esports and Streaming in the UK in 2017

White Paper

Dr Anita Greenhill & Rob Houghton
Acknowledgements:

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About the Authors:

Anita Greenhill is an academic, digital technology enthusiast and community worker. Dr Greenhill’s research interests are in the areas of Digital Work and Labour and Networked Usage of Technology within Community, Organisational and Business settings. Dr Greenhill’s research has contributed towards a better understanding of crowd sourcing and Internet Participation; Community usage/resilience and its use of social media including twitter; technologically enable work; spatiality; and Internet/ World Wide Web Usage in Organisations. She has co-authored/ edited 2 books and published over 90 academic related publications. Dr Greenhill recently carried out a research project for the National Coordinating Centre of Public Engagement (NCCPE) examining the engagement practices between Universities and Local Communities. She has also recently completed a £750 000, 3 year EPSRC funded project ‘Wonders of the Zooniverse examining volunteer motivations in crowdsourcing. Dr Greenhill has established expertise in the areas of new technology and digital culture, business modelling and value chains. She has a long established research foundation in carrying out qualitative and immersive research methodological studies. This expertise coupled with the Science Fiction Prototyping (SFP) methodology gives a unique insight in to future imaginings and technology.

Rob Houghton is a researcher and eSports enthusiast. Rob’s research interests are in the application of psychology to the eSports industry, more specifically, how organisational psychology can impact leadership and teamwork as well as how factors such as personality and organisational infrastructure and climate may affect player performance and well-being.
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Executive Summary

The project carries out a preliminary scoping analysis and produces a strategic review, landscape and market analysis report on the current esports and streaming industry in the UK; a series of workshops have been organised; and finally a follow on of network development with the aim of addressing key findings revealed in the study is anticipate to emerge.

This research This project was funded by the University of Manchester and Alliance Manchester Business School’s Research Support Fund (RSF). While other countries have thriving esports and streaming communities that produce substantial and growing economic and social benefits, the UK lags behind and has only begun recently to build significant capability in the past few years. The growth is partly a result of the construction of the UK’s first dedicated esports broadcasting studio Gfinity, and the world’s leading streaming company opening an office in London, Twitch. At this exciting moment there is the potential to launch fruitful and long-term collaborative targets and research to understand the potential of this burgeoning industry, and to produce scholarly and policy outputs exploring this emerging field and the benefits it can bring to the UK.

The research aims to table this interim white paper and continue expanding on the themes, topics and research projects initiated at the workshop. The workshop will bring together gamers, esports players, industry members and policy makers as well as researchers to begin working together to grow the future challenges of the creative industries, computing, skills development and education in the digital economy.

In order to begin we have organised an dedicate workshop to bring together esports players and sports people, industry representatives, academic colleagues and Government representatives.

This project through collaboration with University, Private and Public sector organisations explores esports and it's growth and development in the Creative Economy in the UK in 2017.
Section 1 - Introduction

In this white paper we explore esports in terms of its:

- origins,
- relationship to traditional sport,
- potential business opportunities
- education and skills building
- potential contribution to the UK economy.

According to Burnham (2001), the origins of esports can be traced back to the 1980s where arcade games like Pacman and Asteroids were played by a substantial number of people in local arcades. Players would compete against each other trying to set the highest score. This change in competitive computer game playing led to the formation of renowned communities who revered those who scored highest. Kent (2001) concludes that with the expansion of the arcade industry in 1981-1982 estimated increased revenue of 5 billion dollars was made in the US. These figures were double that of all the Nevada casinos combined, and triple that of the professional basketball, football and baseball leagues in America. While T.L Taylor (2012) reminds us of the turbulent time that the esports industry went through in 2009-10. At this time the growing global industry managed to survive the global financial crisis and a huge surge in growth with a flurry of fans and players joining in.

Esports has evolved from these beginnings in arcade gaming culture to the huge contemporary events of today spanning several days or weeks, and being watched both in physical settings as well as online. Esports in its current competitive form is a spectacular event in which consumers, brands, leagues and publishers all participate.

Defining esports

Newzoo, specialists in esports market research, released their annual report on the 14th of February 2017. They state that in 2017 the esports industry will bring in total revenue of 696 million US dollars, with a 41% year on year increase, and the figure exceeding one billion dollars by 2020. In addition the total global audience for esports will reach 385 million individuals in 2017. Furthermore individuals who actually play esports games have increased hugely over the past few years. Hollist (2015) states that 27 million people play league of legends every day. In addition steam charts, which gathers data through steam on who is playing which games, show that in August 2012, the average number of players playing Counter Strike: Global Offensive each month was 15,000 while in January 2017, it had increased to 393,000, an increase of some 50,000 players. Esports is a rapidly developing industry, with
not only large profits, but also a large player and spectator base. Thus there is much scope for academics to research, esports and its explosion in the past few decades. The current white paper will review the research conducted into esports and explore the breadth of research that has been carried out across multiple disciplines on this topic.

esport as a Sport:

Whilst esports research is still in its infancy, a major theme is the debate and assessment of esports as an actual sport. This section of the literature review will discuss the validity of esports as a sport.

Whilst a little out dated, the most comprehensive academic literature regarding esports as a sport comes from Jonasson and Thiborg (2010). They apply Allen Guttman’s model (1978) on conceptualising modern sport (figure 1) to discuss the validity of esports as a sport. The model was selected because it is not only an excellent theoretical framework, but it has also had a large impact on how sport is conceptualised in academia.

Figure 1. Guttman’s model for conceptualising modern sport.

Jonasson and Thiborg (2010) argue by definition, esports are competitive computer games, this means they are at least contests in regards to Guttman’s (1978) model. They further support this argument by noting that it is difficult to participate in esports without organisation, as since 2000 there are many bodies and organisations dedicated to ensuring esports are organised, so they would not fall under spontaneous play. According to Jonasson and Thiborg (2010) sports in academia has been conceptualised as “physical, competitive and organized play in contrast to spontaneous play, non-competitive games and intellectual contests” (p.289). Whilst they do a good job at demonstrating esports are both organised and competitive, they acknowledge there could be scepticism over the
legitimacy of physicality in esports. Jonasson and Thiborg (2010) state whilst esports are less physically demanding than sports like tennis, football and basketball, they are of equal physical exertion to sports such as bowling, shooting and snooker/pool. They further note that whilst having intellectual demand, esports involve high intensity and refined motor skills as well as rapid and accurate hand eye co-ordination. In a preliminary conclusion Jonasson and Thiborg (2010) conclude that esports would by definition be a sport based on Guttman’s (1978) model, but this definition maybe too narrow to fully capture all of what makes esport a sport. Furthermore Jonasson and Thiborg (2010) go on to use Guttman’s (1978) seven characteristics of sportification to demonstrate that esports has the qualities of traditional sports. Guttman’s (1978) first characteristic is that modern sport is secular and whilst throughout history sports and sport events have been seen as sacred or tied to religion modern sport is separate from religion. For example in primitive tribes, the rainmaking priests would participate in tribal games, which were thought to increase the chance of rainfall. (Brasch, 1972). The Olympic Games were originally centred around mount Olympus, the home of Zeus, with athletes swearing oaths and making sacrifices to honour Zeus in the games (Brasch, 1972). Finally sports and religion was highly intertwined in the African continent. The Pharaohs whilst being revered as gods would often partake in sporting events with other nobles and the Ibo tribe of West Africa could not undertake wrestling contests until the oracles gave consent (Obare, 2000). However in the modern era sports are separate from religion, no one is required to give blessings or make sacrifices, similarly like modern sports, esports are fully secular with no ties to religion (Jonasson and Thiborg, 2010). The second of Guttmann’s characteristic is equality. Jonasson and Thiborg (2010) state all players compete in the same conditions regardless of gender, form or functionality. In addition all competitors know the rules and regulations beforehand, all equipment is checked to ensure no one is attempting to cheat, and all the computers are provided by tournament organisers to ensure no machine is superior to the other. To be considered a sport according to Guttman, all sports need bureaucracy. Whilst there are many organising bodies governing esports, Jonasson and Thiborg (2010) point out these are far from united. For example two bodies exist in Sweden, Goodgame and the Swedish E-sport Association who have tried to unite all Swedish esports players but have had limited success. Furthermore, at international level there is no one organisation governing all international esports competitions but rather a multitude of several organisations that are fractured and unorganised in achieving a common goal. The one exception is that of Korea, who have a strong organised e-sport industry through the Korean esports association or KESPA. Jonasson and Thiborg (2010) also note that through
technological advancements, more refined training methods and preparation, esports are becoming more and more rationalised, in line with Guttman’s (1978) fourth characteristic of modern sport, rationalisation. Quantification is Guttman’s (1978) fifth characteristic, which enables the process of rationalisation to occur. Quantification in esports occurs not through traditional mediums such as daily newspaper reports but rather through websites and online communities who report scores, as well as standings and player ranks. Finally specialisation, which refers to players excelling at one role, or one sport, is Guttman’s (1978) final characteristic. In regards to esports specialisation refers to players excelling at one game, such as Counterstrike or League of Legends, but then also excelling at a specific role. For example in Counterstrike a player may excel at being an in-game leader or an AWPer, whereas in League of Legends one player may excel at the support role, whereas another player may excel as the attack damage carry. Guttman’s (1978) final characteristic, and the one which separates modern sports from pre-modern sports, is the pursuit of records. This refers to the documentation of all records, player statistics, rankings, and records of most attended tournaments and most view games. Jonasson and Thiborg’s (2010) final contribution is to discuss three scenarios regarding esports impact on future sport. The first scenario proposes that esports will develop into a counterculture or alternative to contemporary sports. Globally some countries such as China, Korea, Denmark and Russia consider esports as a true sport, however large international sporting bodies such as the international Olympic committee do not recognise that esports are true sports. Furthermore there is no united global esports organisation to promote the legitimacy of esports as a modern sport. They further argue that if esports can gain a higher status similar to conventional sports and attract similar levels of funding and sponsors, without actually being recognised as a sport, then its highly likely esports will evolve into a counterculture and an alternative to modern sports. Esports would also have two advantages over conventional sports in both for players and spectators. With the development of high speed internet, people can play esports day and night with other players from around the world, also all major esports tournaments at the time this paper was written as well as currently in 2017 are free to spectate as long as one has access to the internet, in addition spectators can also attend LAN events and watch their favourite teams and players in huge stadiums, partake in fan meets, try out equipment and new games from sponsors and experience esports culture at these events and tournaments. Therefore it’s possible whilst esports may never be recognised as a conventional sport such football, tennis and basketball, it may develop into an alternative due to ease of access for both player and spectator. The second scenario put
forward by Jonasson and Thiborg (2010) is that esports will be accepted into the current hegemony of modern sports. However this will only occur when two large barriers have been bypassed. The first regards what the Olympic international committee considers a sport. To be considered a sport esports much have an independent and autonomous organisation and this organisation must adhere to the Olympic international committee rules and charter, as of currently right now, this does not exist for esports however there is a good possibility an organisation which meets the Olympic international committee will develop through Guttman’s (1978) process of sportification as discussed earlier. The second and more problematic barrier is to reduce the negative stigma around games. The mainstream media portrays video games as precursors to violence and a source of addiction. Much research on video game violence is contradictory, with studies showing both short term spikes in aggression and violence, with others showing no effect of video games on violence at all. Whilst video game addiction does exist, it’s a very small minority. Research has found that gamers are just as physically fit as non-gamers, and video games can provide a wealth of developmental, educational and skill benefits such as increased educational performance, spatial awareness, problem solving, reaction times and developing social networks and social skills (Jonasson and Thiborg 2010). Thus if esports can keep up with the demands of modern sport and carry on developing as well highlight the benefits of playing video games competitively, then it’s possible esports will be absorbed into the hegemony of modern sports. The final scenario discussed is that esports are the future of modern sports. The author would like to point out that Jonasson and Thiborg (2010) stress the final scenario is far more tentative and speculative than the prior two. They posit that in the future, with the increasing evolution of technology and the changing societal values in which we will strive to reduce our impact on the planet, and one way to do that is through esports over traditional sports. The example they give is of formula one, in which rather than drive a car at high speed, which is inherently dangerous as well as polluting the planet. They argue competing virtually is superior for both player health and also the planet, as well as spectators can follow the competition easier and also compete if they so wished. Thus with technological simulation, it’s possible the drivers are tested to near the exact same limits as they would on the physical plane, and thus esports evolves into a more refined civilised sport evolving to be superior to modern sports in player and planet health, as well as spectator immersion.

To summarise, Jonasson and Thiborg (2010) do an excellent job in discussing whether esports is an actual sport. They demonstrate through Guttman’s (1978) model of modern sport and through his
characteristics of sportification, that esports could be considered a sport like any other modern sport. However the lack of a united, autonomous and independent committee as well as lack of recognition and negativities surrounding video games in general, there is also the argument that esports are not yet true sports. They conclude with giving three different scenarios on how esports will impact modern sport in the future, either developing into a rival culture, being integrated into sports or evolving into what modern sports will become.

More recent research into esports has also taken a similar approach to Jonasson and Thiborg (2010) in demonstrating esports should be considered a sport through definitions and comparisons to contemporary sports. Hamari and Sjoblom (2017) investigated what esports is and assessed esports consumer motives through motivation scale for sports consumption. Hamari and Sjoblom (2017) argue that when one is assessing whether esports are indeed a sport, leads to problems in defining esports but also our understanding of sports in general. They posit that many individuals, especially those involved in sports do not believe esports to be a sport due to the lack of apparent physical prowess. However Witkowski (2012) notes that physical activities are a key part of esports, and whilst these movements are constrained to the computer-mediated environment this does not mean they are not taxing. There are multiple sources of injuries to esports player’s backs and wrists due to excess strain. Moreover like other professional sportsman who can complete feats normal athletes can only dream of, such as Olympic sprinters running 100m in under 10 seconds, or tennis players such as Andy Roddick and Milos Raonic who can hit serves over 150 mph. The same can be said about esports players. Weber et al (2012) found Starcraft 2 professional will have approximately 300 actions per minute, whereas average players do approximately 50 actions per minute (Blizzard patch 1.4.3 for Starcraft 2). Therefore whilst the physicality’s are much restrained compared to traditional sports, esports still involves physicality, but rather than explosive speed, it’s characterised by highly dexterous, intense and precise finger, wrist and arm movements partnered with high levels of hand eye co-ordination. Hamari and Sjoblom (2017) also emphasise that the definitions and conceptualisations of sport as a sport should concern themselves with what the e stands for. They define esports as “a form of sports where the primary aspects of the sport are facilitated by electronic systems; the input of players and teams as well as the output of the esports system are mediated by human-computer interfaces” (p.1). They also highlight two stark differences between sports and esports. Whilst both take place in the physical plane, the input modalities are different. Esports require a human computer interface of a mouse, keyboard,
microphone as well as computer output such as display devices like monitors and audio and haptic feedback. Sports on the other hand involve no computers but human and object interaction, or just purely human interaction. The second difference is in esports the outcomes occur in virtual space, whereas the outcomes of sports occur in the physical plane.

In addition Hamari and Sjoblom (2017) also demonstrate that spectating esports is similar to sports, whilst not identical, as spectating esports will always involve a computer-mediated environment. The author would like to extend Hamari and Sjoblom’s argument to also spectating in the real world as opposed to through the computer. Even though there is now ample opportunity to attend a plethora of regular esports events to watch teams and players compete in the real world and watch live in a stadium just as one would a football or tennis match, the spectators still view through a huge monitor or a projection onto a wall or floor. Whilst this will always be the case, if virtual reality and avatar generation keep evolving, then it’s possible totally immersive modalities will be able to deliver say watching League of Legends like watching a football match, albeit being computer generated. Thus Hamari and Sjoblom (2017) demonstrate that esports should be defined as sports, which occur through a computer, mediated environment, rather than demonstrate esports are sports through their likeness to traditional sports. Finally Jenny et al (2017) compared esports to the sociological and philosophical definitions of sport, and explore the role of, physicality, skill, organisation and institutionalization compared in both esports and sports. Jenny et al. highlights that in many esports several skills are needed to be success, for example in Starcraft 2, a popular real time strategy game, effective resource management is needed to overwhelm ones opponent. Similarly become a professional counterstrike player one must demonstrate, fast reflexes, excellent dexterity and motor control as well as good levels of hand eye co-ordination. In addition players must have excellent game knowledge and tactical and strategic intellect to solve the problems, which arise in game, in order to, outplay their opponents (Hemphill, 2005). Further studies have recommended that video games are an excellent source of cognitive skills training in understanding tactics, enhancing teamwork and communication (Hayes & Silberman, 2007; Jenny & Schary, 2014). Jenny et al. (2017) concludes however whilst esports no doubt has skill involved, common definitions of sport state that skill involved in sport must be physical. Modern definitions of sport such as conceptualised by Hemphill (2005) and Ousterhoudt (1977) state that the skill involved must demonstrate physical prowess as opposed to just involving physicality, thus esports would not be considered a sport by the definition of physicality. Jenny et al. further discusses this argument by exploring gross vs fine motor skills. Gross motor skills involve large
muscle groups which involve movement, such as moving from point A to point B or kicking a football, fine motor skills are movements using small groups of muscles to make precise movements with increased accuracy and control, such as using the wrist to roll a layup in basketball or aiming a tennis racket (Haibach et al., 2011). Jenny et al. (2017) argues that out of all Olympic sports, only shooting and archery do not involve large gross movements. Furthermore esports lacks the strength speed and aggression found in modern sports like basketball, football and rugby. Jenny gives the example of a gymnast who displays full body gross motor control to perform a complex array of movements to win competitions, through practice she becomes more refined and precise, learning more complex movements, with each new movement the level of danger increases, with one wrong slip and she could seriously injure herself. Compared to an esports professional who uses fine motor skills to control an avatar in virtual space, often in scenarios utilising violence, the player has no fear of injury through physical means, once the avatar is injured or dies, the player just starts again. Jenny et al. (2017) demonstrates that without a level of visceral physicality, esports will never reach the same level as traditional sports such as football or tennis. Jenny et al. suggests the way esports can achieve this is through motion-based video games. These involve using a multitude of input modalities to simulate physical movements by the user. A meta-analysis of 27 motion-based video games found they burn calories, increase heart rate and induce sweating way beyond resting levels (Sween et al., 2014). Jenny concludes whilst current definitions of sport exist, unless esports incorporate motion based video games into their array, esports will never be considered a true sport due to a lack of physicality. Jenny et al. (2017) further argues there needs to be institutionalisation of esports before it will be recognised a sport. For example in the United States, the United States Olympic committee, National Collegiate Athletic association and the National Association for Intercollegiate Athletics all work in tandem to ensure rule enforcement and standardisation in sport, however due to the explosive growth of esports, there are many organisations fighting to be the “top” esports institution, thus without co-operation, institutionalisation will never occur.

To conclude by traditional definitions such as those proposed by Guttman (1978), esports would be classified as a sport, however due to modern sports need for physicality as well as institutionalisation such as the world and national Olympic committees working in tandem, due to esports lacking these key criteria as argued by modern theorists, it is likely they are more a pseudo-sport, however esports are still a growing phenomenon and they still easily have the potential to be formally recognised as a sport, either through changes in definitions of a
It is clear that esports is a big business, with profits and spectatorship expected to increase year on year, thus one important area for esports academics to explore is the business and economical processes driving esports. As of 2017 there are very few papers, which have investigated the economic, and business underpinnings of esports. Carvalho (2015) and Laakkonen (2014) both explored business models in esports. Laakkonen applied the business model canvas by Osterwalder and Pigneur (2002) to the Assembly Winter 2014 Steelseries Dota 2 Invitational tournament broadcasting Dota 2, a popular free to play MOBA (multiplayer online battle arena). The business model canvas examines the rationale behind growth by examining the four cornerstones of business, infrastructure, offering, customers, and finances. The cornerstones are then split further into the canvas. Customers involves customer segments, which identifies which customers to serve e.g. mass or niche market, channels which concerns how companies can deliver value through different channels, and finally customer relations which concerns what type of relationship the organisation wishes to have with its client. Infrastructure involves key activities, which are the most important activities in achieving the company’s value proposition, key resources which are the necessary resources to create value for customers and partner network, which concerns buyer-supplier relations. Offering consists of a company’s value proposition, which is formed via all the products and services a company can offer to their customers, and which it distinguishes itself from competitors. Finally finance consists of cost structure, whether a company is cost driven e.g. keeping costs low or value driven, e.g. creating high value products, and revenue streams, whether the revenue is generated.

Through the application of the model Laakonen (2014) notes the customers segment involved spectators of the tournament, two sponsors one being Steelseries advertisement rights and Jimm’s, who provided the computers which the games were played. In regards to value proposition, Laakonen identified two main values, spectators who are there to be entertained, and the sponsors who are present to promote their brand for growth and profit. The channels used were either attending the LAN event physically, or watching the tournament through Dota 2 Tv. The finance structure was cost driven and revenue generation came from the main sponsor Steelseries, an entry fee from the participating teams and ticket sales. Laakonen also suggests several improvements in areas of the business model such as using a mode widely known streaming channel or using streaming in different languages could help solidify channels...
promote viewership and increase revenue generation. Similarly Carvalho (2015) also applied the business model canvas, however rather than explore how esports played out at a tournament, Carvalho interviewed three key stakeholders in three different esports organisations to get an in depth understanding of how the financial aspects of the business canvas model is applied to each organisation. The organisations consisted of the Yoe Flash Wolves one of the top Taiwanese league of legends teams in the world, Grow up Gaming, one of the oldest and widely known teams in Portugal with a history of developing some of the best national esports players, and Electronik Generations, a up and coming esports team from Portugal who participate in several games. Carvalho (2015) found that through qualitative interviews that out of all three teams, the Yoe Flash Wolves were most financially stable, with all revenue purely coming sponsors; this was also similar for Electronik Generation who also relied on sponsors but also ticket sales. The most complex revenue stream came from Grow up Gaming who got revenue from sponsors, ticket sales, club membership fees, merchandise and state public support. The reason Grow up Gaming has so many revenue streams being it is a volunteer organisation, as well as its academy were it trains players and their outreach programs they get some funding from the education council in Portugal. Yoe Flash Wolves also had the least numerous of expenses, focusing on funding a gaming house, player salaries and travel and lodging. Grow up Gaming and Electronik Generation both had to fund travel and lodging, event planning, tournament entry fees as well as paying for servers to ensure the teams could practice. Carvalho (2015) concludes that the two smaller Portuguese team’s models demonstrated that these teams were concerned with growing and promoting their brand and achieving financial stability, whereas the Yoe Flash Wolves who were already financially secure were focused on player development and performance, as opposed to revenue generation. Whilst some papers have considered the overall business models utilised in esports, others have focused on specific parts of the industry, such as creating value or innovation. Zarrabi and Jerkrot (2016) interviewed multiple actors in esports organisations and the esports industry and found that creating value, such as innovating, producing and delivering to the market was of more importance to the actors they interviewed compared to value appropriation, the process of capitalisation and production of profit. Furthermore unlike prior literature which suggest value creation is a sequential process in which the firm overshoots its competitors and creates larger profit margins (Lepak et al 2007; Simons et al (2007), value creation is an iterative, trial and error process, for example several trials of innovation in a product or service (Zarrabi and Jerkot, 2016). Not all actors favoured a trial and error process however, distribution
platforms who have already found their niche in broadcasting esports through streaming platforms and generating revenue through sponsorships and advertising. Since distribution platforms have already gained stability, a trial and error process is less valuable to them. Zarrabi and Jerkot (2016) further noted several factors in regards to creating value in an organisations and the industry. Actors noted that competence within organisations and having good tacit knowledge of mistakes is utilised in the creation of values in organisations. Finally actors expressed that co-operation was important in creating value due to co-operation being positive and benefitting all parties. Many actors perceived value appropriation as the best solution to extract profit from the esports market. Zarrabi and Jerkot (2016) note many actors believed to achieve value appropriation, they had to experiment with several methods in order to discover the optimal solution to extract profit from the market. Actors saw branding and diversification as tools to protect and enhance existing appropriation streams (Zarrabi and Jerkot, 2016).
A map of esports teams locations UK (2017)
https://www.google.com/maps/d/edit?mid=1fw62g23j0P8FYKYfa0GCFU4sUOQ&ll=52.8032964038414%2C-0.22522140039063743&z=7

In contrast Nesta reported in 2014 that the Video Games development Industry is much more dispersed across the UK (Nesta 2014, pp 24)
Although the majority of video games companies concentrate in London and the South of England, the North of England has a stronger presence in video games than in the creative industries overall.

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<th>Total</th>
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<tr>
<td>South West</td>
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<td>79%</td>
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<tr>
<td>Northern Ireland</td>
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<td>1.3%</td>
<td>100%</td>
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The South of England (including London) dominates our sample, concentrating almost 55 per cent of activity. However, this percentage is lower than for the creative industries overall (according to the DCMS classification and using IDBR data on business counts).

The North of England and the Midlands regions have a stronger presence in the video games industry compared to the creative industries overall.

Liljeqvist, Kallin and Cambrand (2014) found several important factors in developing innovation in esports. Open innovation seems to be one of the most important factors in developing innovation in the esports industry, with the esports industry naturally possessing open ended feedback as well as high community interaction amongst esports actors and game publishers which serves as an important breeding ground for idea development and innovation. Technical development has always been important for innovation; it is however likely those technical developments will have more impact in esports than other more traditional sectors. This is because the esports industry has many tech savvy, creative individuals leading developments on new hard and software to further increase the performance and innovation in esports. Since technical development is so core to the esports industry, it’s only natural that innovation will occur. Liljeqvist, Kallin and Cambrand (2014) also note that due to the production and running costs of tournaments on shoestring budgets, this will promote innovation as companies
have to be creative in using their funds, finding ways to increase revenues, reducing cost and promoting efficiency.

**Marketing**

Whilst there has been very little marketing research conducted in academia investigating marketing in esports, there are many non-academic articles and companies dedicated to the field of esports marketing. On the esports marketing blog (http://esports-marketing-blog.com/) there were 40 plus articles regarding esports marketing in January and February of 2017 alone. In addition there are numerous esports marketing companies such as Flood Interactive, STARK esports and VFD esports are to name but a few. Finally according to a report by SuperData, a company specialising in games and esports market intelligence, the esports industry generated 747 million dollars in 2015, with 578 million dollars generated from marketing and sponsorships, clearly indicating marketing is a huge part of esports revenue generation, approximately accounting for 77% of all revenue generated in 2015. Since there appears to be such a impact of marketing in esports, it is curious that only 3 papers including the first ever academic research in 2013 have been published as of early 2017.

According to Seo (2013) esports has “unprecedented marketing potential” (p .1542) due to the large player base, such as in 2012, the electronic sports league reported they had just over half 3.5 million users registered in Europe alone. Additional there are numerous professional bodies, such as the Korean esports association, the British esports association and the international esports association as well as huge end of year tournaments like Dota 2’s invitational, and the world cyber games, the esports Olympic equivalent. Seo (2013) notes that due to very little physical content involved with esports, marketing should focus on the immersion and experience consumers get from esports, and develops a model of esports marketing combining by Pines and Gilmore’s (1998) experience economy model with research by Lusch et al., (2010) and Vargo & Lusch, (2004, 2008) into value networks and co-creation. Pines and Gilmore’s experience economy model states that there are four realms of consumer experience: educational, entertainment, aesthetic and escapist. These realms can be conceptualised as four quadrants of a square, with a vertical axis ranging from absorption to immersion, and a horizontal axis ranging from passive to active participation. However, Pines and Gilmore (1998) experience economy model has been criticised that consumers play the role of guests in that they have no contribution towards the experience. However Lusch et al., (2010) and Vargo & Lusch, (2004, 2008) note that rather than guests, consumers have an active part in creating marketing value, and can be seen as co-creators in the experience. Furthermore Lusch et al (2010) report that marketing value
is not created by a dyadic firm-consumer relationship, but by a group of several marketing actors who form a value network, "a spontaneously sensing and responding spatial and temporal structure of largely loosely coupled value proposing social and economic actors interacting through institutions and technology" (Lusch et al., 2010, p. 20). Seo (2013) creates a fully holistic model of esports marketing, where each part of the experience economy model is demonstrated in esports, for example in regards to escapism, PC bangs in Korea, and the use of Blizzards battle.net allow users to create tournaments and social spaces dedicated to esports and fully immerse and escape as well as demonstrating that multiple actors such as broadcasters, players, fans, developers and governing bodies all have a part to play in the development and marketing in esports. For instance, whilst developers make the platforms for esports to occur, it is the players and consumers, who enrich the experience for others to allow for escapism, were as the governing bodies and organisations develop regulations and rules to promote education in esports. Seo (2013) concludes that “Within the marketing domain, esports can therefore be conceptualised as a distinct segment of computer-game consumption, identified by the particular experiences of competitive game play that immerse, educate, entertain, and engage consumers in play, co-created within the value network of marketing actors by a means of the specific forms of the online and offline performances” (p. 1555). There is a clear rift between marketing academic literature and marketing reports on the profitability of esports, more academic literature should investigate the models and processes through which marketing can be applied to esports, to ensure profitability keeps growing.

Law

Possibly one of the largest bodies of academic literature published on esports is that concerning its legal precedence in regards to player and management rights and gambling. Holden, Rodenberg and Kaburakis (2017) published an article covering the current state of esports gambling, eliciting to two problems in the esports industry, skin gambling and match fixing. Skins are in-game cosmetic items which can be sold, traded and gambled (Yu, 2016). Whilst skin gambling exists in several games such as team fortress 2 and Data 2, it largely occurs in counter strike global offense (CSGO) (Bright, 2016). CSGO lounge was seen as the site which allowed users to bet skins on professional games, this led to a plethora of sites to grow, such as OPSkins which allowed for casino style gambling such as roulette and poker facilitated by CSGO skins bought for real money (Holden, Rodenberg and Kaburakis, 2017). Whilst gambling increased both exposure, popularity and economic growth of CSGO, it also led to allegations of unregulated gambling, with several popular YouTube channels
owning skin gambling sites, then fixing videos of them winning hundreds of dollars, promoting the use of these sites to a largely underage demographic (Holden, Rodenberg and Kaburakis, 2017). In the summer of 2016 two minors, Michael McLeod and Jayme Reed citing that Valve, who produced CS:GO and the weapon skins, knew and support illicit gambling in minors, filed three major lawsuits. Mcleod and Reed also stated that Valve’s arbitration practices are void due themselves being minors thus they do not have the capacity to enter gambling contracts, as well as allegations of racketeering and deceptive trade practices. In the wake of these lawsuits, Valve sent 23 skin gambling sites cease and desist letters. Whilst those contacted shut down, many smaller skin gambling sites carried on practices are normal (Green 2016) Furthermore esports has also had integrity scandals in regards to match fixing, whilst the amount of currency has been as small as $332 or as large as $37,000, several cases in Dota 2, CS:GO and Starcraft 2 have emerged, with twelve individuals arrested for match fixing in five Starcraft 2 matches in October 2015 (Holden, Rodenberg and Kaburakis, 2017). Holden, Rodenberg and Kaburakis suggest that there is a need for proper regulation on esports gambling and match fixing for esports to be the next step alongside traditional sports. Whilst there are numerous bodies such as the not for profit esports integrity Coalition, or the World esports association, they either lack the necessary resources to cover all esports leagues across the globe, or lack transparency, with one partner organisation, FaZe, leaving the worlds esports association. (Holden, Rodenberg and Kaburakis, 2017). What may be the best solution is to get the countries gambling councils to regulate the gambling. In March 2017, the UK gambling commission released an article which applied the existing regulatory framework of gambling and integrity to esports in accordance to consumer rights and existing litigation, whilst not all the suggestions are 100% ideal, such as the use of age checks, however these are easy to bypass online, the UK gambling commission does do a good job to showing were esports gambling fits into the current UK litigation, which is legal, what is illegal and their suggestions to move forwards. In addition to esports gambling, several papers have investigated litigation in regards to player’s rights and contracts.

Bayliss (2016) conducted an analysis of both the league of legends teams and players in the LCS, which is riots sanctioned league for competitive league of legends, to see if teams or players are employees of the LCS and thus should have employee rights, which would benefit players but also promote and legitimise esports as a sport similar to that of football or basketball. First of all Bayliss analysed whether the teams in the LCS were employees, due to the LCS lack of control on teams, and teams profits were not dependent on the LCS, under law it is unlikely teams were classified as employees. However when Bayliss
(2016) analysed players in the LCS, there was good legal ground for them to be considered employees. First of all one is recognised as an employee if the organisation is responsible for the employees income. Annually, players are paid $25,000 from the LCS as a minimum player salary. Furthermore this salary is dependent on staying in the LCS, with the two bottom teams in the LCS being relegated, thus many man hours of intense practice is the only way to reliably ensure a salary and employment in the LCS. Bayliss (2016) notes this investment is not from someone who is in business for themselves, an independent contractor, but rather an employee grinding out to ensure financial and job security in a competitive environment. Furthermore the LCS has considerable control over players, with the ability to fine, suspend or permanently ban players from ever participating competitively. In addition to play League of Legends, players must use the League of Legends client to play the game. Whilst this may seem trivial, Bayliss (2016) notes that to be legally considered an employee, control by the employer must be demonstrated, by forcing all work to be bound to the game client, this is an even higher level of control seen in traditional industries. The relationship between players and the LCS also has legal precedent, the relationship is fairly stable and permanent, players do not employ people to play for them, players are seen as a key part in facilitating the creation of a broader League of Legends community, all these fall in accordance with the Fair Labor Standards Act, in which players in the LCS would be considered employees. Bayliss (2016) concludes that whilst financially players are paid well above the national average, they lack rights in two areas, player mobility and administrative actions. Administrative actions can be highly damaging as the LCS condones all rulings and administrative decisions and the LCS is explicit in that any of their rulings are non-negotiable and final. Teams and players may appeal, but again, no third party has any input and the outcome of the appeal rests on the LCS discretion, thus meaning appeals can be rejected even when proper cause to overturn the appeal has been established. In regards to player mobility, any breach of the player mobility rules will result in sanctions; whilst teams and players are subject to any new rules regarding player mobility the LCS decide to impose. This is further impacted by the LCS rules are free from any player scrutiny, thus without players being able to effectively interact with the LCS and have meaningful impact on rule creation, the LCS can eviscerate any sort of player influence (Bayliss, 2016). Bayliss (2016) concludes that legally players could be recognised an employees, therefore giving them the right to collective bargaining, meaning “League of Legends players can fight for fair provisions under LCS agreements, and ensure that future professional esports players can enjoy just and healthy employment in the field. (p.408)
Hollist (2015) reviewed the esports industry in the United States and gave some suggestions on how to improve player-working conditions. Hollist highlights a lack of player’s rights in general in esports, suggesting like Bayliss (2016) if the players were able to bring to the courts attention they are employees either through legislation or through esports organisations breaking labour laws, they would legally have to be given bargaining power. Hollist notes the best solution would be to unionise due to this would stop imposing government regulations on a still evolving industry. Also once esports players are seen as employees, by then pursuing unionisation, they gain the protection provided by the National Labour Relations Act.

Hollist (2015) further notes that unlike other nations the United States needs to form an independent esports organisation outside of the players, teams and leagues. Hollist (2015) stresses that any organisation developed would need to be supported by the US federal government as this would ensure uniformity across nations as well as solve glaring problems in the industry, such as lack of legitimacy and problems concerning integrity and gambling. Thus by creating a government supported organisation, esports can be legally and properly regulated in the United States. Finally Hollist (2015) suggests that through regulating visas the government can increase player well-being in competitive play whilst not compromising casual and amateur play. For example by only issuing athletic visas for competitive play with an active players association would incentive esports leagues to allow for the creation of unions, as if this was not the case, highly talented and high profile international players would not be allowed to play in the United States, thus reducing viewership and the industry growth. In a similar manner Taylor (2012) reminds us “the conditions under which Korea’s incredibly robust scene emerged are tied to fundamental policy, economic and infrastructural supports. It is uncertain if Europe and the North America will develop similar mechanisms to build their scenes.” (pp 247).

**Education**

One important area of esports literature is the educational value of playing these games for long hours. Several studies have highlighted the educational benefits of esports, which echo what has already been found in regards to online videogame play and their educational benefit. Early research by Forough and Freeman (2016) suggest professional esports players perform exceeding well on attention tasks compared to casual video games players. Professional esports players have very high attentional abilities timed with very low reaction times. Furthermore research by Kozachuk and Freeman (2016) looked at how structured esports play can increase educational achievement. Five hundred students participated in a varsity video game league, being
surveyed on their team experiences to understand what factors influenced academic performance and team cohesion in high school esports players who play esports competitively on the varsity circuit. Through structural equation modelling, Kozachuk and Freeman (2016) found that participating in an esports team increased team cohesion and academic performance, as opposed to purely playing video games. In addition Kozachuck and Freeman (2016) also found that teams who were more cohesive had members with high intrinsic motivation, which in turn lead to increased academic achievement. Thus by providing a suitable outlet for students to socialise with similar peers allows for social and academic benefits.

Esports research has also shown it to be useful in the learning of motor skills. Hilvoorde and Pot (2016) argue that esports require individuals to learn and perform motor skills. They further argue motor skills are a key component of esports, and “The body movements in these cases are not task-facilitating, but are defining and necessary to control the task” (p.19). In addition they note esports can be a powerful tool in learning and gaining mastery over digital literacy which is “awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process” (p.22). Similarly research utilising MMORPG as a medium for education has also echoed similar benefits. Childress and Braswell (2006) found that MMORPG could be a useful tool in the classroom, with the MMORPG blending real life face to face learning and interacting with an online virtual learning environment. This allows for increased interactivity and innovation in creating new teaching models. Furthermore these models will be more effective methods of teaching problem solving and critical thinking due to the hyper-realised, social learning experiences these methods can portray. Furthermore advances in artificial intelligence will allow for the creation of powerful pedagogical agents who can interact in the online environment to help customize materials based on the learners own needs. Whilst no esports literature has investigated leadership training and education, some studies using MMORPG have looked at leadership training and education. Lisk, Kaplancali and Riggio (2012) conducted studies to explore leadership development and training in online games in distributed teams. The first consisted of groups of four of five students participating in two INFINITEAMS sessions, a game developed to increase team learning and leadership through problem solving scenarios. Participants motivation to lead and leadership self-efficacy was measured prior to the study to
ensure these did not contribute to the final scores of leadership. Transactional and transformational leadership scores were recorded by self and peer reports after the two sessions. Lisk, Kaplancali and Riggio (2012) found a significant relationship between reported transactional and transformational leadership by self and peers and increased team performance. The second study involved assessing transformational leadership, leadership roles in guilds and guild structure in MMORPG games such as World of Warcraft and Guildwars to assess transformational leadership in games and at work. Lisk, Kaplancali and Riggio (2012) found that participants leading guilds in games reported higher leadership skills than those not in guilds. They found that those in higher positions of authority in guilds indicated higher leadership ability, but no difference was found amongst leadership ability in regards to whether the guild had one, several or no leaders. They found no clear relationship between offline and online transformational leadership. They conclude with that more research is needed to assess leadership in distributed teams, as it would appear just applying traditional models of leadership is not enough, as there it would appear there are other moderators and mediators which affect leadership ability online. They do note however MMORPG are powerful tools in regards to leadership training as they allow for social interaction and scenarios to test leadership. Conversely a similar study by Jang and Ryu (2011) did find that playing MMORPG was predictive of offline leadership ability. They developed a game leadership scale based on the multifactor leadership scale (Avolio and Bass 2004), which assesses transformational leadership and compared this with a measure of offline leadership. They found that in-game leadership, when leading a team, significantly predicted offline leadership. Its possible Jang and Ryu (2011) discovered that online leadership did predict offline leadership. However in their study they did not use traditional measures of leadership and applied these to an online setting, rather they developed a measure which accurately captured online leadership, and then cross validated this measure with one of offline leadership.

Human factors/Ergonomics.

The final section covers the role of ergonomics and engineering in the role of esports. Esports is a growing industry, with many young professionals spending hours upon hours of training. Some esports players play at a minimum 50 hours a week, with others spending up to 14 hours six or seven days a week playing esports (Procci, 2017). Furthermore, these hours are taking its toll, with esports players being the most prominent clients for surgeons who specialise in hand and upper extremity injuries, with one player having to retire at 22 due to gaming induced wrist injuries (Procci, 2017). Therefore it is important to think about how designing game based education programs and learning
environments to reduce the risk of injury. Procci (2017) gives many recommendations to reduce the risk of injury based off prior ergonomics research, such as the inclusion of many breaks to allow for rest, and hand and wrist stretches and massages. Another possibility is the assessment for appropriate gaming mice or controllers to ensure they are ergonomically sound and no excess pressure is being places on the hands or wrist. Procci (2017) even goes into finer detail such as keeping the centre of the visual display twenty five degrees below eye level, with the top of the visual display being below five degrees of eye level and also ensuring the pressure needed to press on the keyboard is between 0.5-0.06 N and has a slope between zero to fifteen degrees as this reduces strain. Procci (2017) concludes that the recommendations should reduce strain and reduce injury in prolonged computer and gaming use, but other areas need research, such as the use of mobile devices, head-mounted displays and simulator sickness. Hamilton, Kearne and Robbins (2012) compared the use of a touch pad and pen compared to a mouse and keyboard as an input modality for playing a popular esport, Starcraft 2, being a real time strategy game which revolves around the collection of resources, production of units and large scale management to defeat the opponent. Hamilton, Kearne and Robbins (2012) used 10 high-level star craft players to test the modality. They reported that the pen and touch pad modality was more fun, engaging and expressive, and was more practical when it came to the selection of large groups and sub groups of units. The participants also commented they modality allowed the game to be more engaging and realistic, with one participant quoting “more engaging on a visceral level” (p.08). They conclude their input modality allows for quick an precise movements in regards to selection with are more engaging and expressive over the mouse and keyboard, they propose more research should be conducted into the application of input modalities in esports to increase engagement and functionality.

Whilst currently there is very limited academic literature in the area of marketing, ergonomics, human factors and engineering clearly have a role in player health and developing esports to a higher level, whether that be more engagement for the players or to increase functionality to allow new games to be developed and new ways for games to be played which are both practical and exciting.

Section 2
Project details.

Reflecting on the themes and detail from the project:

- The study reveals esports continues to be a rapidly developing industry, with not
only large profits, but also an extremely large player and spectator base. In 2017 the esports industry will earn (in total revenue) $696 million US, and is predicted by 2019 to reach $1 billion. Newzoo Annual report 2017

There are clear indications that:

- Esports could be considered a sport like any other modern sport. However the lack of a united, autonomous and independent committee, as well as a lack of positive media presence and recognition, means that esports is not yet true sports. Note: currently there is still a deep and ensuing deliberation around the physicality of sports and esports.

- There are three different scenarios about how esports could impact sport in the future,
  - it will develop into a rival culture;
  - It will be integrated into a sport;
  - or it will evolve into what modern sports will ultimately become.

- Positive motivations about esports development and growth include skills development, fostering economic growth and the eSports community working together sharing orientation and future growth of the industry.

  - It is important to encouraging a cross section of stakeholders to engage together so as to identify potential solutions to problems faced by the UK esports industry (and not to just confirm existing problems as other reports have done so far).

Reflection on the esports Industry Perspective:

- While there is indications that the esports industry is growing and building its organisational base (e.g. the British esports Association, Gfinity, Twitch, etc.) It is clear that more needs to be done in order to foster and grow the Industry as a whole and to minimize organisations fighting to be at the top. The most positive step is through co-operation and co-ordination.

- Existing research has identified two main economic values for esport businesses: spectators (who are there to be entertained), and sponsors (who promote their own brand).

- Esport business’s financial structure is cost driven.

- Revenue generation comes from the main sponsors, charging an entry fee from the participating teams, ticket sales, club membership fees, merchandise, state/ public support.
• Improvements in business models can be made through better use of the widely known streaming channels; and/or streaming in different languages. These changes could help solidify channels, promote viewership and increase revenue generation.

• Creating value including innovating, producing and delivering to the market are the most importance for esports organisations.

Results from a esports team perspective:

• While there currently exists both very successful examples of esports teams and streaming communities in the UK, the co-ordination and co-operation of these teams as a fully-fledged ‘Creative Industry’ does not yet exist.

• There is still limited demarcation in legal and workplace obligations of esport team sports organisation. In particular much work is needed to improve the demarcation between ‘professionalization’ and ‘leisure’ of game play. Much policy, employment law and regulations development is needed to foster a strong esport industry profile in the UK.

Results from a Governmental funding Perspective:

Although currently there is no dedicated UK Governmental policy focus that specifically addresses esports and streaming within the Creative Economy in the UK, there are clear indications that there is a strong and growing Creative Industry and Economy in 2017. In a report that outlines The Creative Industries Economic Estimates- January 2016 (https://www.gov.uk/government/publications/creative-industries-economic-estimates-january-2016/creative-industries-economic-estimates-january-2016-key-findings)

States,

• The Creative Economy was worth £133.3bn in 2014, accounting for 8.2 per cent of the UK economy.

• The Creative Economy has grown by a quarter since 2011, at a rate faster than the whole of the UK economy, which grew 12.1 per cent. The rise has primarily been led by the growth of the Creative Industries.

Also a recently commissioned Report by NESTA titled “A Map of the UK Games Industry” (2014) http://www.nesta.org.uk/publications/map-uk-games-industry?gclid=CJWyv_5fhg9QCFYqRGwodfhUM-Q makes a number of suggestions that quickly crossover to the esports and streaming Industry status. For example the report outlines:

• The video games industry is recognised as a highly innovative part of the UK’s creative economy, but hard data about its economic performance and geography are difficult to
come by. In this respect, the sector is partly a victim of its relative youth and dynamism: it didn’t get dedicated Standard Industrial Classification (SIC) codes until 2007, and many of its companies are hard to classify using standard codes.

• This exercise results in a list of 1,902 video games companies. iOS (including iPhone and iPad) turns out to be the most popular platform.

• Only around one-third of the companies we identify are captured by official games SIC codes. SIC codes are particularly bad at capturing companies in newer platforms like iOS.

• The video games sector has experienced an entrepreneurial boom in recent years: almost nine in ten of companies began operations in the 2000s or the 2010s. Between 2011 and 2013, the number of games companies grew at an annual rate of 22 per cent. This growth was driven by iOS companies: they comprise three-quarters of the companies formed in the 2010s.

• Despite the growth of multiplatform companies, the sector as a whole is increasingly divided into those that focus on mobile, and those specialising in traditional gaming platforms.

• Around one-half of UK video games companies are based in London and the South of England (though the sector is better represented in the North of England than the rest of the creative industries).

• The UK’s games sector is more geographically concentrated than other creative industries, but the situation is changing over time as games companies begin to pop up more frequently across the UK.

• We have identified 18 areas with a critical mass of games activity in terms of company numbers, and 12 games hubs that have high levels of games concentration. These hubs are Brighton, Cambridge, Cardiff, Dundee, Edinburgh, Guildford and Aldershot, Liverpool, London, Manchester, Oxford, Sheffield and Rotherham and Warwick and Stratford-upon-Avon.

• The video games sector in the UK could have a Gross Value Added of as high as £1.72 billion.

The implications in contrasting these figures suggest that the Creative Industries is set to continue expanding and strengthening its economic contribution in the UK. However, with little consideration to the finer detail of where and what specific creative industries are contributing to the economic growth there is little opportunity to capitalise on areas of
specialism such as esports, streaming and other digital creative products and developments that are flourishing in the UK.

We therefore make the following recommendations for consideration by the UK Government and those working in the Creative Industries economy:

- Public and state funding should be provided to enhance skills development.
- That public and state funding could be built to help foster team player’s expenses, funding gaming houses, topping up salaries and travel and lodgings.
- Public and state funding could aid in building the social value of esport.
- Public and state funding could foster creative value building and innovation in the UK economy. Funding would enable need to include a strong policy and financial support basis in order to service value creation that is often developed on a iterative, trial and error basis in the creative industries.

Section 3- Key Results:

In order foster the esports industry and to enhance a overall positive growth in the UK economy:

- A positive media campaign to reduce the negative media portrayal of video games is needed. In particular there is a need to challenge the simplistic image that gaming is a precursor for violence and a source of addiction.
- While esports is still a growing phenomenon, it can be described as a pseudo-sport. It therefore has the potential to be formally recognised as a sport, either through changes in definitions to sport or through improving it demonstrable physicality and institutionalisation infrastructure.
- Esports can provide a wealth of developmental, educational and skills benefit for the UK. Including increased educational performance spatial awareness, problem solving, improved reaction times, and developing social networks and social skills.
- Skills of particular promise include dexterity, intense and precise finger, wrist and arm movements as well as high levels of hand-eye co-ordination.
Section 4 - Research and Policy Implications

Esports covers a wide variety of topics in the academic literature, ranging from its validity as a sport, to ergonomics and education. This list is surely to grow as esports becomes more developed and more researchers and organisations understand the value of knowing the underpinnings of esports marketing. Clearly some areas are covered more than others; such as business and the validity of esports and academic literature regarding esports law and litigation are the most prominent. Overall this literature gives other researchers a flavour of what has already been researched and advises researchers not just to build on these topics but expand the areas of academic literature has been covered. For example many esports teams are now employing performance and sport psychologists, however no academic research has investigated the application of psychology to esports, as previously mentioned it may not be so simple as applying pre-existing models, so therefore psychological literature should at the start focus on whether the application of pre-existing psychological models are appropriate for such a nascent industry, and would it be more optimal both from and a research and practical perspective to develop specified psychological models and theories in regards to esports.

Whilst there has been some start to academic literature in regards to the business and economics of esports, there is still scope for much more, for example more quantitative research are needed as all the studies so far are qualitative in nature. The author does appreciate however it may be difficult to understand the business and economics of such a nascent industry without a large amount of qualitative research. What is clear however is the esports industry has huge potential for innovation and value creation, and to understand the industry as a whole, more models rather than just the business canvas model should be developed and applied.

Further, there is no doubt academic literature in regards to law and litigation to help benefit the esports industry, whether it is in regards to helping the regulation of gambling and match fixing, or increasing player welfare. What this also does is promote legitimacy amongst the esports industry compared to its tradition counterparts and help protect and promote career paths in an evolving and nascent industry.

As stated above, like most other research in esports, literature regarding education is in its infancy, however there is evidence that suggests esports are excellent tools for developing social skills which can lead to increased academic performance, as well as act as a medium to understand motor skills and master digital literacy. Furthermore online education literature such as research by Jang and Ryu (2011) can help guide esports into developing its potential for training
and learning. For example creating specific measures to assess leadership skills learned through playing esports such as counter strike. It is likely other skills are worth investigating such as analytical ability, spatial reasoning, teamwork, and problem solving, which are all common in esports (Jenny et al 2017).

Section 5 - Future Directions

Our future plans are: (incorporate in a summary section see below)

• To continue to present the findings of the studies and collaboration we will be pursuing and we also aim to host a series of workshops and continue building network partners across the UK and the globe.
• To continue to enhance the research agenda exploring esports, streaming and the Creative Industries.
• To seek funding and collaborative partners to develop detailed case profiles of best practice community and esports engagement at a national/International level.
• To use our research to lobby and promote esports, digital skills building and education and the positive enhancement of the creative economy and its policy at a UK and European policy level.
Section 6 - Dissemination and outputs

This report will be made available publicly as well as online as an open publication. The workshop will result in the development of a research ecology network dedicated to developing potential applications of esports in the UK.
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