Introduction

Ukie welcomes the opportunity to respond to the inquiry. Our response is intended to provide the Committee with a robust understanding of the current landscape of the games and interactive entertainment industry as the Committee seeks to understand why key sectors across the UK are facing a STEM (science, technology, engineering and maths) skills gap. We also outline what we and the wider games industry are doing to develop STEM skills, allied to their creative application.

From September 2014, the English National Curriculum has required Computing to be taught in schools from ages five to 16, aiming to introduce children to computational thinking from an early age. In recent years Ukie have been at the forefront of advocating greater uptake of STEM skills across the UK, notably seeking to get recognition that STEM should in fact be viewed as STEAM, with art added to the existing science, technology, engineering and maths categories to enhance the suite of next generation skills. Indeed, this is even more important considering that the applications that games developers work on and develop, such as artificial intelligence, augmented and virtual reality, are increasingly being used in the wider world of work to provide services.

Currently, the Ukie-led Digital Schoolhouse programme is a recognised leading national programme that trains, empowers, and supports teachers in their delivery of computing by providing free, creative workshops where both teachers and pupils learn about computing fundamentals.

Ukie’s continuing work in this field concludes that there remains low levels of awareness of creative, tech and associated careers opportunities in schools and even lower awareness of how to access them. There is also a strong demand for more co-ordination between various formal education, ed-tech and digital learning initiatives, schools, and industry sponsors.

Yet our experience has highlighted problems with the following which will need addressing:
- Children need to be inspired from an early age, from primary school upwards
Teachers at both primary and secondary level need much more support to teach the new curriculum in an exciting and inspiring way.

Expanding career horizons into industries like ours – or technology as a whole - has to happen in the classroom, in lessons themselves.

About Ukie and the UK’s games industry

Ukie is the trade body for the UK’s games and interactive entertainment industry. It represents 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.

The UK games industry is a major generator of IP and a leading example of the UK’s growing reputation as a home for creative, high-tech talent from across the world. By way of illustration, the globally successful Lego games series and Grand Theft Auto V, the biggest-selling entertainment product of all time (generating $1 billion in global revenues in just three days following its release), are both made in the UK.

At its core the sector blends the best of the UK’s technological innovation and creativity, resulting in successful games and technology which are exported around the world and which cross over into other creative sectors. Furthermore, it also plays a leading role in the development of emerging technologies such as artificial intelligence, data analytics, and virtual reality which are expected to be high value growth markets in games and also apply to other sectors like health and education.

We would like to reiterate our commitment to ensuring that the games and interactive entertainment industry continues to thrive and contribute to a prosperous future for British business as part of a growing global economy. The UK games and interactive entertainment industry is an international success story, with the potential to take an ever-larger export share of a global market that will soon be worth more than $100 billion.
Thanks to the evolution of mobile games, the UK now boasts the highest number of mobile games jobs in the EU, with 5000 full-time employees. This highly skilled workforce is a benefit not only to games companies, but to other sectors of the UK economy that rely on technical and creative talent to drive innovation.

The UK is already well positioned as a significant player in this field and is currently estimated to be the sixth largest video games market in terms of consumer revenues, with an estimated worth of over £4 billion. In order to ensure the continued success of the UK games and interactive entertainment industry going forward, it remains vital that the Government and wider industry address the low levels of awareness of creative, tech and associated careers opportunities in schools and even lower awareness of how to access them.

Finally, we would like to take this opportunity to put on record our interest to provide oral evidence in support of this written submission when appropriate.

**Where progress is being made**

It is essential that we have enough talented artists coming through our schools, not just for the games industry but other sectors too, like visual effects and design.

In 2011, Ukie launched its Next Gen Skills campaign, which helped get computer science back on to the national curriculum, in part through its focus on promoting the importance of art combined with programming to policy makers.

The resulting [Next Gen Skills report](#) set out how the UK can be transformed into the world’s leading hub for video games and visual effects if industry, educators and government worked together to fix the UK’s broken talent pipeline. Subsequently, major changes made to the education system through the introduction of Computing and Computer Science in 2014 started to address the problems identified in the report.
Currently, where schools are successfully adopting the new curriculum we see major progress, not just in children learning how to programme using the latest digital learning devices and techniques but helping them develop essential problem-solving skills necessary for the digital age.

The Ukie-led Digital Schoolhouse (DSH) model is a successful, scalable primary-secondary school transition computing project originally developed at Langley Grammar School in Slough, which has been recognised in the Royal Society report Shut Down or Restart, and also in the House of Lords’ Digital Skills Select Committee Report for its innovative approach to implementing the new curriculum.

In 2014/15 DSH was funded by the Department for Education and the Mayor of London’s London Schools Excellence Fund to deliver a London-based programme of activity that supported 9,000 pupils and 1,000 teachers across 127 schools. (We would be happy to invite Committee members to a school at which the DSH is running). 100% of participating teachers both running and attending workshops said that they improved knowledge and confidence in teaching of creative computing, and schools reported that DSH workshops significantly raised educational attainment amongst participating children – equally across boys and girls.

Now thanks to the success of its programme, and to the support of its new leading partner PlayStation, DSH is set to roll out a national programme that will engage with approximately 15,000 pupils and over 1,600 teachers from 19 Digital Schoolhouses in England.

Complementing the DSH, we run the Video Game Ambassadors (VGA) initiative, a programme designed to inspire the next generation of talent that is vital for the games industry. In 2011 Ukie launched the VGA initiative, a branch of STEMNET’s STEM Ambassador scheme, which encourages games industry professionals to volunteer as role models to inspire young people to pursue a career in games. Since launching the scheme there are now over 120 VGAs operating throughout the country, and in 2015 VGAs spoke to over 8,000 UK school children and shared with them their experiences of making and selling games and their stories about how they got to be in their position. According to STEMNET,
55% of pupils say they enjoy science which increases to 71% for pupils who have had contact with a STEM Ambassador.¹

Ukie also runs a Student Membership programme, designed to bridge the gap between academia and the games industry, as a means to inspire and secure the next generation of games talent in the UK.

Ukie supports Student Members by providing unique opportunities to make connections, access to exclusive internship and work placement opportunities, industry insight, discounts, and events. The network is partnered with NextGen Skills Academy and IGDA to ensure that students in the network are getting the best opportunity to get a foot in the door of the industry.

Members get access to the Ukie Student Conferences, which have seminars, workshops and talks from industry professionals; participation in the annual Ukie Student Game Jam; opportunities for sponsorship to attend gamescom, Europe’s largest games show; as well as access to exclusive content on the Ukie Students’ web page, including career advice, research, interviews, and industry news.

Challenges

Despite the progress outlined above, it is still evident that only a small cohort of schools are fully exploiting the opportunities presented by the new curriculum, with the majority requiring more substantial and targeted support.

These include:

- Quality of teacher training in the new curriculum across primary and secondary schools
- Take-up of computing at KS4 in secondary schools
- Spread of innovative, new techniques – creative computing based on ‘STEAM’ principles

¹ http://www.stemnet.org.uk/ambassadors/what-do-stem-ambassadors-do/
Written evidence submitted by UK Interactive Entertainment (GAP0076)

- Diversity – number of girls, BAME and working class children continuing with computing
- Regional spread and progress in devolved administrations
- Recognition of the important of art and creativity to the games sector and wider digital industries

Outside of schools, funding for skills development is skewed towards apprenticeships, and businesses must contribute to the Levy whether there is an apprenticeship pathway in the industry or not. Localised skills budgets in City Deals and LEPs create a potential source of funding, but also a competition for resources between sectors at a local level.

These features are limiting the home-grown talent able to enter the UK games industry, and if we fail to equip UK-raised candidates with the technical and creative skills required then companies will continue having to fill talent gaps with overseas candidates. Indeed, according to a recent survey conducted by Ukie, 74% of respondent companies use non-UK EU nationals to fill high-skilled posts. Further evidence gathered from 36 member companies suggest this reliance is significant, with the median response being 20-29% of employees being non-UK EU origin. Additionally, in subsequent discussions with employers we believe that on average up to a quarter of their employees originate from outside of the EU.

Ultimately, if UK companies’ ability to attract top talent is inhibited by any post-Brexit immigration system, it will be even more important to ensure our education system equips students with the right skills. If talent is constricted in both directions, it stands to reason that the UK games industry, and the innovation it delivers to support the wider economy, will suffer.

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