



Ukie response to DCMS consultation on Digital Communications Infrastructure Strategy

About Ukie

UK Interactive Entertainment (Ukie) is the trade body that represents over 200 businesses and organisations involved in the games and interactive entertainment industry in the UK.

Ukie exists to make the UK the best place in the world to develop and publish games and interactive entertainment. Ukie's membership includes games publishers, developers, console manufacturers and the academic institutions that support the industry. We represent the majority of the UK video games industry.

Executive Summary

Ukie do not have the expertise to answer all 44 questions in the consultation document. This submission will instead set out our views across the issue as a whole, highlighting where trends in our industry will have an impact on the broader question of connectivity provision. As such, our response focuses on the issues raised in sections 2 and 3 of the consultation document.

Our central argument is as follows:

- The games industry relies on the digital communications infrastructure not only to deliver software, but also to provide the high-speed, latency-sensitive interactive experiences that gamers of all ages around the country expect and relish.
- Universal access to reliable, high quality internet connections is vital for the long-term growth and success of the games industry in the UK
- It is not just about download speeds: upload speeds, resilience and latency are all crucial, both for customers accessing persistent online games and services, and for business providing games content online.
- Government should operate on the assumption that demand will be at the high end of projections.
- It has been shown by a recent Nesta report that good broadband supply is heavily correlated with the presence of clusters of games and other creative businesses.
- The UK should set a long-term target to have the best communications infrastructure in the world. At a minimum, we should aim to have the best in Europe by the end of the strategy period (2030).



Introduction

The games industry is rightly a source of pride for the UK. As the point at which the creative and technology sectors meet, the games industry is a blueprint for the future of the digital economy: what is good for our industry is good for the wider economy.

With the introduction of games tax relief and coding back on the curriculum, we have the potential for significant growth in our industry in the coming years. We can set ourselves the realistic ambition of being the best place in the world to make and sell games.

However, we will not be able to meet this ambition if we do not have the digital infrastructure to enable companies to offer games online and allow consumers to enjoy them.

Increasing demand for connectivity

The games industry is already heavily focused on the digital delivery of games and online game services, but this will only increase over the fifteen-year timescale discussed in the consultation document.

Digital Distribution

Last year, sales of games in digital formats surpassed physical sales in the UK¹. Indeed, virtually all gaming platforms—from consoles, to personal computers, to mobile devices—now feature online marketplaces from which end users can download game content using their broadband connection. The ability to distribute games via broadband provides several important benefits.

First, online marketplaces significantly decrease distribution costs and enable access to a greater variety of content. Because shelf space in an online marketplace is virtually unlimited, and because distributors do not need to provide physical media or packaging, the industry has been able to take “more interesting risks” by offering new genres of games that would not be feasible under a physical distribution model.

Second, broadband distribution enables companies to update games to add features and make other improvements. For example, video game companies can refresh player rosters in a sports game to provide up-to-date statistics, extend the storyline in role-playing games with expansion packs that provide new realms to explore, upgrade software to permit the game to run more efficiently, add new features to the game or console system, or load security updates. Moreover, online distribution models enable users to customize their gaming experience by altering their character’s appearance, or personalizing a loft apartment in a virtual world, among other things.

Third, broadband distribution enables the consumer to obtain video game content directly and immediately without the need to travel to a store or wait for a package delivery. Indeed, many games now allow users to start playing after downloading only a portion of the game. Importantly, however, because video games typically feature rich and immersive graphics, video, and audio content, the sizes of some digital files can be large. For example, video games that are classified as “AAA” titles—a term for games with the highest development budgets and levels of promotion—can run from 9 to 35 GB, which a consumer simply cannot download with a pokey, unreliable Internet connection. Thus, to enjoy the benefits of broadband distribution described above, consumers

¹ <http://www.pcr-online.biz/news/read/digital-sales-make-up-92-of-global-game-revenues/034551>



need an Internet connection with adequate bandwidth to support large file downloads in a timely manner.

Real-Time Online Play

Broadband connections also enhance the gaming experience by enabling real-time game play among users in various physical locations. Online gaming has been a part of the industry almost from the beginning, but it has become an increasingly important part of the consumer market in recent years. Indeed, virtually every video game genre now includes numerous games that feature real-time game play with other players and/or interaction with the gaming environment over broadband networks.

In order to support the interactive real-time features, the user's broadband connection must be fast and reliable. Gaming content can be data intensive, and a connection with limited or congested bandwidth can make it difficult or impossible for a consumer to obtain and access the games he or she wishes to play.

Beyond broadband speed, for many of these interactive features to work properly, a consumer's broadband connection must also support low-latency connections with online gaming servers and other users. Latency represents the amount of time it takes for a particular data packet to move from its origin to its destination on the network. Latency is distinct from bandwidth, which indicates the amount of data a connection is capable of transmitting within a defined period of time, such as megabits per second. Thus, even if a high-bandwidth connection supports fast maximum transmit speeds, a connection suffering from high latency—as would be the case if a portion of the network is congested or if it otherwise takes a long time for a particular piece of data to traverse the network—will experience delays of time-sensitive interactive features.

Timely delivery of gaming data is often critical when gamers in far-flung locations play over the Internet. For example, delayed gaming data could result in a late header to meet a cross in an online football game, the inability to repel a surprise attack from an arthropodal alien in an action game, forfeiting a turn in a strategy or card game, a missed instruction from an online teammate, or even being disconnected from a game server entirely. In other words, increases in latency could render the most important feature of a game—the interactivity—useless.

So-called 'lag' has always been a stumbling block in the adoption of online games, damaging people's experience and making them less likely to play again in future. Providing stable connections with no delays to all households in the UK will further expand a vitally-important market.

Cloud Gaming and Virtual Reality

All these factors will continue to increase the demand for reliable, fast internet connections amongst games players in the UK. Two more recent technological developments will further accelerate this: cloud gaming and virtual reality.

'Cloud gaming' involves the streaming of a game over the internet to a player's device as they play the game. Cloud gaming services, such as Sony's PlayStation Now, provide a new way to experience games. Instead of the game software residing on the console, either through download or physical media, it is stored on a remote server. This enables games of very intensive graphical quality to be played on devices that would otherwise be incapable of supporting them. This approach also has the potential to expand consumer choice and the range of price points for accessing popular game titles.



Streamed games do not just require fast internet connections, they also depend upon reliable, low-latency broadband connections to enable split-second interactivity. Critically, unlike streamed movies, music or other linear content, games require immediate and frequent interactivity. Interactive features cannot be buffered to compensate for lags in delivery.

It is highly likely that demand for cloud gaming will increase significantly in the next few years, and almost certain over fifteen years. This must be factored in as predictions are made of future bandwidth demand in the UK, as it could be a major source of growth.

The introduction of virtual reality on a mass scale is also likely over a similar timescale as cloud gaming. The latest attempts at virtual reality have grown from the world of games, but already interest has arisen for other applications, as demonstrated by Facebook's purchase of Oculus Rift, the early leaders in the technology, for a reported \$2 billion earlier this year².

Virtual reality is a very graphically intensive technology, and again its provision online (potentially in combination with cloud gaming services) will be a further source of growing demand for bandwidth.

As the nature of games services online changes, it is quite feasible that over the next decade and beyond there will be a paradigm shift in the nature of consumer demand for bandwidth.

Growing number of players

The popularity of games continues to rise in the UK. Recent research by the Internet Advertising Bureau found that games playing is near-universal in many sections of the population³. Amongst 8 to 15 year olds, 99% play games. Even up to the age of 44, 73% play games.

Much of this rise in popularity is due to the advent of mobile and tablet gaming, which relies heavily on internet connectivity. As the younger generation enters adulthood and the population becomes ever more composed of those who grew up playing games, this demand will only continue to increase.

This is another factor that should be considered in predictions of future demand for bandwidth. Not only will games require more and more bandwidth, but more people will be playing them.

As a result of these factors, it is clear that universal access to fast, reliable internet connections will be vital for the long-term growth and success of the games industry in the UK. We have an ever-growing customer base that will need great internet connections if our industry is to serve them with the games they will want in the future.

We cannot comment in detail on the different scenarios set out in section 3 of the consultation document on future demand. However, the above factors – the still-growing popularity of games and online play across the UK population; and the increasing growth of digital delivery and online experiences for games – suggest that expectations of future demand for creativity should tend towards the high end. We believe that there is more to come in terms of consumer demand for high-bandwidth services in the UK.

² <http://www.theguardian.com/technology/2014/jul/22/facebook-oculus-rift-acquisition-virtual-reality>

³ 'Gaming Revolution', IAB: <http://www.iabuk.net/research/library/gaming-revolution>



Importance of connectivity for games businesses

Guaranteeing a universal base of consumers that can play the latest games will be vital to our industry's future.

However, if we want the UK to be the best place in the world to make games as well as sell them, we have to ensure that businesses can be confident of getting great internet connections wherever they choose to establish themselves.

Games businesses, as is true for other creative technology businesses, need to be confident of connections with low latency, high resilience and reliability, and excellent upload as well as download speeds if they are to share their work online.

There is growing evidence of the importance of good broadband connections to the creation and success of new businesses. Newly-conducted research by Nesta and Ukie has found a direct correlation between the provision of broadband and the presence of clusters of games companies.⁴

Looking at 45 local authority districts in the UK containing at least five games companies, the research found a positive correlation between games companies clustering and average broadband speeds, availability of superfast broadband, and take-up of superfast. It also found a negative correlation with the percentage of homes without basic connectivity.

Although this is not proof of causation, it is the first output of an innovative new Big Data approach to mapping the UK games industry which shows a clear link between the presence of games companies, particularly those newer studios developing games for the iOS platform, and the availability of good broadband connections.

International competitors: need for ambition

It is clear from the above arguments that, if we want the UK to compete as a world leader in the creative digital economy, we need to be ambitious for the provision of broadband and mobile connectivity.

Question 6 asks which countries the UK should benchmark ourselves against in the long term.

We must be ambitious. Create UK called for "a long-term ambition for the UK to have the best business to business communications infrastructure in the world. This could be in absolute terms, such as through a 1 Gbps target for key cities and hubs, in relative terms, by highest average bandwidth and lowest average latency of any country in the world, or in both."⁵

A recent report by Labour Digital, "Number One in Digital", goes further, calling for "nationwide access to 1 Gbps broadband in homes, businesses and public buildings, with 10 Gbps services for tech-clusters, as early as possible in the next parliament [post 2015]"⁶ as part of a broader strategy to make the UK the world's leading digital country.

⁴ <http://www.nesta.org.uk/publications/map-uk-games-industry>

⁵ <http://www.thecreativeindustries.co.uk/uk-creative-overview/facts-and-figures/new-create-uk-strategy>

⁶ <http://www.labourdigital.org/number-one-in-digital>



A first step has been taken with the launch of this consultation: the need to develop a clear, long-term national strategy in partnership with business on how to build a world-beating digital infrastructure. It is vital that we do not lose sight of the need to compete with the very best in the world if we are to remain a great place for businesses to start and grow.

Ofcom have reported that the UK is on track to meet the EU 2020 target of 30 Mbps. This, as well as the UK's own target of superfast broadband access for 95% of the population by 2017, must be merely a stepping stone.

Hitting those targets would still leave us lagging behind some international competitors. South Korea is in the process of delivering 1 Gbps speeds across the country by 2017⁷. If we wish to compete to be a global leader, the UK must look to deliver similar speeds during the timeframe this consultation is considering.

As stated in Create UK, we should set ourselves a long-term ambition to have the best communications infrastructure in the world. At a minimum, we should aim to have the best communications infrastructure in Europe by 2030 – the period being considered in this consultation.

Conclusion

It is crucial for the long-term health of the UK games industry, the digital economy, and the economy as a whole, that we have a world-class digital communications infrastructure.

As this paper has set out, we believe that continuing technological advances in the games industry will be a factor in further pushing demand for high bandwidth, low latency, resilient connections. Government should base its long-term planning on the high-end of demand scenarios, as we must be in a position to allow new markets to flourish, rather than assuming that current internet services are an end-point.

This consultation is an important first step in preparing the long-term strategy that the country needs. We must be ambitious in setting targets to lead the world in this field. At a minimum, the UK should aim to have the best digital communications infrastructure in the EU by 2030.

⁷ <http://www.zdnet.com/s-korea-to-deliver-gigabit-speed-broadband-7000014970/>