, found that this would only work in the extreme short term as they would leave upon graduation. Another stated that though their measures on securing hires from abroad (providing relocation support for international hires), had worked "very effectively" with a huge increase in senior hires internationally, the costs were "enormous" and not sustainable.

> *"Not really, we are now a company of a few experienced leads trying to teach a number of unexperienced juniors. If one of those leaves we will be in dire straits."*
>
> - Survey responder

More than one stated that the measures were mixed, especially in regards to upskilling staff – there was simply too much strain on the few senior staff that they had. Some mentioned that the uncertainty of Brexit was actively putting off candidates. Others stated they were recruiting non-UK expatriate Europeans from countries such as the United States. One said that as much as "on third" of their team consisted of non-European nationals.

Tier 2

Our last consultation to the Migration Advisory Committee on the Tier 2 Visa system in 2017 highlighted how games companies were recruiting for positions which did not exist even just three years previously, and how they struggled to match the specific listings on the SOL to their rapidly changing needs. We continue to recommend that the current review into the SOL should be conducted with an open mind and a market awareness of how forward-facing the games and wider technology industry is and therefore how the nature of job roles will continuously change and evolve. Game development job titles should be forward-facing and future-proof, just like the sector.

> Data Science is one of the new jobs / skill sets and demand for these skills is ever increasing with the volume of data companies have access to. Data Science should be on the SOL.

13. If known, how many workers from outside of the UK have been recruited using the Tier 2 points-based visa system in the past 12 months, stating the job titles.

We heard from 35 games businesses, from small developers to large, multinational companies and between them 93 workers were hired through this system for roles in programming, marketing, animation, and artistry. However, this only reflects those who responded to our survey so is difficult to draw accurate conclusions from in this context. Many were discouraged by the high visa costs and could not afford to hire the talent they desperately needed.

Regarding how many fell on the current SOL list, some said that most of who they recruited did, which is a fantastic first step to helping the UK games industry thrive. There simply needs to be more awareness of newly emerging positions.

Our survey also asked if there were any issues with the current SOL. For those that found issues with it, the overall opinion was that some did not fit the games industry. One said that the current list did not allow for "specific new as yet required skills". Another said that it "doesn't represent all roles within the games industry that have a skills shortage in the UK/EU". We heard that the requirement of five years' experience for some roles such as data scientists was inappropriate, as this had little relation to the job being hired for. One responder said that the fact that there were no SOC codes for Design, Marketing or Publishing was a "major issue". One respondent simply that that the definitions of video games jobs were "incorrect". A number found it difficult to use and that it directly conflicted with itself on whether a job qualified or not.

> *"0. We cannot afford the Visa system costs."*
>
> - Survey responder

Tier 2 salary threshold

The initial recommendation by the MAC to maintain the salary threshold for tier 2 visas following our withdrawal from the EU could prove problematic for the games and interactive entertainment sector. EU employees primarily fill mid-tier roles where there is a shortage of UK candidates while non-EU candidates are primarily sought to fill highly specific and more senior roles.

Our research found that 87% of games businesses hired international talent as UK candidates lacked the skills or experience required. We also found that up to 64% of EU workers and up to 34% of rest of World workers could be sitting under the £30k threshold.[13]

Salary distribution for non-UK employees

Less than £15k	£15-20k	£21-26k	£27-35k	£36-50k	£50k+
EU: 4% / RoW: 4%	EU: 11% / RoW: 4%	EU: 19% / RoW: 9%	EU: 30% / RoW: 17%	EU: 33% / RoW: 48%	EU: 4% / RoW: 17%

■ EU workers ■ Rest of World workers

Skills and immigration charges

As stated elsewhere, the UK games industry is part of an extremely strong global sector and competition for talent is fierce. As stated in our response to the Tier 2 consultation[14] the recent introduction of the Immigration Skills Charge to the non-EEA migration system and the Conservative Party Manifesto's pledge to double it, both fundamentally fail to recognise the value – particularly in terms of this knowledge exchange - of international workforces to the games and wider creative and technology industries. In addition, skills and immigration charges put the cost of hiring in the UK for international businesses significantly higher than other parts of Europe. This puts the UK at a competitive disadvantage compared to other nations. An immigration system fit for a truly "Global Britain" must acknowledge this value and be built to ensure that we remain a top global hub for diverse international talent.

A games business recently reported to us that If EEA hires were included in Tier 2, *"our visa costs this year would have more than doubled"* and that the costs are *"disproportionate compared to the European countries with which the UK will be competing for talent".* They went on to say that

> *" To bring non-European talent into Germany or Spain costs around £2,000. In Sweden the cost is just £1,000. It currently costs over £6,000 to bring talent into the UK, once the visa, Immigration Skills Charge and NHS surcharge are included. Nothing the government have indicated they are considering would reduce these costs."*

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[13] www.ukie.org.uk/brexit
[14]https://ukie.org.uk/sites/default/files/cms/docs/Ukie%20response%20to%20the%20Migration%20Advisory%20Committee%E2%80%99s%20call%20for%20evidence.pdf

"Once European hires are included in this system, the UK will become a significantly less attractive place to build skilled teams than any other major centre in Europe. It will be three times more expensive to bring in new talent than its nearest competitors (and up to six times more expensive than some leading countries), with none of the free access to top European talent that other countries will enjoy. "

One games business stated that for 2018, visa costs, legal support and relocation support cost £215,852 for 13 hires. This is unfeasible for small games companies, which make up the majority of the UK games industry.

Specific Job titles struggling to fill

In our consultation we have identified many sub-specialisms within the category of 'programmer'. An over-arching term 'programmer' or 'games programmer' would suffice on the SOL, as in small teams, many of the sub-specialisms will be linked and the entire programming requirements covered in that small team.

Occupations in Shortage
Programmers: general
Programmers: Engine
Programmers: Mobile Engine
Programmers: Graphics
Programmers: Network
Programmers: physics
Programmer: Audio
Programmers: AI
Programmers: deep learning
Programmers: UI
Network Architect
Server Developer
Game developer
Client-side engineer
Client-side developer
Server Engineer
Server side developer
Software development
UX Designer
Unreal developer (Engine)
Unity developer (Engine)
Multiplayer Designer
DevOps
Compression engineer
Principal Programmer
Principal Designer

Occupations in Shortage
Software engineer
Artists
Lead Artist
Technical Arist
Concept Artist
Storyboarding Artist
Environment Artist
Character artist
Animator
Special effects
VFX Artist
Graphic Artist
UI Artist
3D Artist
Level designer
Feature designer
Character Animator
Principal animator
Lighting Artist
Story & Actors
Story & Scriptwriters
Voice Actors
Non-development
Project Managers
PR Managers
Community Managers
Data analyst
Brand Manager
Senior
Producers
Game Directors
Creative director
Head of Ops
Head of Strategy
Lead Tester
Brand Manager
Technical Director
Head of Global Business development
Head of esports
Language
Translators

Occupations in Shortage
Localisation QA
Foreign Language PR Manager
Foreign Language PR Executive

Additional Comments from the Survey

Are there issues with the Shortage Occupation List:

- *For some roles on the SOL, there is a requirement to have 5 years' experience and have led a team, which will often be irrelevant to the role in question. For example, data scientists in particular will be individual contributors and even the senior Data Scientists wouldn't necessarily need to lead a team – at that point they will no longer really be working as a data scientist.*

- *The tech industry is quite fluid, the skills that are required / in shortage change quickly and at the moment the SOL doesn't necessarily keep up with this.*

- *There should be a broader Tech sector, allowing for more clarity on the actual skills the economy needs. As an example, the job code "2136 programmers – software developers for 2D/3D computer animation" feels unnecessarily specific.*

- *The issue with the current SOL is that it does not allow for specific new as yet required skills. For example, the Community manager is a relatively new addition to the video games list.*

- *Are there current problems with the SOL? Yes - in particular that it assumes lack of experience relates to how much we may need them. We have a shortage of graduate / juniors as much as experienced, yet the SOL puts weighting on number of years experience. This is completely irrelevant and extremely harmful to our ability to recruit.*

- *Our industry is made up of so many small companies that we will suffer even more due to the visa process itself being unviable for small companies. there should be as little friction as possible to employ people from overseas, or our companies will suffer - or move overseas.*

- *The low number of technical applicants is partly due to computer science being removed from the curriculum in the 1990s. And from the shortage of Artist skills the current emphasis on STEM that excludes the Arts.*

What are the reasons for shortages and recruitment difficulties

- *The low number of technical applicants is partly due to computer science being removed from the curriculum in the 1990s and from the shortage of artist skills resulting from the current emphasis on STEM that excludes the Arts.*

- *Reason for shortage of talent: Less talent applying from abroad due to Brexit.*

- *Increasing demand from all other sectors i.e. competing with banks, health, telecoms etc.*

- *Fast pace of industry evolution and growth, so low availability in job market*

- *Other industries with similar skills requirements to grow the digital part of more traditional businesses*

How can conditions be improved:

- *More internship programmes instead of an apprenticeship levy*

- *While there appears to be a growing interest in game development I see this only in front-end roles. Back-end roles and QA should be viable career choices for graduates but do not seem to be due to lack of focus on these areas in degree programs.*

- *Many candidates with a Game Development or similar degree lack deep programming skills compared to those with Computer Science. These more applied degrees should maintain some of the training provided by a CS degree.*

- *Education is key but encouraging diversity is king. Making people aware you can work in the industry even if you are not a coder or a rich kid.*

- *In order to be a global leader, I believe that it is vital for the UK to be able to recruit the best in the world where ever they may be. Brexit is of enormous concern and will impose a greater strain in our ability to recruit.*

- *You can't plug every skills shortage with more education. UK leads in startups and games because it attracts talent from beyond its borders. This is a good thing and should be encouraged, diversity is an important factor in growing the most successful teams. Shortages in the sector can be improved by encouraging freedom of movement and improving processes for outreach across our local talent pool, i.e. Europe.*

- *Make it easier to employ foreign students who complete a degree or post-grad at a UK university*