



THE NATIONAL LOTTERY®



ScreenSkills

WORK FOUNDATION 



Assistant Director Charanprite Dhani on set © ScreenSkills, photo by Erroll Jones

# ScreenSkills Foresighting Analysis

August 2019

## Acknowledgement

In 2018-19 ScreenSkills and the Work Foundation worked together to deliver the first year of the Skills Forecasting Service (SFS) using National Lottery funds awarded by the BFI as part of the Future Film Skills programme.

Our thanks go out to all of the Delphi panel members who participated in this research.

## Contents

Executive summary .....	4
1. Introduction .....	6
2. Current picture of the screen industries.....	8
3. Major drivers of change in the screen industries .....	10
4. Exploring the implications for jobs and skills .....	18
References .....	23
Appendix A .....	27
Appendix B .....	28

## Executive summary

The Skills Foresighting Analysis is one of the three research strands of the Skills Forecasting Service 2018-19.<sup>2</sup> It seeks to explore how the screen industries workforce might change over the next five to 10 years, identifying the likely areas of disruption and seeking to understand how these will impact job roles, skill needs and working practices.

While studies of this kind do not provide conclusive insights into the future of work, they are a useful tool to improve awareness and stimulate reflection and debate as part of the process of preparing the sector for the challenges and opportunities presented by the labour market of the future.

Skills foresighting is a challenging process. Foresighting exercises therefore tend to blend a range of research methods to help produce insights on what the future might look like. This study is underpinned by a mixed-method approach including:

- a **quantitative analysis** of existing data sources on the economic state of the industry;
- a **rapid evidence assessment** exploring existing literature on the future of work; and
- a **Delphi process**, bringing together an expert panel with specific insight into UK screen.

### The current state of the UK screen industries

The BFI's (2018a) Screen Business report shows that the UK screen industries have experienced significant growth over the past decade. Evidence suggests that both employment and turnover have significantly increased across the board.

Our analysis of national data sources suggests for instance that employment in the industry grew from 182,000 in 2013 to 211,000 in 2017: an increase of 16%. Moreover, between 2007 and 2016 the GDP contribution of the sector, measured in terms of gross value added<sup>3</sup> to the economy, increased by 140%: from £2.5 billion to £6.1 billion (BFI, 2018b).

However, the sector is also facing significant challenges relating to skills gaps and shortages, inclusion and diversity<sup>4</sup>. Given these already existing challenges, it is important to identify which cultural, socio-political, economic and technological trends are likely to impact the industry in the next decade, and in what way.

### Emerging trends

Our rapid evidence assessment of existing literature on the future of work identified five clusters of mega-trends that are likely to significantly impact the wider UK economy in the next five to 10 years (figure 1).

Based on these mega-trends we asked the Delphi Panel to identify the trends that will most likely affect employment and business activity in the screen industries. While the list of trends identified by the panel is by no means exhaustive and will not affect all areas of UK screen to an equal extent, it is a powerful indication that the industry is likely to undergo changes in the next decade.

Some of the trends identified by the panel (such as the increasing power of subscription video on demand - SVOD) are already underway, but are expected to have a greater impact on the industries' ways of working in the years to come. Others trends, such as the spread of immersive technologies and the use of artificial intelligence in the production process, are only just starting to emerge.

It is important to highlight that many of the trends touched on below may reinforce or influence one another. It is likely that changes in one field (for instance, artificial intelligence) will propel changes in another field (immersive technologies), which may in turn facilitate a shift in the ways in which audiences consume content.

---

<sup>2</sup> See the appendix for more information about the Skills Forecasting Service.

<sup>3</sup> *Gross value added* is industry turnover minus the cost of inputs bought from other industries.

<sup>4</sup> For further information about these challenges, see our Annual ScreenSkills Assessment 2018-2019 (ScreenSkills, 2019a), available [here](#).

Figure 1: Trends affecting the UK screen industries in the next five to 10 years



## Areas of future skills needs

Based on the 13 trends shown in figure 1 the Delphi Panel identified five areas of future skills needs:

### 1. Automation

There are growing concerns that a significant proportion of skills and jobs in the UK economy will become automated in the next decade. However, research indicates that creative roles are less at risk of automation, given that they involve tasks not easily replicable by artificial intelligence (AI). While this means that the sector may be more resilient to job displacement through automation, the tasks that comprise different roles and the skills that workers need to do them, will undoubtedly be significantly affected by technology.

### 2. Advanced digital skills

Ongoing advances in technology are turning certain jobs and traditional ways of working on their head. Despite widespread recognition of the impact technology was having on the need for advanced digital skills, Delphi panellists emphasised how the games industry has long been in the vanguard of digital and technological innovation, with AI and immersive experiences well established. However, AI and immersive technologies are expected to have a more widespread impact on job roles and skills in film and TV production and animation in the years to come.

### 3. Fusion skills

Research suggests we are seeing an increasing convergence of technology and creative skill needs within roles. To a certain extent, this convergence between technology and creativity has always been inherent in the industry, but the Delphi Panel emphasised that there will be a growing demand for workers with composite skills in the years to come, including creative, technological and entrepreneurial skills.

### 4. Global skills

With Brexit and opportunities in foreign markets, there is a growing need for the UK workforce to develop a broader, more global awareness and skillset. Alongside intercultural awareness, an ability to communicate and work with people from a range of different backgrounds and strong language skills, the Delphi panellists foresee a growing need for workers to develop advanced business and negotiation skills, coupled with a more detailed understanding of foreign markets, legal frameworks and regulations.

### 5. Management and leadership capability

Insufficient management and leadership skills are a widespread issue within the industry. Besides highlighting the need to improve management skills across the sector, the Delphi Panel viewed flexibility, negotiation skills and business skills as key requirements for both the current and future performance of workers in the screen industries. Keeping abreast of ongoing shifts in business, commercial and revenue models were highlighted as crucial to ensuring that screen businesses are able to flourish in the years ahead.

## 1. Introduction

### 1.1 Aims of the ScreenSkills Foresighting Analysis

The Skills Foresighting Analysis is one of the three research strands of the Skills Forecasting Service.<sup>5</sup> It seeks to explore how the screen industries workforce might change over the next five to 10 years, identifying the likely areas of disruption and seeking to understand how these will impact job roles, skill needs and working practices.

Foresighting exercises can never provide definitive answers. They serve to provoke reflection and debate as part of the process of preparing for the challenges and opportunities presented by the labour market of the future. The insights generated in this document seek to act as the beginning of ongoing work to understand and prepare for future change. While the insights generated in this report seek to address the sector as a whole, we also take into consideration differences within the sector, wherever possible.

### 1.2 Methodology

Skills foresighting is a challenging process. Individual businesses, for example, can find it difficult to accurately anticipate and plan for the size of their own future workforce, its make-up and skills needs. At an industry level this becomes more challenging still, complicated by limitations of official data sources in adequately capturing specific parts of the sector and its workforce<sup>6</sup>.

Foresighting exercises therefore tend to blend a range of futures techniques in order to establish a range of **potential views of what the future might look like**.

We have taken a **mixed-method research approach** to the ScreenSkills Foresighting Analysis, drawing on a range of quantitative and qualitative techniques including:

- a **quantitative analysis** of existing data sources, to examine recent changes in employment in the screen industries and develop simple but robust projections of future employment levels in the sector;
- a **rapid evidence assessment**, exploring existing literature on how the world of work is changing, the external trends and influencers that are having (or are expected to have) a disruptive effect on the UK labour market, and industry specific insight which allows us to identify the trends of greatest significance for jobs and skills in the screen industries;
- a **Delphi process**, bringing together a panel of experts with specific insight into the screen industries in the UK, with the aim of reaching a broad convergence of opinion and a shift in thinking beyond the limitations of 'what is' to 'what could/should be'.

#### The Delphi method

Key to the Delphi method is the Delphi Panel, a purposefully chosen group of industry experts with strong insight into the sector's composition and ways of working.

The Delphi process entailed:

- the production of an **initial position paper**, assessing past performance of the sector; external influencers driving change in the UK labour market; the outlook for the screen industries and the most significant trends that are likely to drive a shift in the sector's labour market. This paper was circulated to the Delphi panel.
- a **round of one-to-one telephone interviews** with the 23-member Delphi panel, where experts were asked a series of questions relating to the initial position paper, in particular exploring their views on the outlook for the screen industries and the primary drivers of change impacting the sector.
- a **second round of consultation** with the Delphi panel, where experts were asked a series of questions via email; in particular, exploring changing job roles, occupational mix and skills needed by the sector and the actions we need to take now to prepare for the future of work in the screen industries.

These findings were then blended with wider quantitative and qualitative evidence to create the final research paper from the Skills Foresighting Analysis.

---

<sup>5</sup> See appendix A for more information about the Skills Forecasting Service.

<sup>6</sup> See appendix B for our definition of the screen industries and for a discussion of the SIC codes.

## 1.3 Report structure

This report is structured as follows:

- Chapter 2:** assesses recent changes in the screen industries and the current picture of skills and diversity issues impacting the sector;
- Chapter 3:** explores the external trends and influencers that are having (or are expected to have) a disruptive effect on the UK labour market, drawing out those of greatest significance to the screen industries; and
- Chapter 4:** examines the implications of these trends for jobs and skills in the sector.

## 2. Current picture of the screen industries

### 2.1 Introduction

While the focus of this paper is exploring the future of work in the screen industries, it is important to set this within the context of current issues relating to skills, talent and diversity. Therefore, this section reviews recent economic performance of the screen industries and changes in employment in the sector. It seeks to establish a concise narrative concerning some of the current skills challenges impacting the screen industries, setting a baseline before subsequent sections consider future change<sup>7</sup>.

### 2.2 Economic performance

The UK's screen industries have experienced significant growth over the past decade:

- In 2016, the total turnover of the industry was £37.5 billion. Television programming and broadcasting activities were responsible for 33% of the total turnover, followed by film and TV production (33%), film and TV programme distribution (20%), film and TV post-production (5%), film exhibition (4%) and games (2%)<sup>8</sup>;
- the total turnover of the UK film industry<sup>9</sup> has grown over the period from 2007 to 2016 by 117% (£6 billion to £12.9 billion);
- contribution to GDP from the sector, as measured by its gross value added<sup>10</sup>, has increased by 140% over the period from 2007 to 2016 (£2.5 billion to £6.1 billion); and
- the film industry exported £1.7 billion worth of services in 2016, an increase of 63% over the period from 2007 to 2016 (£1 billion to £1.7 billion).

This view of positive growth in the sector is confirmed by other sources suggesting that total independent TV production revenues hit a new high of £2.7 billion in 2017, a rise of nearly a third over the past decade (PACT, 2018). On the distribution side, despite a greater range of distribution channels, the annual number of UK cinema admissions remains solid at 170.6 million in 2017, up from 165.5 million in 2013 (Film Distributors Association, 2018).

There has also been strong growth in revenues from the games sector, which is expected to reach £5.5 billion by 2020, overtaking expected spend on books for the first time (Ukie, 2018).

### 2.3 Employment and the workforce

Table 2.1 shows how employment levels in the screen industries changed between 2013 and 2017 compared with the rest of the creative industries and the UK economy as a whole.

- employment across the whole economy (including the employed and self-employed workforce) between 2013-2017 rose by more than 2 million, an increase of 7%;
- employment in the creative industries increased by 295,000 (17%); and
- employment in the screen industries increased by 29,000 (16%).

Findings from the 2017 Labour Force Survey (ONS, 2018) and the DCMS (2017) Sectors Economic Estimates show that much of the growth in the screen industries has been driven by growth in two subsectors: film and TV production (18,000, 26%) and games (11,000, 58%).

With employment in other parts of the screen industries largely static, the data suggests these subsectors account for an increasing share of employment in the industry.

---

<sup>7</sup> For more information about the current state of the UK screen industries, including the size of the sector and the workforce, employment, diversity and training provision, see our Annual ScreenSkills Assessment 2018-19 (ScreenSkills, 2019a), available [here](#).

<sup>8</sup> See chapter two of the Annual ScreenSkills Assessment 2018-19 (ScreenSkills, 2019a).

<sup>9</sup> Note that the BFI (2018a) has a different definition of the sector than that we use for the screen industries, as it excludes broadcasting and games.

<sup>10</sup> *Gross value added* is industry turnover minus the cost of inputs bought from other industries.

Figure 2: Employment in creative industries and screen industries

	2013	2014	2015	2016	2017	Change 2013 - 2017	
(000's)						n	%
All UK sectors	30,760	31,410	32,037	32,422	32,921	2,161	7
Creative industries	1,713	1,808	1,866	1,958	2,008	295	17
<b>All UK screen industries</b>	<b>182</b>	<b>180</b>	<b>178</b>	<b>193</b>	<b>211</b>	<b>29</b>	<b>16</b>
Production activities (59.11)	68	68	64	75	86	18	26
Post-production activities (59.12)	16	12	11	11	17	1	6
Distribution activities (59.13)	8	6	9	9	9	1	13
Projection activities (59.14)	18	16	15	20	17	-1	-6
TV programming and broadcasting activities (60.20)	53	54	59	55	52	-1	-2
Games (58.21 & 62.01/1)	19	24	20	23	30	11	58

Source: DCMS (2017) Sector Economic Estimates: Employment release, 2018; and the Labour Force Survey (2017).

## 2.4 Skills and diversity issues

Despite the employment growth, evidence suggests that the screen industries currently face a number of challenges relating to skills and diversity. Recruitment difficulties are widespread, with fierce competition for talent in the sector leading to concerns that the screen industries face a skills crisis that could hamper growth if left unaddressed. One third of respondents to the ScreenSkills Employer Survey reported recruitment difficulties, with nearly half (47%) suggesting recruitment difficulties were a serious or very serious problem that always or very often limits activities (ScreenSkills, 2019a).

Employers also report skill deficiencies within their workforce, with more than one third reporting skill gaps among in-house staff and freelancers (ScreenSkills, 2019a). While some of these skills gaps were considered temporary as workers complete training, others were attributable to changes in technology, products and services, and working practices within the screen industry. Management and leadership skills are most commonly considered as lacking (cited by 44% of employers), echoing wider evidence of a management deficit within the UK (Bloom, Sadun & Van Reenen, 2017). Other respondents emphasised a lack of project management (40%) advanced IT or software skills (37%) and communication and interpersonal skills (34%).

Evidence from the ScreenSkills Employer Survey 2019 furthermore suggests that 36% of employers had not organised or funded any training for their workforce in the past year (ScreenSkills, 2019a)<sup>11</sup>. Of those who did, 84% arranged or funded training for full-time or part-time inhouse workers, compared with 34% for freelancers. Moreover, only 18% of respondents to the Quarterly ScreenSkills Barometer were confident that employers are investing enough in workforce skills (ScreenSkills, 2019b).

CAMEo's (2018) evidence review of workforce diversity in UK screen moreover suggests that the sector does not reflect the diversity of the UK population as a whole, with an over-representation of white, middle-class males. Our recent analysis of national data sources moreover suggests that women, people from minority ethnic background and people with a disability are all under-represented in UK screen (ScreenSkills, 2019a)<sup>12</sup>. In production, employees from minority ethnic backgrounds represent only 3% of the workforce and the situation is worse in more experienced positions (Work Foundation, 2017). For example, research by Directors UK (2018) found that just 2.22% of TV episodes broadcast across BBC, ITV, Channel 4 and Channel 5 between 2013 and 2016 had directors from a BAME background<sup>13</sup>. There is also an issue of inclusion across socio-economic groups. According to our analysis of national data, those employed in the screen industries are more likely to have a parent who works in a higher-level occupation than people in the UK workforce overall (ScreenSkills, 2019a).

<sup>11</sup> The data moreover suggests that larger employers are more likely to arrange or fund training than smaller organisations (39% of organisations with one to four employees arranged or funded training in the past year in comparison to 93% of organisations with more than 250 employees).

<sup>12</sup> For more information on diversity in the UK screen industries, see chapter four of our Annual ScreenSkills Assessment 2018-19 (ScreenSkills, 2019a), available [here](#).

<sup>13</sup> The data moreover suggests that there was a 1.5% increase in BAME directors for drama and comedy over this period. However, the percentage of episodes created by BAME directors in factual TV decreased by 0.3% and only slightly improved (0.1%) in the areas of multicamera and entertainment and children's TV. Directors UK also reports that only 3.6% of people in their dataset of 4,388 directors appear to come from a BAME background, suggesting a significant underrepresentation of the BAME population.

## 3. Major drivers of change in the screen industries

### 3.1 Introduction

Having established the current picture of the UK screen industries, this section explores the factors that will impact the sector in the future. We begin by exploring the mega-trends influencing the future of the work more widely across the UK economy. However, the challenge for all future studies is how to make these trends real, genuinely understanding what factors will have impact.

As such, this section seeks to drill down beyond these broad trends, to understand current external influencers or those expected to drive real change in the screen industries over the next five to 10 years.

### 3.2 Mega-trends

Understanding future changes in the labour market has been a longstanding concern of policy-makers. However, the mainstreaming of new technologies, shifts in working practices and widening divides in the fortunes of different socio-economic groups are driving a growth of interest in the future of work. This includes major foresighting programmes undertaken by the UK Commission for Employment and Skills (UKCES, 2014 and 2016), Government Office for Science (2017) and Nesta (2013); as well as by international communities including the Organisation for Economic Co-operation and Development (OECD, 2017 and 2019), World Economic Forum (WEF, 2016) and International Labour Organization (ILO, 2017).

While the emphasis of this research is the future of work in the screen industries, we need to ground our analysis within this strong body of evidence on the major drivers of change in the UK and global labour market. This is best achieved by starting from a broad perspective, which enables us to look beyond current influencers to identify potential disruptors. Indeed, some of the most significant trends in the world of work today – from automation and artificial intelligence (AI) to Britain's impending exit from the EU – were identified as unlikely disruptors or wild cards in previous foresighting studies<sup>14</sup>.

Our rapid evidence assessment sought to draw common themes from this body of research concerning the future of work. While categorisation varies slightly between these studies, they all identify the following mega-trends:

#### 1. Social and demographic change

The population is ageing and people are likely to participate in the labour market for longer. By 2030, the population aged 65 and over is likely to have increased by 42% whereas the percentage of those aged 14-64 is projected to grow by 3% (UKCES, 2014). This trend will have a major impact on the composition of the labour market, with a need for older workers to learn new skills or to pass on knowledge as they move into retirement (PwC, 2018a).

This trend will also affect consumer trends and choices. Consumption patterns and expenditure vary quite substantially over the life cycle, starting low early in life, increasing drastically around middle age and then dropping significantly in older age (Yang, 2006). In 2017, the 65-to-74-year-old households spent nearly a fifth (18%) of total spending on recreation and culture, making this the top expenditure category for this age group (Living Cost Survey, 2017). At the same time, millennials' increasing purchasing power is shaping a new demand for goods and services. Millennials are tech-savvy, enthusiastic consumers of entertainment and gather information through the internet. New models of online and mobile, on-demand consumption are emerging and purchase/ownership is no longer a need (Hwang & Griffiths, 2017).

Increasing diversity of the population will also affect the future of work. The increase in labour market participation amongst women is expected to continue. Alongside this, the movement of workers between countries will change the ethnic make-up of the workforce.

#### 2. Technological change

The number and type of jobs available has been dramatically modified by technological breakthroughs, including automation, robotics, cloud computing, digital communications and AI. Technological change will continue to have a major impact on the workforce. In some areas, new technologies are creating demand for higher level skills, shifting skill needs and displacing employment in some occupations while creating new jobs in other areas.

---

<sup>14</sup> For example, UKCES (2014) Future of Work identifies the 'partial fragmentation of the EU' as a potential disruptor; and Britain's potential exit from the EU is absent from a range of futures studies undertaken by the Government Office for Science between 2009 and 2011, including those exploring world trade scenarios (2009) and the future of migration (2011).

Moreover, the internet facilitates new and more efficient ways of matching the demand and supply of labour. Jobs are split into a set of smaller tasks that can be performed remotely, facilitating flexibility and freelance work and supporting the flourishing of the gig, on-demand, sharing or, more generally, the platform economy<sup>15</sup> (OECD, 2017 and 2019).

### 3. The economy and globalisation

By 2030 the combined economic power of the BRICs (Brazil, Russia, India, China) will surpass that of major advanced nations. We are also expected to see rapid growth amongst other emerging economies such as Indonesia, Mexico, Turkey, Saudi Arabia, Nigeria, Egypt, Pakistan, Iran, the Philippines and Vietnam (WEF, 2017). Developing countries are also growing rapidly and improving their education system (PwC, 2018a).

These trends will increase the complexity of the economy and financial systems (UKCES, 2014) and drive a shift in global power, further integrating the global labour markets (Bakhshi et al., 2017).

### 4. Politics and government

Political instability is associated with lower GDP growth rates (Aisen & Veiga, 2013) and considered by economists as harmful to economic performance. The widespread occurrence of political uncertainty in several countries, and in the UK in particular, might have a detrimental effect on domestic growth and inward investment (Nazeer & Masih, 2017). Recent data from the Office for National Statistics (ONS, 2019a) shows that growth in the UK slowed to 0.2% in the three months to December 2018 (down 0.6% on the previous quarter). This follows warnings of slow growth due to ongoing Brexit negotiations and the impact of a weakened global economy.

Government policy can also have a significant impact on the environment within which businesses operate. Trade and fiscal policy (eg tariffs, taxation and incentives) can play an influential role in attracting or deterring investment and easing access to international markets.

### 5. Environmental change

Finally, demand for natural resources will increase dramatically by 2030, due to an increase in the global population and changing consumption patterns. Climate change will restrict the availability of these natural resources (PwC, 2018a). This will have an impact on the way products and services are produced and consumed. In addition, traditional energy industries and the millions of people employed by them, will be subjected to major restructuring.

## 3.3 Key drivers of change in the screen industries

Our research sought to expand on how the global trends outlined above are impacting the UK screen industries, creating a shortlist of trends that desk-based research suggested were of greatest significance. These formed the basis of the first position paper.

The first round of Delphi Panel interviews then sought to validate the significance of these trends for the sector, exploring whether they were likely to drive a shift over a five- to 10-year time horizon, and whether there were other trends having impact.

Together our analysis and consultation with the Delphi Panel shortlisted 13 major trends driving significant shift in the UK screen industries, each of which will have important implications for skill needs and working practices in the sector (discussed further in chapter 4):

---

<sup>15</sup> The OECD (2019) defines *platform economy* as an economy where services are provided through online platforms and digital labour.

Figure 3: Trends affecting the UK screen industries in the next five to 10 years



## A. Social, consumption and demographic change

### Ageing population

An ageing population offers growth opportunities for the sector, but also challenges. A more youthful workforce could, for instance, run the risk of not connecting with the tastes and preferences of older audiences. Other panel members surmised that the opposite issue may be the case; that decision-makers within the industry tend to be older and may face challenges in understanding how a younger audience want to consume media.

Along these lines, others highlighted that the ageing of the population may bring challenges of its own as employers risk losing critical knowledge and skills when older and more experienced workers retire. For example, in the case of some traditional craft areas of the industry (eg fibrous plasterers), the age profile is estimated to be between 50 and 60 years old. Panel members suggested that these skills were no longer taught in schools/colleges, meaning that there is a risk that, in the next five to 15 years, these skills will gradually become unavailable in the labour market.

Overall, panel members felt the bigger impact of the ageing of the population would be the further polarisation of film and TV audiences, associated with wider shifts in viewing habits (discussed below). As one participant noted, the ways in which younger and older viewers consume screen content has already changed significantly. Where programme-makers used to be able to produce content that everyone would watch, content is now increasingly being made for niche audiences. As the demand for new immersive and online content is expected to further increase in future (see below), the polarisation of film and TV audiences could potentially grow.

In contrast, in the games sector, the number of people playing games is increasing. Generation X<sup>16</sup> – who originally engaged with video games in the 1980s – are now parents increasingly playing games with their children (Entertainment Software Association, 2018). This trend is creating significant opportunities for further growth of the games sector in the future, particularly as there appears to be a growing social and interactive aspect to playing games as exemplified by esports (see below).

### Shift to non-broadcast and non-linear viewing

Recent years have seen a significant increase in the provision of non-broadcast content (Ofcom, 2018a) and non-linear TV viewing (Kantar Media, 2016). Alongside this, panel members observe a growing appetite for short-form content. In some cases, this is specifically designed for sharing through social media, while in others it may be developed to complement established content. These trends were identified by the panel as

<sup>16</sup> Generation X typically refers to those born between the years 1964 and 1978.

having the potential to drive a “seismic” shift across the film and TV sector in the future. As one panellist remarked:

*“I think what the SVODs [subscription video on demand] are doing and how that is changing viewing habits appears to be the major disruptor. That’s what I would put at the top. The scale of what SVODs are doing could dwarf the impact of Brexit and the loss of Creative Europe funding.”*

Younger viewers (16-34) in particular were identified as the primary driver of this, altering traditional viewing habits by consuming more non-broadcast screen content. In contrast, broadcast TV audiences are getting older (Ofcom 2018a), and as older viewers prefer to watch in real time, the panel feels that this might lead to the polarisation of audiences, as touched on in the previous section.

Given these changes, screen content providers are expected to meet new design, format, content and commercial challenges (Deloitte, 2018a). This view was shared by several panellists who found that the move to online viewing, in particular, forces broadcasters to work across multiple platforms to maintain their audiences. As another panellist said:

*“[New generations moving away from broadcast] is a major issue. Almost every conversation I have with broadcasters or commissioners is about how we find and keep our audience.”*

### **Growing use of digital technology, online platforms and streaming services**

The proliferation of smart devices, digital technologies and online content allow consumers to increasingly gain control over what, when and where they consume content (Deloitte, 2018b and 2018c). In addition to this, recent years have seen a growth in user-generated content through various online and social media platforms.

A number of Delphi panellists emphasised that the proliferation of online platforms is likely to continue in the future, which is supported by the visible rise in multi-platform, online subscriptions. For instance, Ofcom (2018a) recently found that the UK now has more streaming subscriptions than pay TV subscriptions. By late 2020, half the UK adult population is expected to have four online subscriptions to media and entertainment content (Deloitte, 2018d). Currently, the average number of online subscriptions is two. These trends and the rise of global streaming giants (discussed further below) are driving significant shifts in consumption, production and commercial models:

*“The size and rate of change seems to be getting bigger and quicker. From a consumer point of view, it is great, but it has fundamentally changed the revenue streams.”*

However, these trends are not restricted to film and TV production. Mobile devices such as smartphones and tablets are increasingly used for mobile games, too. This trend is democratising the games sector as players no longer have to invest in a console and can download games directly onto their device. The advent of 5G, which will significantly increase the speed of internet connectivity, therefore presents an opportunity for mobile games to expand in the next decade.

### **Growth of games and esports**

Games is booming in the UK. In the first quarter of 2018, an estimated 23.1 million people between the ages of six and 64 were playing games (GameTrack, 2018). The market is expected to continue growing, particularly as esports are gaining popularity. As one panellist stated:

*“Gaming and esports is the largest growing sector of the largest growing sector.”*

Online games and esports is one of the fastest growing sectors in the screen industries and has given rise to culturally influential user-generated content. Increasingly popular Twitch and YouTube channels provide a platform for individuals to watch others playing games, spanning both well-known and more niche areas of interest. Where playing games used to be a leisure activity you would undertake alone or with a handful of friends, esports, online and mobile games are turning games into an increasingly social activity. As one panellist stated:

*“This is a new way of hanging out.”*

Esports already fill stadiums in Korea and have a massive global online following. It is expected to be among the fastest growing entertainment and media sector in the UK over the next five years, which will increase the value of the video games and esports market to £5.1 billion by 2020 (PwC, 2018b). One panellist said:

*“There is an opportunity for the UK around the growth of esports. A small city in Poland now hosts the intel Extreme Masters tournament – a week-long event which is a huge business driver. There’s no reason the UK couldn’t replicate it.”*

## Diversity and inclusion

All respondents from the Delphi Panel emphasised the growing awareness of the lack of diversity across the UK screen industries and that significant steps are being taken to enhance inclusivity, which includes a host of initiatives undertaken by employers, broadcasters, screen agencies, and industry bodies. However, a number of panellists highlighted that there is still a long way to go and it is anticipated that real change is likely to take several years:

*“I think there is an increased awareness, but I am not convinced that there is an increase in policy-making. One of our reports show that there is a focus on initiatives, but not a change in hiring. Schemes need to be followed by changes to employment practices.”*

A number of panellists suggested that the approach to diversity is not as sophisticated as it needs to be and that more needs to happen for diversity to improve in the next few years. Some argued for instance that current diversity standards, practices and programmes need to look more consistently beyond gender and BAME and consider other aspects of diversity. This includes the need for a greater focus on other issues, such as promoting participation and progression of those from working-class backgrounds and with a disability or health condition. Others highlighted the intersection between different dimensions of diversity, for example, targeting ethnic minority groups from working-class backgrounds, to which we could add the need for greater monitoring of religion and those with caring responsibilities, as emphasised by CAMEo (2018).

Increasing diversity in the sector was not only deemed to be important to create a fairer and more inclusive working environment, but also because it will allow the sector to draw on a wider talent pool. This is likely to bring new kinds of benefits to the industry (see ScreenSkills, 2019a), which will in turn help the industry to mediate the trends and changes that are likely to affect the sector in the years to come.

## B. Technological change

### Virtual reality (VR)/augmented reality (AR) and new digital interfaces

In the next decade, Deloitte (2018e) expects to see a move away from screens and hardware to new digital interfaces, including virtual reality, augmented reality and mixed reality, and 360-degree video and immersive technologies. Although the exact ramifications of these technologies are as yet unknown, it is expected that they will bring a range of new, engaging and more intuitive interfaces to the public, many of which will rely on voice, movement, gaze and emotion (Adobe, 2017). As these immersive technologies are becoming more widespread, they could revolutionise how audiences consume and relate to screen content. As illustrated by the emergence of 3D cinema and the use of VR and AR in video games, the screen industries could play a key role in bringing new, immersive technologies to the public.

The panel members stressed that VR and AR have yet to have a real impact on the sector, but several participants thought that VR and AR are likely to bring significant changes and opportunities to the sector. One interviewee said:

*“In the future, 4D immersive sensory experiences will be more common; [such as] sophisticated 360-degree screens you can move through... [This will create] a much more exciting way to experience a film.”*

However, we also found the perceived or expected effects of VR and AR to differ significantly across the subsectors. For film production and distribution, most panel members were not sure to what extent these technologies would have penetration, particularly since the costs associated with the use, implementation and consumption of these technologies is still high. One panellist stated, using the example of 3D cinema:

*“Lots [was] spent on it over the years, but it's exclusive. Lots of people can't afford it.”*

There is more evidence of current and future impact of VR and AR in animation and games. As one panellist said:

*“Technological change is going to be big for our sector – it presents a massive opportunity. Animation will be at the forefront of skills needed for XR<sup>17</sup>/immersive tech. Animation companies are already in that space and many are developing that content.”*

### Big data and artificial intelligence (AI)

By collecting and analysing data on audience behaviour and viewer preferences, big data algorithms are already helping producers and providers to personalise content to match the interests of their audiences.

This view was shared among the panel members, who generally thought that big data is already important to the screen industries and will develop further. However, some noted a data deficiency in the industry linked

---

<sup>17</sup> XR, or 'extended reality', refers to a variety of technologically mediated experiences, including virtual, augmented and mixed-reality.

to a lack of collaboration and data-sharing due to competition and also noted a skills deficiency where businesses lack analytical skills to maximise the value of the data they collect.

AI has the potential to have a disruptive effect on the production and distribution of screen content. Tools such as ScriptBook enable detailed analysis of a screenplay, including the socio-demographics of characters and target audiences and likely success at the box office. While this could be a useful tool in supporting investment decisions and detecting diversity concerns, it could potentially be detrimental for innovative films that are expected to generate little revenue (Broadcast, 2018; Koljonen, 2018).

The use of AI also has the potential to help content producers to forecast production time and operating costs, thereby making the production more efficient and affordable. However, most panel members suggested that the use of AI, while highly relevant for games, was not likely to be widely adopted in the film and TV production and distribution sectors.

## C. The economy and globalisation

### Increasing power of streaming giants

Many panel members emphasised that the rise of Netflix and Amazon as dominant players in the SVOD market is having a significant impact on many areas of the industry, particularly TV broadcasting. As one panellist stated:

*“Netflix, Amazon etc. are going to change things. The way they work as opposed to terrestrial or digital broadcasters – the funding, paperwork, [their] approach to delivery – is different.”*

A number of panellists argued that it is not simply a case of streaming giants achieving greater market share, but rather that they are both stimulating the demand for online content and are shifting the way productions are financed:

*“It’s not so much the shift to non-linear and increasing power of streaming giants – but the increase in volume and sheer demand for content – they’re new players with a huge new financing stream from SVODs. So it’s not just the power of streaming giants, but also the increasing demand for content they bring.”*

The effects of these trends are further exacerbated by online platforms such as YouTube and Facebook, which have emerged as dominant online video platforms, let alone other tech companies which could expand into production. Deloitte (2018f) expects that, as the dominance of Apple, Google, Netflix and Amazon continues to grow, broadcasters and other content providers will have to forge new alliances across the industry if they are to successfully adapt to future market changes. This is illustrated, for example, by Britbox, the BBC/ITV joint venture streaming British content in the US and (soon) the UK.

Panellists were, however, in two minds as to the scope for such partnerships. Some suggested there would be enhanced opportunities for co-production, while others reported concerns that growth in streaming is impacting high-end content production levels. This results in a divide between high-end, high-cost streaming content and lower-cost, local content; emphasising difficulties in funding mid-range content.

### Opportunities in foreign markets

The Asian competitive games or esports market is opening up and growing rapidly and although games produced in Europe and USA are still popular in China, the demand for locally produced games is growing. International platforms are playing an important role in facilitating foreign opportunities for the games industry, with the Chinese esports and games market outstripping the US market. Chinese investment coming into the UK games industry holds real potential for further growth.

The global cinema industry is also expected to increase as the Asian-Pacific, Middle Eastern and African markets are growing (PwC, 2018b). Some suggested new trade agreements outside the EU might generate more business for the sector. One panel member said opportunities in foreign markets have already “absolutely transformed production”. Another felt the industry should be better at engaging in foreign markets, perceiving missed opportunities with Bollywood and Nollywood. Another still gave the example of small independent production companies based across regions and nations developing content for the Chinese market.

In the near future, more and more companies are looking to Asia to sell. Production companies have shifted from dependence on UK broadcasters to producing content for China. However, it is important not to overstate the potential for this, given that intellectual property law, quotas and finance rules present barriers to engagement in some markets.

## D. Politics and government

### Tax relief

The UK screen industries benefit significantly from tax reliefs which boost production and investment in the sector (BFI, 2018a). The VFX sector does not have a dedicated tax relief but is a vital partner across (particularly) film, HETV and animation and is, therefore, an indirect beneficiary. The continuation of these reliefs, alongside tax incentives offered in other countries across the globe, was viewed by Delphi panellists as playing an important role in influencing content production in the UK. This was expressed by several panellists when they stated that:

*“Tax relief is massive – one of the cornerstones of what we do. We can’t compete without it. It’s integral in all the conversations we have. It’s a driver of immediate and longer-term change.”*

*“The tax relief has had a massive impact on animation. That gave a real boost to the sector. Up to that point companies were really struggling.”*

It is, therefore, not surprising that the panel thought the tax relief will continue to be vital to the future success of UK screen. As two participants expressed:

*“Any changes to the tax relief would be catastrophic.”*

*“Tax relief is unbelievably important. If there was not competitive tax relief, all of these productions would go elsewhere. Tax relief is the most important thing of all.”*

### Brexit

Most panellists viewed the UK’s departure from the European Union as a very significant driver of change for the industry<sup>18</sup>. Three themes dominated the discussion: the freedom of movement, access to funding and depreciation of the sterling. In general, the curbing of freedom of movement is expected to damage UK industry’s flexibility and there are significant concerns that Brexit will reduce the sector’s skills base across the board – which echoes the findings of previous research (see Oxera, 2017). This view was expressed by several panellists when they stated that:

*“The concern from our point of view is associated with production going on location, in terms of crew being able to move around Europe.”*

*“[Brexit] will hamper co-production across Europe and limit movement of talent, in front of and behind the camera.”*

Furthermore, it was feared that Brexit will make the bureaucracy involved in such cross-border projects more complex, for instance by extending the Tier 2 visa system to citizens of the European Economic Area (EU plus Iceland, Liechtenstein and Norway). Responding to the Government’s (2018) Immigration White Paper, UK Screen Alliance (2019) shared concerns that the implementation of a Tier 2 visa system, which includes the Immigration Skills Charge, will increase operating costs for the animation and VFX industries, reduce the available talent pool and limit their competitiveness in the global market. There are moreover concerns that a visa system will prevent EU workers from wanting to work in the UK<sup>19</sup>. Although trade body Advertising Producers Association (APA, 2019) expects that labour migration to the UK will continue after Brexit, the panellists thought the costs associated with visas are likely to be a barrier to the flourishing of the industry. As one contributor said:

*“They are going to use the cost of a visa as a lever to control immigration. This will drive wage inflation across the industry and will make us far less competitive.”*

---

<sup>18</sup> For a comprehensive overview of what a ‘deal’ or ‘no deal’ Brexit scenario will mean for the screen industries – including freedom of movement, the implementation of a Tier 2 visa system, the future of co-productions with EU partners and the future of the UK’s participation in the Creative Europe programme – see the BFI’s (June 2019) [Brexit: Answering questions from the screen sectors](#).

<sup>19</sup> At the time of publication, the Government is considering recommendations from the Migration Advisory Committee (MAC) on post-Brexit immigration rules (for the latest documents, see Migration Advisory Committee, 2019). The screen industries support some but not all of those recommendations. The industry supports the recommendation to abolish the cap on the number of Tier 2 visas. This cap has curtailed the sector’s capacity to respond to skills challenges by acting as a brake on growth. Furthermore, the industry supports the recommendation to end the Resident Labour Market Test, which sought to support the hiring of domestic talent over international talent. However, it did put significant delays and administrative burdens on businesses looking to recruit. The industry does not support the minimum salary requirement of £30,000 for a Tier 2 visa, since a significant number of high skilled roles in the sector command a salary below this rate. Implementation of the above salary threshold is expected to exacerbate skills and recruitment challenges in the sector. And finally, the industry does not support the Immigration Skills Charge of £1,000 (per recruit), which would apply to workers from the European Union. In its current form, the charge merely acts as a tax on business, penalizing the UK’s most creative and outward-looking businesses from attracting the international skills that are vital to the sector’s strength and growth.

In addition to accessing highly skilled labour from Europe, panellists emphasised the further benefits associated with employing an international workforce, in particular that content created collaboratively transfers well across borders and generates revenue abroad through sales and merchandise:

*“Reduction in talent pool-side is a massive factor because of the high proportion of EU workers in the animation sector. In the UK, we rate skills coming from France and Germany, in particular. It’s not just the people and the skills, but the wider benefits of a collaborative workforce that comes from different parts of the world.”*

The potential loss of Creative Europe funding as well as support and training funds (such as European Regional Development Fund [ERDF], Horizon 2020, university funds) might reduce the competitiveness of UK companies and exacerbate skills challenges (Oxera, 2017). Some panellists highlighted how access to the ERDF had brought substantial benefits to UK regions, allowing them to become hubs for film production. As this becomes unavailable in the UK, there were concerns that independent firms looking to create new studio space or train workers may find fewer funding options. However, others indicated that they received little funding through the ERDF or Creative Europe, suggesting that the loss of European funding will be most felt by smaller independent producers and distributors.

Research by Oxera (2017) also suggests that Brexit might create opportunities, where a depreciation of sterling could increase the competitiveness of the sector internationally. This view was supported by participants within different parts of content development and production:

*“The lower the pound goes, the more attractive the UK will become for production. Foreign investors will get more bang for their buck.”*

### **Regional rebalancing**

There is a growing commitment to promoting regional rebalancing of parts of the screen industries, particularly in film and TV production where 64% of the UK film and video production workforce is based in London and the South East compared with 30% of all industries (BFI, 2018b). In general, the panel members thought that the move out of London is significant and bound to have a positive impact on the sector in future in terms of employment growth in the nations and regions. However, some highlighted that more needs to be done if the actions currently undertaken are to have a positive impact in the next five or 10 years. Concerns were raised, for instance, that financial investments in production, without the physical infrastructure, would not be enough and that to attract large-scale production projects the nations and regions require enhanced studio capacity able to accommodate major motion pictures. There was also a need for a local pool of skilled labour. As one of the panel members said:

*“You can build a studio in a year, but it takes a generation to build a workforce.”*

The issue of skills was viewed by the majority of panellists as a significant challenge to creating thriving production hubs across the UK. A number of panellists highlighted that without sufficient skilled labour locally, producers will look elsewhere. This, in turn, is likely to perpetuate already existing regional disparities, with talented labour moving to London and the South East to enter a more advantageous jobs market.

## **E. Environmental change**

### **Environmental awareness**

As concerns with climate change increase, there is more pressure on subsectors in the screen industries to become more environmentally sustainable (The Location Guide, 2017). Industry stakeholders worldwide are calling for more sustainable production processes to help reduce carbon emissions (Ecoprod, 2018) and a number of organisations in the UK screen industries are adopting more sustainable production practices (The Location Guide, 2017)

The data centres on which cloud computing processes, digital labour, SVODs and the platform economy rely are massive polluters and energy consumers. As the demand for data storage grows worldwide, the number of global data centres is expected to increase. Recent research estimates that, by 2020, data centres will consume 8% of the world’s total power usage (Li & Porter, 2019). This is expected to increase to 13% by 2030 if governments and industries fail to invest in more renewable sources of energy (Grange, Da Costa & Stolf, 2018). Despite concerns around climate change, many Delphi panellists felt that while the screen industries were aware of environmental issues and some had a focus on sustainability, many were failing to take definitive action.

*“I think people are more environmentally aware and can only get more so, but we’re very sluggish in our awareness of the need to do more as a business. As a sector, we should be doing more.”*

## 4. Exploring the implications for jobs and skills

### 4.1 Introduction

The external drivers of change identified in the previous chapter are expected to have a significant impact on the future of work in the UK screen industries, particularly in terms of the quantity of jobs, working practices and skill needs. This section explores each of these issues in turn, firstly by considering the labour market outlook for the screen industries, and secondly by considering future skills needs highlighted by the Delphi Panel.

### 4.2 Labour market outlook

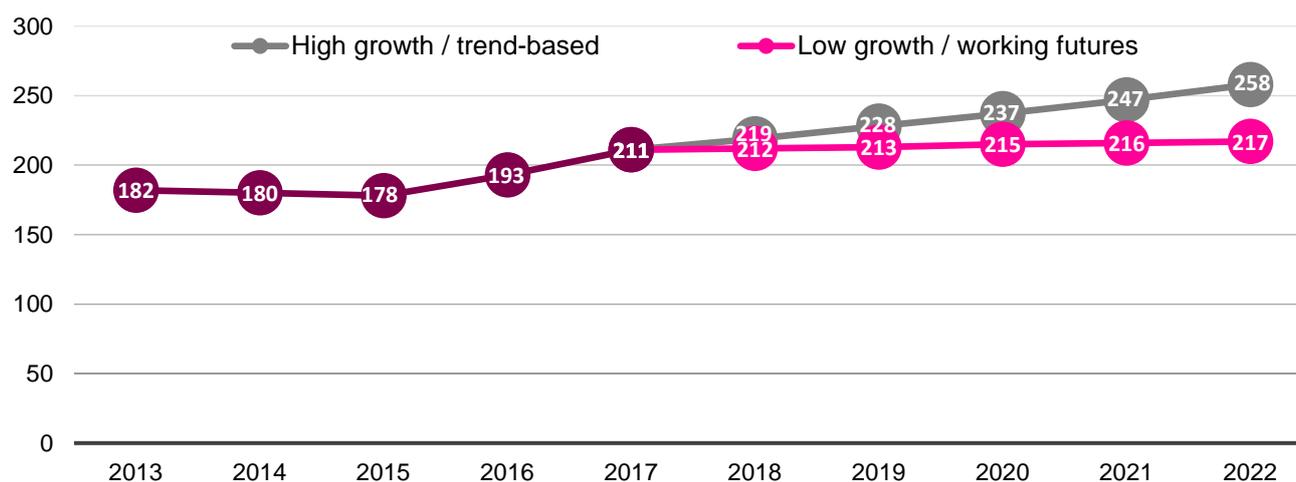
Economic foresighting is a challenging process, even in periods of relative stability. In the face of considerable economic and political uncertainty in the UK and wider global economy, predicting the future of employment or the quantity of jobs in the screen industries becomes harder still.

This is exacerbated by the fact the sector is relatively small, equivalent to 1% of the UK economy in terms of both GVA and employment, based on the latest DCMS (2017) Sectors Economic Estimates. The sector is covered by only a handful of four-digit SIC codes and some parts of the screen industries are not well captured by the SIC classification.<sup>20</sup> Further, different foresighting approaches can yield very different results.

In light of these challenges, figure 5 reports two very different potential outcomes for employment in the screen industries between 2018 and 2022<sup>21</sup>:

- Low-growth scenario: based on the Working Futures data (UKCES, 2016) – the only official forecasts of employment, covering 75 industries in the UK economy. These forecasts are largely driven by econometric models, which tend over time to return to the average long-term rate of employment growth (assumed to be around 2% across the economy). As a result, the low-growth scenario suggests that the rapid growth of the screen industries over the past five years slows, with an increase in the number of workers of around 5,000 over the next five years (equivalent to 2% of the existing screen workforce);
- High-growth scenario: trend-based projections calculated using data from the Labour Force Survey (2017). These projections look at the average rate of employment growth in the screen industries over the past five years and assume that this rate of growth will continue. As such, the high-growth scenario assumes that the strong growth of the screen industries over the past five years will continue and amount to an increase of around 39,000 in the number of workers (equivalent to 18% of the existing screen workforce).

**Figure 4: Employment in the UK screen industries**



<sup>20</sup> There are some concerns around the level of accuracy with which existing SIC codes capture the activities of fast-developing sectors such as the screen industries. Emerging trends and changes in the value chain – such as the increased involvement of the animation and VFX subsectors in film and TV production – are not accurately represented by the current classification system. See appendix B for more information about the SIC codes related to the industry.

<sup>21</sup> Given the difficulties associated with creating robust forecasts, and the economic and political uncertainty in the current climate, we cannot confidently present employment forecasts five to 10 years out. For this reason we have decided to limit the employment forecast to three years based on the UKCES and LFS data discussed above.

Looking at potential growth in different parts of the screen industries, under the low-growth scenario growth we see employment growth of 2% in each subsector.

Under the high-growth scenario, if past trends were to continue (as projected in the high-growth scenario), we would see significant increases in the number of jobs in film and TV production (with employment increasing by 20,000 over the next five years) and games (where employment would reach 50,000 by 2022).

However, given the significant downside risks<sup>22</sup> in the wider economic environment, it is likely that the true outcome will fall somewhere within these scenarios. Indeed, given significant political and economic uncertainty, many panel members found it difficult to assess the likelihood of the different growth scenarios<sup>23</sup>.

Beyond understanding how the number of jobs in the sector might change, it is important to examine the implications of external influencers for the nature of work in the sector. Evidence from the ScreenSkills Employer Survey 2019 highlights that the vast majority of employers in the sector (86%) hire freelancers (ScreenSkills, 2019a). This is particularly the case amongst production businesses, so if this sector accounts for a large share of new jobs, the proportion of workers in freelance roles could also increase further in upcoming years, especially if business activity continues to grow and expand.

Indeed, the majority of Delphi Panel members expected self-employment in the industry to continue to rise in the next five to 10 years. A number highlighted the potential impact this could have for diversity. For example, Ofcom (2018c) recognises that a significant number of freelancers, working on and off screen in broadcast TV, are not captured by current monitoring procedures or equal opportunity strategies. This might leave freelancers and those self-employed not captured by monitoring processes more vulnerable to unequal treatment.

However, an alternative view from one Delphi panellist suggests the opposite – that there will be a decline in freelancing across the wider economy. Forthcoming changes to be introduced by HMRC in 2020 mean that large and medium-sized businesses in the private sector will be subject to IR35 rules (HMRC, 2019). Under the new rules, freelancers must prove they are self-employed, or otherwise go through PAYE. This could have an impact on the long-term viability of freelancing.

The Production Guild through its Availability Service is also tackling the issue of freelance jobs not being advertised, which serves as a barrier to diversity and inclusion. There may also be a more direct correlation between the freelance nature of employment and a lack of diversity. New entrants to the sector from lower socio-economic backgrounds may be less attracted to entering the jobs market on a freelance basis, preferring the perceived security of a full-time employed position.

## 4.4 Future skills needs

### 1. Automation

Since Frey and Osborne (2013) suggested that up to 47% of jobs in the USA were at high risk of automation, there has been considerable debate across the world concerning the impact of technology on the future of jobs and skills. More recent studies focusing upon the impact of automation on jobs in OECD countries (Nedelkoska & Quintini, 2018) and in the UK (ONS, 2019b) suggest the impact will be more moderate, with between 14% (according to the OECD) and 7% (in the case of the ONS work) of jobs in the UK at high risk of automation.

There is growing interest within the sector about the impact of AI and machine learning on job roles, with some suggesting that traditional craft roles may be at risk. As one panellist emphasised:

*“Traditional craft roles are under threat with AI and reality-based film-making, and these roles may well, to some extent, be taken over by machines, depending on the filmmakers’ views on traditional versus non-traditional approaches.”*

However, research undertaken by the innovation foundation Nesta suggests that creative roles are less at risk of automation, given they involve tasks not easily replicable by artificial intelligence (Bakhshi, Frey & Osborne, 2015). Further research suggests that creativity<sup>24</sup> is a transferable skill that will be in even greater

<sup>22</sup> Financial risk associated with losses.

<sup>23</sup> Based on these findings, we will conduct further research on growth scenarios the second year of the Skills Forecasting Service.

<sup>24</sup> This research analysed Burning Glass Technologies data on 35 million UK job adverts from 2013-2017 inclusive to assess the relative importance of the word ‘creativity’ within them, based on the proportion of adverts using the word and the frequency with which it was used within adverts.

demand across the economy in the years to come (Easton & Djumalieva, 2019). As one of the panellists said:

*“All jobs are at risk of automation. However, you’ll still need people to write stories, you’ll still need directors, you’ll still need actors, you still need VFX, [and] you’ll still need locations and everything that goes with that.”*

More recent research by ONS categorises job roles based on the likelihood of the tasks that comprise them being susceptible to automation (ONS, 2019b). The analysis is based on four-digit Standard Occupational Classification (SOC) codes and grouped the probabilities of automation into three categories: low risk of automation for probabilities lower than 30%, medium when the probability falls between 30 and 70%, and high risk if the probability is greater than 70%. This approach suggests that the key job roles within the screen industries are less likely to be automated:

- Arts officers<sup>25</sup>, producers and directors (SOC 3416), which account for 22% of the screen industries workforce, have a probability of automation of 29% meaning these roles are at low risk of automation;
- Photographers, AV and broadcasting equipment operators (SOC 3417), which account for 9% of the screen industries workforce, have a probability of automation of 37% meaning these roles are at medium risk of automation; and
- Actors, entertainers and presenters (SOC 3413), who account for 4% of the screen industries workforce, have a probability of automation of 44%, meaning these roles are at medium risk of automation.

But while the screen industries may be more resilient to the risk of job displacement, the tasks that comprise different roles and the skills that workers need to do them will undoubtedly be affected by technology significantly. This is discussed further in subsequent sections.

## 2. Advanced digital skills<sup>26</sup>

Our consultation with the Delphi Panel suggests that ongoing advances in technology are turning certain jobs and traditional ways of working on their head through highly developed automation, robotics and sensor technology, 3D printing and ever more intelligent software systems.

The need for screen businesses to exploit big data to meet shifting consumer preferences and improve the customer experience was highlighted by a variety of panellists operating across the sector. A number of those consulted expected a proliferation of computer programming roles, alongside a need to upskill existing staff in a range of roles in advanced data analysis skills, enabling businesses to use online audience insight and data platforms to enhance business-to-business interactions and improve the customer experience. This was thought to be a key area where businesses will forge a competitive advantage in the market.

The majority of Delphi panellists suggested that technology was already driving change in workforce composition and skill needs and expected this to continue in the future. For example, some suggested that certain job roles (such as lighting, camera person and sound recordist in particular areas of TV and film production) have conflated into a single occupation. Others suggested that some routine tasks (such as tracking and rota-scoping in VFX) have been outsourced to be undertaken remotely within low wage economies. Research shows that outsourcing functions to another country has become more common, with India seeing a particularly rapid increase in animation production, VFX and post-production sectors (Work Foundation, 2017). Specialist skills areas, which are more resilient to automation and outsourcing, were thought likely to be in demand in the future; for example, drone operators, VFX and special effects, riggers, animation, post-production, computer programming and big data-related roles.

Despite widespread recognition of the impact technology was having on the need for advanced digital skills, there were also significant differences across screen subsectors. For example, Delphi panellists emphasised how the games industry has long been in the vanguard of digital and technological innovation, with AI and immersive experiences well established. However, AI and immersive technologies are expected to have a

---

<sup>25</sup> 'Arts officers, producers and directors' is the SOC classification (3416) including arts officers, producers and directors that assume creative, financial and organisational responsibilities in the production and direction of television and radio programmes, films, stage presentations, content for other media, and the promotion and exhibition of other creative activities.

<sup>26</sup> By advanced digital skills we refer to skills required for programming, advanced software usage and development, advanced data analysis and statistics, technology design, engineering and maintenance.

more widespread impact on job roles and the skills needed in film and TV production and animation in the years to come, which is likely to bring about new job roles (see below). One panellist said:

*“We are already seeing the emergence of AI-based planning and scheduling in other industries. The potential this has within shoot planning could therefore have an impact on traditional PM [production manager] roles. In line with this, PMs may need to think differently about their priorities, learning new systems and moving quickly to keep up with further advancements.”*

In line with these developments, cyber security skills to protect more advanced data systems are likely to become increasingly important in the screen industries in the future, in line with wider trends across the UK economy (DCMS, 2018).

As software and technology applications continue to advance at pace, it is vital that the screen workforce keeps abreast of developments and continuously adapts skill sets to enable screen businesses to unlock the real potential of innovation and technology. This could be achieved by identifying key digital skills to be included in all training alongside specific digital skills for some roles.

### 3. Fusion skills

Over the past decade there has been growing interest in the concept of fusion skills<sup>27</sup> across the wider economy, but particularly within the creative industries. Research suggests we are seeing an increasing convergence of technology and creative skill needs within roles, and that those businesses that are able to successfully blend science with the arts tend to be more innovative and grow faster than those that focus on individual disciplines alone (Bakhshi & Windsor, 2016).

There has, however, been discussion as to what exactly is meant by fusion skills, how best to define them and the extent to which this is a new phenomenon (ScreenSkills, 2013). Our research points to fusion in two main areas. The first is a **growing demand for those workers who offer composite skills**, including creative skills, technological skills and entrepreneurial skills. This demand pertains to both those who are directly involved in content production and those involved in other roles. As one panellist stated:

*“People working in sales, marketing, publicity, asset creation, will [also] need to maintain up-to-date technology and creative skills.”*

In light of the pace of technological developments, a number of Delphi panellists furthermore suggested that screen industry firms needed to cultivate a strong mix of creative and technical skills. As one participant remarked, employers are increasingly demanding “huge versatility” from their workforce. Another panellist added:

*“Converging technologies will mean that people with composite and complementary skills will be in high demand, as will those who have strong core employability skills who are able to adapt and change easily.”*

This is in line with wider research suggesting a growing need amongst employers across the economy for workers that offer STEAM skills, that is science, technology, engineering and mathematics alongside arts, and particularly creativity and design skills (Cultural Learning Alliance, 2017). Additionally, those businesses that are able to successfully combine arts, science and technology have been shown to realise higher rates of innovation and growth (Siepel et al., 2016).

Alongside this, there is **convergence of different parts of the screen industries**, including a blurring of the film and TV sector but also including games (linked to esports). A number of Delphi panellists emphasised how the merging of disciplines within the screen industries is driving a need for knowledge, technical expertise and business acumen beyond the subsectors that individuals work in:

*“Fusion skills will become more important, along with cross-sectoral awareness of their IP potential and self-marketing beyond subsector.”*

*“High audience expectation is likely to drive further advancement in this area with commissioning platforms increasingly looking to provide their audiences with a more immersive experience, merging disciplines in gaming, advertising and television.”*

*“In order to engage/continue to engage with fans of gaming etc, film will need to offer more and greater experiential events.”*

<sup>27</sup> In the absence of a single definition of fusion skills (see ScreenSkills, 2013), we define fusion skills in two ways in this report: firstly, as the need for a blend of technical, creative and entrepreneurial skills; and secondly, skills to work across subsectors given ongoing convergence between different areas of the screen industries.

#### 4. Global skills

With the UK's exit from the EU and opportunities in foreign markets, there is a growing need for the UK workforce to develop global skills in readiness. Given globalisation is a trend that the research, business and policy community have been discussing for decades, there is a well-developed (if dated) evidence base on the need for, and composition of, global skills.

This research points to the importance of inter-cultural awareness and sensitivity, an ability to communicate and work with people from a range of different cultural backgrounds and from other countries, supported by strong language skills and local country knowledge to enhance global competitiveness (UCL/LSIS, 2008; British Council, 2018).

As we discussed in section 3.3, globalisation is having a significant impact on the UK screen industries, changing where content is consumed and produced and creating a need to work across borders and with those from other cultures. A number of the Delphi panellists from all parts of the sector, emphasised how working in new markets was affecting the skills needed by the workforce:

*“Working with new markets often comes with a lengthy and complex negotiation period. As we move further into new markets, business affairs teams will need to broaden their understanding of territorial requirements, customs and policy in order to get deals over the line. They will also need to fully utilise their negotiating skills to ensure that high value, fully-funded deals do not come at a cost to favourable rights positioning.”*

This encompasses a broad skill set, including many of the global skills needed across the UK economy. It also includes advanced business and negotiating acumen, such as a detailed understanding and specialist expertise in particular markets, including knowledge of culture, legal frameworks, regulation and customs and wider government policy, which are all vital to enable cross-border deal-making and are of growing importance to the UK screen industries.

#### 5. Management and leadership capability

As highlighted in the ScreenSkills Employer Survey 2019, insufficient management and leadership skills are already a widespread issue within the industry. Evidence from the ScreenSkills Annual Skills Assessment suggest that skill deficiencies in the wider market could also be impacting screen firms, where, for example, employers are being forced to recruit at lower skill levels and promote people earlier than they may otherwise have been (ScreenSkills, 2019a). This has given rise to significant skills gaps, whereby workers are progressing into senior positions without the range of skills needed to meet new role requirements, such as creating and managing a budget or line management.

Besides highlighting the need to improve management skills across the sector, interviews with the Delphi Panel emphasised an additional need to sharpen the commercial skills of the workforce in order to respond to mega-trends driving shift in the sector, in terms of accessing funding, exploiting new technology and responding to shifts in consumer preferences. As one panellist said:

*“Business development skills (rather than project development skills) are important - in order to be able to grow companies and access EIS funding under the new rules.”*

Flexibility, negotiating skills and business skills were viewed as key requirements for both the current and future performance of workers in the screen industries. This is connected both to the constantly changing nature of the industries as well as to the high incidence of freelance work within them, which necessitates individuals to be able to promote themselves and have the commercial acumen needed to conduct themselves appropriately. Keeping abreast of ongoing shifts in business, commercial and revenue models were highlighted as crucial to ensuring that screen businesses are able to flourish in the years ahead. As another participant said:

*“Online platforms and streaming services have increasing impact on the market and adopt their own business models - higher revenues upfront in exchange for a more comprehensive rights package. Heads of production in the position of negotiating these deals will need to familiarise themselves with new models, keeping abreast of changing market conditions and any impact on IP value.”*

## References

- Adobe (2017) Beyond the screen: How AR, VR, and Voice are redefining digital experience. Available at: <https://theblog.adobe.com/ar-vr-voice-redefining-digital-experiences/>
- Aisen, A., & Veiga, F. J., (2013) How Does Political Instability Affect Economic Growth? European Journal of Political Economy, 29, pp. 151-167.
- APA (2019) Case For: British Advertising Will Thrive Post-Brexit. Available at: <https://www.a-p-a.net/content/uploads/2019/04/Case-for-British-advertising-will-thrive-post-Brexit.pdf>
- Bakhshi, H., Frey, C.B., & Osborne, M. (2015) Creativity vs. Robots. Available at: [https://media.nesta.org.uk/documents/creativity\\_vs.\\_robots\\_wv.pdf](https://media.nesta.org.uk/documents/creativity_vs._robots_wv.pdf)
- Bakhshi and Windsor (2016) The Fusion Effect: how firms gain from combining arts and science skills. Available at: <https://www.nesta.org.uk/blog/the-fusion-effect-how-firms-gain-from-combining-arts-and-science-skills/>
- Bakhshi, H., Downing, J.M., Osborne, M.A., & Schneider, P. (2017) Accessed at: [https://media.nesta.org.uk/documents/the\\_future\\_of\\_skills\\_employment\\_in\\_2030\\_0.pdf](https://media.nesta.org.uk/documents/the_future_of_skills_employment_in_2030_0.pdf)
- BFI (2018a) Screen Business: How screen sector tax reliefs power economic growth across the UK. Available at: <https://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/screen-business-full-report-2018-10-08.pdf>
- BFI (2018b) Statistical Yearbook 2018. Available at: <https://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/bfi-statistical-yearbook-2018.pdf>
- BFI (2019) Brexit: Answering questions from the screen sectors. Available at: <https://www.bfi.org.uk/about-bfi/policy-strategy/policy-statements/brexit-answering-questions-screen-sectors>
- Bloom, N., Sadun, R., & Van Reenen, J. (2017) Management as a Technology? Harvard Business School. Available at: [https://www.hbs.edu/faculty/Publication%20Files/16-133\\_64fd57c1-5f76-415a-9567-f1c0d310aff3.pdf](https://www.hbs.edu/faculty/Publication%20Files/16-133_64fd57c1-5f76-415a-9567-f1c0d310aff3.pdf)
- British Council (2018) Erasmus+: Global skills for a global future. Available at: <https://www.britishcouncil.org/research-policy-insight/insight-articles/erasmus-global-skills>
- Broadcast. (2018) AI is rewriting the TV script. Available at: <https://www.broadcastnow.co.uk/tech/ai-is-rewriting-the-tv-script/5129743.article>
- CAMEo (2018) Workforce Diversity in the UK Screen Sector: Evidence Review, CAMEo Research Institute: Leicester. Available at: <https://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/bfi-workforce-diversity-in-uk-screen-sector-evidence-review-2018-03.pdf>
- Cultural Learning Alliance (2017) STEAM: Why STEM can only take us so far. Briefing Paper No.1. Available at: <https://culturallearningalliance.org.uk/wp-content/uploads/2018/03/CLA-STEAM-Briefing-A4.pdf>
- DCMS (2018a) DCMS Sector Economic Estimates, 2017: Employment release. Available at: <https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-2017-employment>
- DCMS (2018b) Understanding the UK cyber security skills labour market. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/767422/Understanding\\_the\\_UK\\_cyber\\_security\\_skills\\_labour\\_market.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/767422/Understanding_the_UK_cyber_security_skills_labour_market.pdf)
- Deloitte (2018a) The rise of the silver VODer. Available at: <https://www2.deloitte.com/uk/en/pages/technology-media-and-telecommunications/articles/rise-of-the-silver-vodder.html>
- Deloitte (2018b) Television viewing trends: Rise of mobile consumers. Available at: <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/screen-size-tv-viewing-trends.html>
- Deloitte (2018c) Digital media trends survey: A new world of choice for digital consumers. Available at: <https://www2.deloitte.com/insights/us/en/industry/technology/digital-media-trends-consumption-habits-survey.html>

- Deloitte (2018d) Digital media: The subscription prescription. Available at: <https://www.deloitte.co.uk/tmtpredictions/predictions/digital-only-media-subscriptions/>
- Deloitte (2018e) Tech Trends 2018: The symphonic enterprise. Available at: [https://www2.deloitte.com/content/dam/insights/us/articles/Tech-Trends-2018/4109\\_TechTrends-2018\\_FINAL.pdf](https://www2.deloitte.com/content/dam/insights/us/articles/Tech-Trends-2018/4109_TechTrends-2018_FINAL.pdf)
- Deloitte (2018f) Future scenarios for the TV and video industry by 2030. Available at: <https://www2.deloitte.com/de/de/pages/technology-media-and-telecommunications/articles/future-of-tv-video.html>
- Directors UK (2018) Adjusting the Colour Balance: Black, Asian and minority ethnic representation among screen directors working in UK television. Available at: <https://d29dqxe14uxvcr.cloudfront.net/uploads%2F1537376389641-48nno7a8g5d-a2f386db65fdcecec7ac1fb44dac221b%2F2018-Adjusting-the-Colour-Balance.pdf>
- Easton, E., & Djumalieva, J. (2018) Creativity and the future of skills. Available at: [https://pec.ac.uk/assets/publications/Creativity\\_and\\_the\\_Future\\_of\\_Skills\\_v6.pdf](https://pec.ac.uk/assets/publications/Creativity_and_the_Future_of_Skills_v6.pdf)
- Ecoprod (2018) Green Film Shooting: COP21 Special Edition. Available at: [http://www.ecoprod.com/images/site/ ANCIENSITE/fppdf/151201\\_ECO\\_COP\\_English.pdf](http://www.ecoprod.com/images/site/ ANCIENSITE/fppdf/151201_ECO_COP_English.pdf)
- Entertainment Software Association (2018) Essential facts about the computer and video game industry. Available at: [https://www.theesa.com/wp-content/uploads/2019/03/ESA\\_EssentialFacts\\_2018.pdf](https://www.theesa.com/wp-content/uploads/2019/03/ESA_EssentialFacts_2018.pdf)
- Film Distributors Association (2018), FDA Yearbook. Available at: <https://www.launchingfilms.com/research-databank/fda-yearbook-2018>
- GameTrack (2018) GameTrack Digest: Quarter 1 2018. Available at: [https://www.isfe.eu/sites/isfe.eu/files/gametrack\\_european\\_summary\\_data\\_2018\\_q1.pdf](https://www.isfe.eu/sites/isfe.eu/files/gametrack_european_summary_data_2018_q1.pdf)
- Government Office for Science (2017) Future of Skills & Lifelong Learning. Available at: <https://www.gov.uk/government/publications/future-of-skills-and-lifelong-learning>
- Grange, L., Da Costa, G., & Stolf, P. (2018) Green IT scheduling for data center powered with renewable energy. Future Generation Computer Systems 86: 99-120.
- HM Government (2018) The UK's future skills-based immigration system. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/766672/The-UKs-future-skills-based-immigration-system-accessible-version.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766672/The-UKs-future-skills-based-immigration-system-accessible-version.pdf)
- HM Revenue & Customs (2019) Off-payroll working rules from April 2020: Policy paper and consultation document. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/783409/Off-payroll\\_working\\_rules\\_from\\_April\\_2020.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/783409/Off-payroll_working_rules_from_April_2020.pdf)
- Hwang, J. & Griffiths, M.A. (2017) Share more, drive less: Millennials value perception and behavioural intent using collaborative consumption services. Journal of Consumer Marketing 34(2): 132-146.
- ILO (2017) Future of Work. Various publications available at: <https://www.ilo.org/global/topics/future-of-work/lang--en/index.htm>
- Kantar Media (2016) Linear vs non-linear viewing: A qualitative investigation exploring viewers' behaviour and attitudes towards using different TV platforms and services providers. Available at: [https://www.ofcom.org.uk/data/assets/pdf\\_file/0029/68816/km\\_report.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0029/68816/km_report.pdf)
- Koljonen, J. (2018) The Nostradamus Report: Do or Die? Available at: [https://goteborgfilmfestival.se/wp-content/uploads/2018/02/GFF18\\_nostradamus-web.pdf](https://goteborgfilmfestival.se/wp-content/uploads/2018/02/GFF18_nostradamus-web.pdf)
- Li, M., & Porter, A.L. (2019) Can nanogenerators contribute to the global greening data centres? Nano Energy 60: 235-246.
- Migration Advisory Committee (2019) Latest documents. Available at: <https://www.gov.uk/government/latest?departments%5B%5D=migration-advisory-committee>
- Nazeer, A.M. & Masih, M. (2017) Impact of Political Instability on Foreign Direct Investment and Economic Growth: Evidence from Malaysia. Available at: <https://mpr.a.ub.uni-muenchen.de/79418/>

- Nedelkoska, L. and G. Quintini (2018), Automation, skills use and training, OECD Social, Employment and Migration Working Papers, No. 202. Available at: <http://dx.doi.org/10.1787/2e2f4eea-en>
- Nesta (2013) Next Gen. Available at: <https://www.nesta.org.uk/report/next-gen/>
- Nesta & Pearson (2017) Future of Skills: Employment in 2030. Available at: <https://www.nesta.org.uk/report/the-future-of-skills-employment-in-2030>
- Northern Ireland Screen (2018) Opening Doors <https://www.northernirelandscreen.co.uk>
- OECD (2017) Future of Work and Skills. Available at: <http://www.oecd.org/employment/future-of-work/>
- OECD (2019) The Future of Work: Employment Outlook 2019. Available at: <https://www.oecd-ilibrary.org/sites/9ee00155-en/index.html?itemId=/content/publication/9ee00155-en>
- Ofcom (2018a) Media Nations: UK 2018. Available at: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0014/116006/media-nations-2018-uk.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0014/116006/media-nations-2018-uk.pdf)
- Ofcom (2018b) Research into children's content consumption, including Netflix and YouTube. Available at: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0015/116520/Annex-Research-Childrens-Content-Consumption.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0015/116520/Annex-Research-Childrens-Content-Consumption.pdf)
- Ofcom (2018c) Diversity and equal opportunities in television 2018 Monitoring report on the UK-based broadcasting industry. Available at: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0021/121683/diversity-in-TV-2018-report.PDF](https://www.ofcom.org.uk/_data/assets/pdf_file/0021/121683/diversity-in-TV-2018-report.PDF)
- ONS (2018) Labour Force Survey 2017. Available at: <https://www.gov.uk/government/statistics/labour-force-survey-annual-report-2017>
- ONS (2019a) GDP monthly estimate, UK: December 2018. Available at: <https://www.ons.gov.uk/releases/gdpmonthlyestimateukdecember2018>
- ONS (2019b) The probability of automation in England: 2011 and 2017. Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/the-probability-of-automation-in-england/2011-and-2017>
- Oxera (2017) Impacts of leaving the EU on the UK's screen sector. Available at: <https://www.bfi.org.uk/sites/bfi.org.uk/files/downloads/bfi-impact-leaving-eu-uk-screen-sector-2017-v1.pdf>
- Nesta (2013) Next Gen. Available at: <https://www.nesta.org.uk/report/next-gen/>
- PACT (2018) UK Television Production Survey: Financial Census. Available at: <http://www.pact.co.uk/news-detail.html?id=tv-production-sector-income-hits-new-high-growth-driven-by-international-revenue>
- PwC (2018a) Workforce of the future: The competing forces shaping 2030. Available at: <https://www.pwc.com/gx/en/services/people-organisation/workforce-of-the-future/workforce-of-the-future-the-competing-forces-shaping-2030-pwc.pdf>
- PwC (2018b) Perspectives from the Global Entertainment & Media Outlook 2018-2022. Available at: <https://www.pwc.com/gx/en/entertainment-media/outlook/perspectives-from-the-global-entertainment-and-media-outlook-2018-2022.pdf>
- ScreenSkills (2013) Fusion Skills: Perspectives and Good Practice. Available at: [https://www.screenskills.com/media/1551/fusion\\_report.pdf](https://www.screenskills.com/media/1551/fusion_report.pdf)
- ScreenSkills (2019a) Annual ScreenSkills Assessment 2018-19. Available at:
- ScreenSkills (2019b) Quarterly ScreenSkills Barometer. Available at: <https://www.screenskills.com/media/2179/2018-12-05-quarterly-screenskills-barometer.pdf>
- Siepel, J., Camerani, R., Pellegrino, G., & Mascussi, M. (2016) The Fusion Effect: the economic returns to combining arts and science skills. Available at: [https://media.nesta.org.uk/documents/the\\_fusion\\_effect\\_v6.pdf](https://media.nesta.org.uk/documents/the_fusion_effect_v6.pdf)

The Location Guide (2017) Towards a green film future: Sustainability and the global production industry. Available at: <http://www.thelocationguide.com/2017/12/towards-a-green-film-future-sustainability-and-the-global-production-industry/>

UCL/LSIS (2008) Global Skills. Available at: [https://webarchive.nationalarchives.gov.uk/20110505152117/https://www.lsis.org.uk/Documents/Publications/GlobalSkillsNov08\\_WEB.sflb.pdf](https://webarchive.nationalarchives.gov.uk/20110505152117/https://www.lsis.org.uk/Documents/Publications/GlobalSkillsNov08_WEB.sflb.pdf)

UK Screen Alliance (2019) Access to global talent in the Visual Effects and Animation sector: A response to the immigration white paper and the MAC shortage occupation list review. Available at: <https://drive.google.com/file/d/1IF-AUxalXjVYGu9hqoxweXyZGdVbKvc0/view>

UKCES (2014) The future of work: jobs and skills in 2030. Available at: <https://www.gov.uk/government/publications/jobs-and-skills-in-2030>

UKCES (2016) Working Futures 2014-2024, Evidence Report 100. Available at: <https://www.gov.uk/government/publications/uk-labour-market-projections-2014-to-2024>

UKIE (2018) UK Video Games Fact Sheet. Available at: <https://ukie.org.uk/sites/default/files/UK%20Games%20Industry%20Fact%20Sheet%20October%202018.pdf>

World Economic Forum (2016) The Future of Jobs. Available at: [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf)

Work Foundation (2017) A Skills Audit of the UK Film and Screen Industries. Available at: [http://www.theworkfoundation.com/wp-content/uploads/2016/10/420\\_A-Skills-Audit-of-the-UK-Film-and-Screen-Industries.pdf](http://www.theworkfoundation.com/wp-content/uploads/2016/10/420_A-Skills-Audit-of-the-UK-Film-and-Screen-Industries.pdf)

Yang (2006) Consumption Over the Life Cycle: How Different Is Housing? Available at: <https://www.minneapolisfed.org/research/wp/wp635.pdf>

## Appendix A

### Skills Forecasting Service

In the autumn of 2018 we launched the Skills Forecasting Service (SFS) to investigate current and future skills challenges and needs in the screen industries. The service is an integral part of ScreenSkills' strategy and a key delivery objective of the [BFI Future Film Skills Action Plan \(PDF\)](#).

The research we undertake aims to tackle significant gaps in the existing evidence base, as identified by the [Skills Audit of the UK Film and Screen Industries \(PDF\)](#) which was carried out for the British Film Institute (BFI) in 2017 and which has been reinforced by our further consultation with business, industry associations, screen agencies, policymakers and training providers.

The first year of research (2018-19) has been carried out in partnership with the [Work Foundation](#), the advocacy and research organisation which is part of Lancaster University. This research was made up of three work streams:

1. The **Quarterly ScreenSkills Barometer**: provides regular, short-term snapshots on business activity, skills gaps and shortages and training practices across, and is underpinned by a short online survey completed by a rolling panel of around 50 industry experts;
2. The **Annual ScreenSkills Assessment 2018-19**: provides an in-depth analysis of the screen industries' labour market and workforce, diversity and inclusion statistics, skills gaps and shortages experienced by employers in the sector, and training provisions. The ASA is underpinned by a specially commissioned employer survey, which was completed by 418 employers across the industry, and;
3. The **ScreenSkills Foresighting Analysis**: provides a forward-looking analysis of drivers of change and the future of work in the sector. The study is based on a rapid evidence assessment and insights gained from a series of in-depth Delphi Panel interviews with 22 industry experts.

## Skills Forecasting Service 2018-19

### Quarterly ScreenSkills Barometer

**Purpose:** provide responsive, short-term insights on skills gaps and shortages, recruitment challenges and training practices

**Method:** quarterly online survey completed by a small rolling panel of industry experts

### Annual ScreenSkills Assessment

**Purpose:** provide an in-depth assessment of workforce profile and diversity, skills gaps and shortages, recruitment challenges and future trends

**Method:** online employer survey completed by a large sample, corroborated by literature reviews and national data sources

### ScreenSkills Foresighting Analysis

**Purpose:** provide a forward-looking analysis of likely changes in our industries' needs and ways of working

**Method:** Delphi panel consultations with industry experts, corroborated by literature reviews and national data sources

For more information regarding our activities and for an overview of our research planning for the year 2019-20, please visit the [SFS](#) page on our website.

## Appendix B

### Definition of the screen industries

ScreenSkills identifies seven distinct yet interrelated sectors as collectively making up the screen industries: animation, children's TV, film, games, high-end TV, unscripted TV and VFX. This is coherent with the definition used by UK Government and BFI, through the tax reliefs offered to some sectors, and is generally how the industry perceives itself.

However, the Standard Industrial Classification system (SIC), adopted by the Office for National Statistics (ONS), takes a value chain approach to classifying these sectors, giving a different but complementary definition of the screen industries. Fast-changing technologies, practices and markets within the screen industries mean that the SIC system does not accurately represent or account for some screen industry sectors as they are evolving, such as the way animation and VFX cross boundaries with film and TV production.

National data (e.g. Labour Force Survey and Employer Skills Survey) is an essential component in building the bigger picture of the screen industries labour market, particularly when making comparisons with the wider UK economy, so it must be taken into account. Therefore, for the purposes of the Annual ScreenSkills Assessment, we map the sectors of animation, children's TV, film, games, high-end TV, unscripted TV and VFX that fall within the SIC system against the relevant SIC codes, listed below (figure 8).

**Figure 5: SIC code activities**

SIC code	SIC title
59.11	Film and TV production
59.12	Film and TV post-production
59.13	Film and TV programme distribution
59.14	Film exhibition
60.20	TV programming and broadcasting
58.21	Publishing of games
62.01/1	Development of games

Source: UK Standard Industrial Classification of Economic Activities (2007), Office for National Statistics.

Figure 9 below explains the SIC codes in greater detail.

Figure 6: Definition of the screen industries

SIC code	SIC title	Description of sector
58.21	Publishing of games	This class includes the publishing of computer games for all platforms
59.11	Motion picture, video and television programme production activities	This class includes the: <ul style="list-style-type: none"> <li>• production of motion pictures</li> <li>• production of videos</li> <li>• production of television programmes (television series, documentaries etc.), or television advertisements</li> </ul>
59.12	Motion picture, video and television programme post-production	This class includes post-production activities such as editing, film/tape transfers, titling, subtitling, credits, closed captioning, computer-produced graphics, animation and special effects, developing and processing motion picture film, as well as activities of motion picture film laboratories and activities of special laboratories for animated films.  This class also includes: the activities of stock footage film libraries, etc.
59.13	Motion picture, video and television programme distribution	This class includes: <ul style="list-style-type: none"> <li>• distributing film to motion picture theatres, television networks and stations, and exhibitors. This subclass also includes: acquiring film distribution rights;</li> <li>• distributing video tapes, DVDs and similar productions to motion picture theatres, television networks and stations, and exhibitors and also includes acquiring video tape and DVD distribution rights;</li> <li>• distributing television programmes to television networks and stations, and exhibitors and also includes acquiring television distribution rights</li> </ul>
59.14	Motion picture projection activities	This class includes: <ul style="list-style-type: none"> <li>• activities of motion picture or video tape projection in cinemas, in the open air or in other projection facilities; and</li> <li>• activities of cine-clubs;</li> </ul>
60.20	Television programming and broadcasting activities	This class includes the activities of creating a complete television channel programme, from purchased programme components (e.g. movies, documentaries etc.), self-produced programme components (e.g. local news, live reports) or a combination thereof. This complete television programme can be either broadcast by the producing unit or produced for transmission by a third-party distributor, such as cable companies or satellite television providers. The programming may be of a general or specialised nature (e.g. limited formats such as news, sports, education or youth-oriented programming). This class includes programming that is made freely available to users, as well as programming that is available only on a subscription basis. The programming of video-on-demand channels is also included here. This class also includes data broadcasting integrated with television broadcasting.
62.01/1	Ready-made interactive leisure and entertainment software development	This subclass includes the development, production, supply and documentation of ready-made interactive leisure and entertainment software, such as games software, designed for publication by a different enterprise. A key component part of the software is audio-visual content with which the user interacts. The software can be published across any format, such as games consoles, the internet and mobile phones.

Source: UK Standard Industrial Classification of Economic Activities (2007), Office for National Statistics.

