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The impact of the internet and digitalization on the European creative sector

by Oliver & Ohlbaum Associates Ltd and Analysys Mason



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Glossary

APS	Annual Population Survey: a household survey which uses data from the Labour Force Survey. The APS includes information on employment, religion, and education, amongst other things
AR/VR	Augmented reality: incorporates computer-generated elements into a view of the real world. Virtual reality: a computer-generated environment
AV	Audio visual: in this report specifically referring to film, TV and video content
AVOD	Ad-supported video-on-demand, including ad-supported catch-up services
Catch-up service	Services from traditional TV broadcasters providing programmes on demand. Access is normally available following linear TV broadcast but some services also offer online linear viewing
DRM	Digital rights management: an approach to copyright protection for digital media
DTT	Digital terrestrial TV: a means of receiving terrestrial TV channels; an upgrade from the traditional analogue terrestrial broadcast signal. Most EU Member States have undertaken a digital switch-over
DVR	Digital video recorder: a device used to record, save, and play back TV programmes; modern DVRs can often also pause and rewind live TV, and provide online access to OTT services. Sometimes referred to as a personal video recorder (PVR)
EEA	European Economic Area: Iceland, Lichtenstein, Norway
EC	European Commission
EU	European Union: we specify where we are referring to the EU28 or EU27 in each instance
FBP	Fixed book price: a pricing agreement between publishers and retailers setting the price at which books can be sold
FTA	Free to air: unencrypted TV broadcast, allowing any person with the appropriate equipment to receive the signal for free (subject to a licence fee)
Home entertainment	A content window in which consumers have in-home access to AV content. Traditionally includes video, DVD and Blu-Ray but has now expanded to include TVOD services
IP	Internet protocol: references to IP can be taken to mean 'internet'. We refer to IP as a means of delivering TV and film content to consumers
LFS	Labour Force Survey: a European household survey which indicates employment

MCN	Multichannel network: intermediaries providing services to video creators, such as production facilities
Member States	European Union member countries
MMOG	Massively multiplayer online game: an online game supporting a very large number of players participating simultaneously, in the same instance of the game
MNO	Mobile network operator: provider of wireless communication services
NACE Code	Nomenclature générale des Activités économiques dans les Communautés Européennes: the statistical classification of economic activities in the European Communities
OTT	Over the top: delivery of content over the internet directly to the consumer, without the involvement of a local operator, such as a cable or satellite provider, in the control or distribution of content
POD	Print on demand: an approach to physical book publication to reduce the cost and risk associated with a print run when demand is unknown
PSB	Public service broadcaster: broadcasters with a public service remit
SBS	Structural Business Statistics: statistics covering the performance of EU businesses, broken down by NACE code
SIC Codes	Standard Industrial Classification Codes: classification system of economic activities
SOC Codes	Standard Occupational Classification Codes: classification system for occupations
STB	Set top box: device enabling TV viewing, see also DVR
SVOD	Subscription video-on-demand: a service that gives users access to on-demand AV content for a monthly flat rate
TVOD	Transactional video-on-demand: allows consumers to pay for access to individual television programmes or films. There are two types: download to own (DTO) and download to rent (DTR)
UGC	User generated content: online content such as video that has been made by users
VFX	Visual effects
VOD	Video-on-demand: interactive TV technology enabling users to access online AV content at a time of their choosing. See also OTT

Key facts

Trends in revenue and employment

Revenue and employment are increasing

- Revenues increased by 6.2 per cent between 2011 and 2015
- Employment increased by 4.8 per cent between 2011 and 2015

Reduced production and distribution costs

Producing creative content costs less, while digital distribution has almost zero marginal cost and offers a global audience

- The marginal cost of distribution is almost zero – compared to relatively high costs associated with traditional physical products
- Global marketing spending on music fell by around 22 per cent between 2009 and 2015, from \$2.2 billion (€1.98 billion) to \$1.7 billion (€1.53 billion)
- In the UK AV industry, production cost efficiencies – including those enabled by technology – saved PSBs 2.6 per cent (nominal) between 2007 and 2013

Increased competition has led to new business models

Creators can now reach consumers directly, democratising content production and providing new opportunities to serve a global audience

- Hannah Trigwell launched her music career online and has been viewed more than 40 million times on YouTube
- Self-published titles account for 41 per cent of the Italian eBook market – supported by a range of platform types including fanfiction and online tools to help edit and refine drafts
- Short-form video creators have achieved global fame; YouTube's top ten earners made an estimated \$70.5 million (€63.5 million) in 2016, with up to 50 million followers

Benefits to consumers and content creators

More options for accessing and purchasing content

- Our focus markets have an average of 125 on-demand AV services, with around half from traditional broadcasters
- 77 per cent of the population of the EU28 had smartphones in 2015, increasing access to all creative content

Increased choice of services and a greater volume and diversity of content (both new and historic)

- Spotify and Deezer have libraries of 30-40 million tracks, available to subscribers and through ad-supported models
- eBook retailers offer up to 5 million titles, with some self-publishing specialists offering more than 400,000; many for free
- Digital distribution platforms offer thousands of PC games, around 10,000 are available on Steam alone

Competition has driven increased content quality, leading to increased demand and a larger share of revenue going to creators

- Investment in 'high-end' TV originations in the UK increased by 20 per cent between 2014 and 2015 while producer revenues increased by 6 per cent per year between 2011 and 2015
- Games developers took a 16 per cent share of revenues in 2016 compared to 6 per cent in 2008
- Viewers in the UK spent 16 per cent more time watching AV content in 2016 than 2010

Summary

In this report, Oliver & Ohlbaum Associates (O&O) and Analysys Mason examine the impact of the internet and digitalization on the creative sector in Europe. We draw on existing research to present the latest available data on revenues and employment, before taking a detailed look at the impact of digitalization on four core 'copyright-led' industries: **television/film/video, music, books** and **video games**. We also review the impact of digitalization and the internet on **cultural and heritage institutions**. In doing so, we present revenue and employment trends across nine major European markets, while providing a range of case studies to help bring the discussion to life.

While there are some concerns about the impact of the internet on the creative sector, especially with respect to piracy and decreased margins, the internet has created new revenue streams and helped to maintain or expand many existing ones. This study takes a comprehensive look at the internet's overall impact on the creative sector, with specific reference to key areas: some are more easily measured than others, but all are important.

Revenue and employment levels in the creative sector have been maintained despite upheaval in the value chain. Revenues for the creative sector were up 6.2 per cent in aggregate in the EU28, between 2011 and 2015, and employment increased 4.8 per cent over the same period.

Moreover, there have been **significant benefits to consumers**. There is more choice and higher quality content, and consumers can access significantly more creative content, without paying more. For example, European music streaming services such as Spotify and Deezer have libraries of 30 to 40 million tracks, broadening listeners' musical experience, whilst book (and eBook) retailer Amazon offers over 5 million titles. This choice leads to increased consumption; in the UK AV-sector consumers watched 16 per cent more AV content in 2016 than they did in 2010. This increased consumption, of greater quality content, from a broader choice, is likely to create very significant consumer surplus. Not only this, but McKinsey estimated that consumer benefit attributed to the internet in the US and Europe in 2013 was €250 billion¹.

Creators have benefited from growth in demand, cost efficiencies and retaining a higher proportion of the revenue generated. For example, game developers' revenues grew 375 per cent from 2008 to 2015 with growth in the share of revenue retained rising from 6 per cent to 16 per cent.

Finally, the internet has brought **societal benefits** relating to plurality of sources. Further, the ability of European citizens to access outlets for their creativity online has been made easier, at much reduced costs, as barriers to entry for creators have been removed.

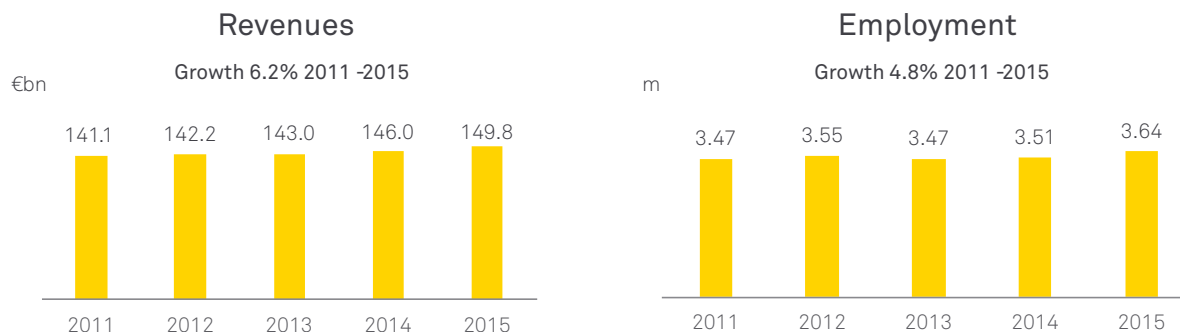
Recent trends in creative sector revenues and employment

For the creative sector collectively, both revenue and employment showed steady growth between 2011 and 2015 across the EU28. While performance varies by both industry and country, looking at the overall revenue and employment performance provides a strong indication of the overall health of the creative sector in the context of increasing digital distribution and the bedding down of new business models.

As we can see from the Figure below, both revenue and employment increased between 2011 and 2015, with **revenues growing by 6.2 per cent** from €141.1 billion to €149.8 billion, while within the core European creative industries **employment increased by 4.8 per cent** from 3.47 million to 3.64 million. Employment reached a low in 2013, but increased in 2014 and 2015. These trends suggest that while digitalization has brought some challenges for the creative sector – in particular where traditional intermediaries have been squeezed by digital distribution possibilities – as a whole, the industries making up the sector have succeeded in adapting to the new digital reality and have returned to growth.

¹ McKinsey, *The mobile internet's consumer dividend*, 2014

Trends in revenue and employment in the creative sector, EU28, 2011 to 2015



Note: Employment data include news publishing which cannot be split from books publishing, and cultural institutions which are not reflected in the revenue chart since they tend to be not for profit

Data from several sources are used in this chart; the included PwC data are presented separately in Appendix 5

Source: Revenue – PwC 'Global Entertainment and Media Outlook 2016 - 2020'; IFPI, Oliver & Ohlbaum analysis and estimates
Employment – Eurostat, Nesta, Oliver & Ohlbaum analysis

The impact of the internet on the creative sector

The widening of internet access in the EU has provided more consumers with access to more creative content than ever before. In most creative industries, content creators have benefited from reduced production and distribution costs, which have reduced barriers to entry and, in turn, allowed them to offer consumers increased choice, while delivering content on a wider range of devices. This direct link to consumers has spurred a competitive dynamic that has led to new business models and new types of content, often with a greater proportion of revenue flowing back to the content creators.

The internet has broadened access to the creative sector

The internet has made it possible for content creators to reach audiences in new ways – this has been facilitated by the broad access to and take up of the internet across the EU28. **Fixed broadband** is now available in **over 90 per cent of households**, with **superfast** (more than 30 Mbit/s) reaching **71 per cent of households**. Mobile 4G broadband access has increased rapidly in recent years, from less than 10 per cent in 2011 to more than 86 per cent in 2015, while **98 per cent of the population have access to 3G**. Increasing network speeds and performance have driven this mass adoption while technological developments have supported content creators in using the internet to distribute their content.

Reduced costs and increased capabilities in storing, processing, and sharing data have been amongst the most important breakthroughs. Innovations such as cloud computing have removed the need for content owners and distributors to purchase expensive processing power themselves, while advancements in data compression and encryption mean that content requiring large file sizes can be distributed digitally in a secure fashion – protecting creators' intellectual property against the threat of piracy.

These innovations are important because demand for digitally delivered creative content has grown as more people connect to the internet. Improvement in mobile is a major driver of this growth; the technical capabilities of mobile phones have expanded significantly over the last five to ten years with smartphones now typically capable of providing access to AV content as well as doubling as a camera, camcorder or games console. **As of 2015, smartphone penetration in the EU28 was around 77 per cent**, driving consumers to spend more time online, **over 20 hours per week** on average in the UK in 2014 for example, with 11 per cent of this being outside of the home. In 2015 in the UK, data traffic reached **1,000GB per year per fixed connection** (typically one household), and **over 10GB per month per mobile connection** (typically one person).

These factors are contributing to a technological environment that supports innovation in how creative content is distributed to consumers, and underpin many of the developments explored in this report.

Digitalization has reduced costs associated with production and distribution

In most of the creative industries digitalization has brought efficiencies in both production and distribution of traditional products. As well as the technological advances set out above, industry-specific developments have also influenced production costs. In television for example, the move to digital cameras had a significant impact on the cost of filming, contributing to a **reduction in the cost of PSB originated programming by 2.6 per cent** between 2007 and 2013 in the UK. In the music industry, whilst A&R spending has been stable since 2009, **global marketing spending by record labels has reduced significantly, from around \$2.2 billion in 2009 to \$1.7 billion in 2015**. In relation to distribution, the music and book industries saw significant reductions in distribution costs when eCommerce allowed retailers to store stock at a lower cost in out-of-town storage, and to operate without a high-street presence. While the savings from production efficiencies and new ways of working continue, the reductions in traditional distribution costs have now largely been superseded by the switch to digital products which can use online distribution.

Increased competition has led to new business models

Television producers, musicians, journalists and authors are no longer exclusively reliant on intermediaries – distributors, platform owners or retailers – and can deliver content directly to their audiences. For example, around **75 per cent of games developers in France self-published and distributed their games** via online platforms in 2015. While physical products remain a large part of the market for music, games, and books, this direct approach is attractive to content creators because it allows them to retain more of the profit, which would otherwise be taken by intermediaries. **Games publishers, for example, could previously command around 40 per cent of revenues**, but developers can now secure more favourable deals with both publishers and distributors and can, in some cases, retain revenue shares of up to 70 per cent.

Cost reductions have also enabled entirely new players to enter the sector, democratising content creation and reducing barriers to entry. Musicians and authors no longer need await discovery by a record label or publishing house, while games developers and video creators can distribute content from their bedrooms via online platforms such as mobile app stores and YouTube. Hannah Trigwell, for example, launched her music career online and has been **viewed more than 40 million times on YouTube**. *Fifty Shades of Grey* which started online as fanfiction, has now not only **sold over 100 million copies**, but has also sparked a hugely successful publishing and film franchise. Meanwhile numerous short-form video creators have achieved global fame; YouTube's top ten earners **made an estimated \$70.5 million (€63.5 million) in 2016**, with up to **50 million followers**.

Reduced barriers to entry and increased competition have resulted in an explosion in the supply of creative content across the sector. In television, digitalization first enabled more channels to enter the market, with the number of nationwide **TV channels increasing by an average of 275 per cent** between 2003 and 2013 across our focus markets. More recently, a large number of catch-up and on-demand services have arrived, with an **average of 125 on-demand AV services** in each of our focus markets. In both music and games, first digital downloads and now streaming services are offering new ways to access music and play video games. The number of **games available via online platform Steam, reached over 10,000** in 2016, while **40 per cent of mobile app downloads from Google Play were games**. In news, the internet has opened up the market to an almost unlimited number of journalists, ranging from the online presence of established news brands to citizen journalists blogging about experiences in their local areas.

Whilst the transition to online distribution and lower barriers to entry have put pressure on traditional distributors, new types of intermediaries are emerging, supported by new business models and entirely new content types. Some of these intermediaries focus on curating the wealth of content now available online. In the books market, for example, self-publishing and fanfiction platforms use their online communities to review new publications and discover new writing talent. **Self-published titles now account for 41 per cent of the Italian eBook market**. Similarly, in music and television, streaming services such as Last.fm and Shazam are built around recommendation algorithms which can help listeners and viewers discover new programmes or musicians.

One of the most important impacts of digitalization has been to increase the diversity of content by making niche content and services more economically viable. This has happened because online services can aggregate geographically-separated demand, meaning content types which are too niche for significant investment in any one market, can sustain themselves on a global scale. Foreign television programmes or music, for example, can be licensed on a global basis and made available online. In addition, cost reductions have supported diversity in film; the move from tape – around €10,000 per reel – to digital distribution means that cinemas can afford to experiment with lesser known titles – **in the UK the number of films released in fewer than 50 cinemas (often international and specialist titles) increased by 56 per cent between 2011 and 2015**, accounting for 68 per cent of all UK releases in 2015.

Across the creative sector the emergence of new companies taking advantage of digital opportunities has resulted in entirely new types of content being created, and in the blurring of the boundaries between media. This is perhaps best demonstrated by the way in which cultural and heritage institutions have used technology to digitalize their collections and provide remote access to experiential goods such as opera, ballet, and orchestra. Indeed, **in 2015, 84 per cent of European cultural institutions had a digital collection, or were involved in digitalization activities**. Not only has this increased their reach, but the digitalization of cultural artefacts can offer additional features, such as the ability to zoom in on the detail of a painting.

Both consumers and content creators have benefited

The uptake of broadband and connected devices means more people have greater access to creative content than ever before. Online delivery of content has removed many of the geographical, financial and social barriers to access. Consumers also have more options for acquiring and accessing creative content; where they could previously only watch television in their homes, as it was broadcast, they can now access this content online wherever and whenever they choose.

Competition amongst content creators and an increase in the supply of creative content have generated a great deal more choice for consumers. In most creative industries, consumers can now choose from a wider range of content, some new and much of it part of enormous back catalogues that can now be made available cost-effectively. For example, **eBook retailers offer up to 5 million titles**, with **self-publishing specialists Smashwords offering more than 400,000, of which 65,000 are free**.

In some industries, increased competition between creators and between distributors has driven improvements in quality. Content creators need to make their original content stand out. In France, games developers have begun to reduce output to focus on quality. At the same time, increased competition between distributors drives a focus on content that is appealing to consumers, and helps new distributors establish themselves. This is particularly evident in television, which is experiencing a ‘golden age’, with more investment in scripted content than ever before, as online giants such as Netflix and Amazon, with significant programme budgets to spend, challenge traditional broadcasters. **In the UK, investment in high-end television content increased by 20 per cent between 2014 and 2015**. In music, some streaming services seek to differentiate through scale, others through playback quality (e.g. Tidal), all of which are ultimately valuable to consumers.

With more access to high quality content consumers are committing more time to creative content. Indeed, in recent years the average amount of time spent online has increased significantly (in the UK for example, **from 10.1 hours in 2005 to 20.4 hours in 2014**) and much of this is explained by people’s increasing consumption of creative material. Viewers in the UK spent **16 per cent more time watching AV content** in 2016 than 2010, whilst growth in demand for games is demonstrated by the **49 million EU citizens that played games on smartphones in 2016**, including many non-traditional gamers.

Although growth in revenue and employment in the creative sector as a result of this increasing demand has been modest, there has been a shift in emphasis towards creators (away from intermediaries). In games for example **developers’ revenues grew 375 per cent** from 2008 to 2015 with **growth in revenue share from 6 per cent to 16 per cent**. While in the UK, **television producer revenues increased at an annual rate of 6 per cent, outperforming the market as a whole** – as they have taken a larger share of total revenues.

Conclusion and Outlook

The internet has driven material changes to all the creative industries reviewed in this report. Content creators now have access to an open, decentralised medium on which to distribute their creative products, directly to consumers or through new types of intermediaries. These intermediaries compete both for the attention of consumers – who can and do use more than one service to access the same type of content – and for content creators and publishers to make their content available on their platform. Although some of these new intermediaries are large, none of them has a captive audience: they do not control the network, so they focus on creating content themselves (e.g. Netflix, Amazon, Steam) to help make their platform attractive. To do so, they compete on price, reducing the margins between what consumers pay and what creators get. They also offer essential features, notably quality filtering and curation, which are essential in a world where so much content is available.

With better access to audiences, and potentially a greater share of consumer spending flowing back to them, creators and publishers are investing more in content than ever before. This investment has led to more games, TV shows and books being published, as well as increasing production values, which drive up quality. But it has also allowed niche projects to thrive, which the internet's global audience makes financially viable, in a way that traditional intermediaries could not.

The speed of transformation is likely to be different for each industry, depending on where it is in the digitalization process. In TV, video and film, as well as games, behaviours driven by demographic cohorts will propagate over time, potentially faster than many analysts expect, driven by a broader availability of smart devices such as tablets² and smart TVs³. In the music sector, which is further along the digitalization process than many of the other sectors, streaming and live music are expected to continue growing as a share of the total market, with more people getting used to paying for comprehensive subscription services and live events. Conversely in the book publishing industry, the disruption of digitalization appears to have slowed, with print sales remaining robust. eBook consumption will probably continue to grow slowly, with consumption primarily on mobile phones and tablets. In the cultural and heritage industry, digital products and experiences have been entirely additive, and we expect the benefits to continue as the use of digital technologies expands and new applications are developed; consumers will be treated to a growing richness and availability of culture.

The new means of sharing and experiencing creative content appear to be on the brink of being ready for mass market: AR/VR are already available, albeit in simplified forms or at a fairly high price point, and technical improvements such as artificial intelligence, could have a transformative impact on aspects as varied as the effectiveness of recommendations and even the creative process.

It is clear that some in the value chain have experienced difficulties because of digitalization, particularly physical intermediaries who have been unable to adapt and compete with more efficient, effective and attractive internet-based platforms. On the whole however, the outlook for creativity and the creative sector is bright: consumers continue to value and spend on creative products and experiences, and creators are able to get a greater share of these consumers' money. This in turn expands the horizon for more creation, including niche products that would never find an audience or the required funding without the internet.

2 E-marketer predicts that total number of tablets in the EU will reach 191.6 million by 2020, eMarketer 2015, <https://www.emarketer.com/Article/Growth-Trails-Off-Western-Europe-Tablet-Market/1013785>

3 IHS predicts Germany and the UK will reach 53 per cent penetration for smart TV in 2019, followed by France at 50 per cent, "Smart TV adoption in developed markets to grow – study", *Telecompaper*, 2016

The internet and digitalization have had a significant impact on the European creative industries

1 Introduction

This report examines the ways in which the internet and digitalization have impacted the creative sector throughout Europe. It sets out the high-level trends for revenue and employment in Europe's creative industries and considers the impact of digital developments in helping to create new opportunities within these sectors. It also explores how they have challenged the traditional value chains by enabling new ways of working.

This report has been produced by Oliver & Ohlbaum Associates (O&O) and Analysys Mason. O&O is one of Europe's leading independent policy and strategy advisors to the media and entertainment industry, where it has unrivalled knowledge and expertise. O&O's clients include leaders in digital media, digital streaming services and several European television stations. Analysys Mason is an international consultancy renowned for its expertise, independence and rigour in the Telecoms, Media and Technology sectors. Its portfolio includes multiple projects on the long-term evolution of TV distribution platforms and work for regulators on the use of data in the media and online publishing sectors.

1.1 Background

O&O and Analysys Mason carried out a detailed review of existing research on the impact of the internet and digitalization both generally and with specific emphasis on the creative sector. A substantial body of research exists, and we have included an overview of the findings in Appendix 1. Google commissioned previous reports from PwC on the creative sector and digitalization, in 2013 and 2015.

The current report seeks to build on the previous findings, reflecting the most recent trends in internet use, such as the increasing importance of mobile. To provide accessible illustrations of the impact of the internet on the creative sector, we have included case studies and supported our knowledge using interviews with a range of organisations, from large companies to smaller start-ups.

In general, existing research concludes that the internet has had a positive effect on the creative sector. While there are inevitably examples of disruption to existing traditional business models and instances of 'creative destruction'⁴, there are many more examples of 'creative opportunity'. In some cases, where jobs have been lost due to efficiency, there is evidence that new jobs have been created in other parts of the value chain. Overall, the internet contributes significantly to the European economy; BCG estimated that the internet would support economic activity worth 5.7 per cent of GDP in the EU27 in 2016, worth \$1,133 billion (€1,021 billion)⁵. Digital technologies are an increasingly integral part of the creative sector, supporting €13.9 billion (\$15.4 billion) in sales in Europe⁶. While the internet has significantly challenged some elements of traditional creative industries, such as physical recorded music, this can be countered by evidence that it has had a positive effect elsewhere.

1.2 Scope

We have undertaken a detailed assessment of the impact of the internet on the creative sector in Europe, examining how existing players are adapting to change, and how newcomers have seized digital opportunities. The picture is, of course, mixed, and we have sought to explore the areas facing the most challenge as well as those who are benefitting. Our report also considers the challenges in defining and measuring the creative industries, including compiling comparable data for all industries in all markets. We consider the impact on revenue and employment quantitatively at a pan-European level, before taking an industry-by-industry approach, which also touches on wider benefits including: the explosion of consumer choice, individual fulfilment, indirect impact on other sectors, and the wider benefits to society.

⁴ See for example Clayton Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, 1997

⁵ BCG, *Internet Economy in the G20*, 2012

⁶ EY, *Cultural Times: The First Global Map of Cultural and Creative Industries*, 2015

Our industry-by-industry discussion focuses on nine key EU Member States, selected to cover the vast majority of European creative sector output while also providing a range of industry specialisms. Our focus markets are: Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and the UK.

Our focus industries are:

- TV, film and video
- Music
- Books
- Video games
- Cultural institutions

The first four industries are the most prominent ‘copyright-led’ industries, and have experienced various degrees of digitalization, which has been transformative for most of them. In addition, we have considered cultural institutions, which, though often not for profit, have embraced the opportunities of digitalization in recent years. This scope enables us to provide a clear view of the high-level trends in the European creative sector, while focusing our attention on the largest industries and areas which have seen the most interesting challenges and opportunities in recent years. The industry specific parts of our report follow a largely narrative driven approach – supported by case studies and interview findings – allowing us to overcome some of the challenges in assembling consistent data across all markets and industries.

1.3 Methodology

We took a multi-pronged approach to this report, combining available research with our own expertise, and supplementing this with targeted interviews, to present clear examples of where the impact of the internet has been most significant. The key approaches used are detailed below.

- **Literature review:** we identified existing research in four relevant areas: the impact of the internet in general, the impact of the internet on the creative sector in general, the impact of the internet on specific creative industries, and the performance of the creative sector in general. Through our review we developed a well-informed overview of key issues impacting on the sector, and the challenges in defining and measuring it
- **Data gathering:** our literature review allowed us to draw out important data points from a wide range of sources and identify the most suitable data to help us understand the overall trends in the sector. Our quantitative analysis is, of course, restricted by the available comparable data, and so we use country specific examples in some cases to illustrate our points. When converting currencies to euros, we have used the average 2015 exchange rate – in the case of PwC’s revenue data, which originates in US dollars, we converted based on OandA’s exchange rate of 0.901
- **Interviews:** we conducted interviews with representatives from 15 organisations involved in the creative sector. We selected interviewees to provide coverage of our five focus industries, as well as our nine focus markets. Within each industry, we also sought to interview individuals or companies at different stages of the value chain, including both traditional industry participants and new entrants
- **Case studies:** based in part on our interviews, we developed case studies examining the impact of the internet on specific parts of the industry and the opportunities that have arisen for start-ups and traditional players alike
- **Desk research and in-house knowledge:** desk research was used to develop further our understanding of each of the industries and to test and corroborate our interview findings. We also have significant in-house knowledge of the industries in question, given that we work in the creative sector and have produced reports on the European creative industries in the past

This combination of complementary approaches ensured that we focused our attentions on the areas that matter, including the largest markets and industries and the activities on which the impact of the internet has been most profound.

The European
creative industries
grew in terms of
both revenue
and employment
between 2011
and 2015

2 The creative industries

The creative sector has been the subject of a growing body of research in recent years, inspired by its increasing economic contribution and cultural significance in a globalised world. In this part, we set out our definition of the creative sector for the purposes of this report, along with the recent trends in revenues and employment, to provide the context for our subsequent examination of how the internet has driven change in the creative sector.

2.1 Our definition of the creative industries

Due to the challenges in defining and measuring the creative sector, particularly when attempting to conduct comparative analysis across European markets, we need flexibility. For the purposes of this report, we have adopted the Department for Culture, Media and Sport (UK)'s (DCMS) definition, and consider the creative sector to include:

“Those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property”

Over time the DCMS has been flexible about which industries meet its criteria. In this report, we require similar flexibility in its application, to account for the availability of data and facilitate comparative European analysis, as far as possible. As such, our definition of the creative sector varies slightly when looking at pan-European trends in revenue and employment, compared to when we present more detail for our focus industries, later in the report.

Details on the challenges associated with defining and measuring the creative sector, and the specifics included in our definitions, are included in Appendix 2.

2.1.1 Four core creative industries and cultural institutions

We have focused our analysis on four core copyright-led industries, which tend to be considered the most important by existing research on the European creative sector – these are set out in the table below. In addition, we have covered the impact of the internet on the cultural and heritage industry; it is distinct from the other industries in that it tends to be not for profit, though it has, nevertheless, undergone significant change because of the internet.

Figure 2.1: Our focus industries

Industry	Description
Four traditional copyright led industries	
TV, film and video	All activities relating to TV and film production through to distribution. We have expanded the definition to include short-form video/UGC. This latter is an entirely new area of activity enabled by the internet.
Music	All activities relating to music production and distribution, covering both recorded music (physical and digital) and live. Revenues exclude radio since we cannot distinguish between speech and music radio; employment includes radio since most stations play music and thus the vast majority or radio employees will work with music to some extent.
Books	Book publishing includes activities relating to print, digital and audio as well as the trend towards enhanced reading experiences such as: VR and AR content to accompany a text.
Video games	Activities relating to both traditional and mobile gaming. We have also considered the likely impact of emerging technologies, such as VR and AR, on the gaming sector.
Additional area of interest	
Cultural institutions	These include libraries, museums, galleries, and archives, as well as performing arts institutions such as ballet, opera and orchestral music.

We examine these industries in detail in Parts 4 to 8, drawing on relevant examples from across a range of markets.

2.1.2 Our definition depends on available data

In examining trends in creative sector revenues and employment for the EU28, we are constrained by the available data, meaning that the definition of the creative sector which we apply when considering creative sector revenues differs from that used when considering creative sector employment. Nevertheless, our sources provide a consistent view of how revenue and employment in the creative sector have evolved over time, using what we believe to be the best available data. Details are included in Appendix 2.

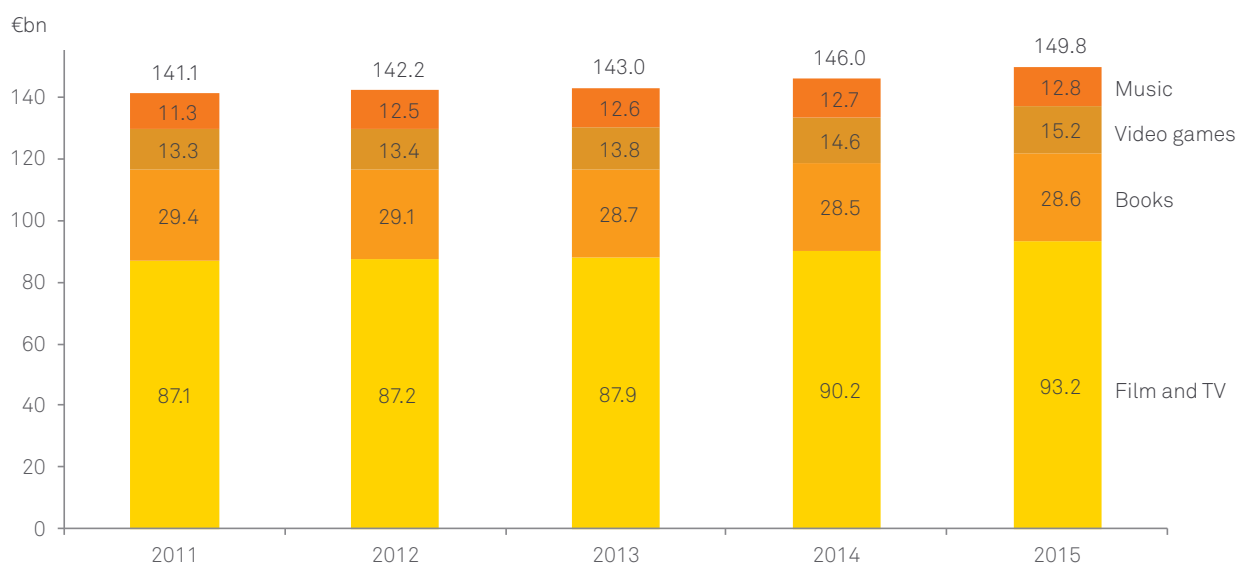
2.2 Historic performance of the European creative industries

For the four core creative industries, total revenues and employment both increased between 2011 and 2015. While this varies industry by industry, the overall picture is a strong indicator of the health of the sector, and evidence that following some initial challenges in adapting to digitalization, the creative industries are beginning to adapt and take advantage of new digital opportunities.

2.2.1 Creative sector revenues are increasing

Based on the definition set out in the previous section, total revenue generated by the core European creative industries increased between 2011 and 2015, growing at an average rate of 1.5 per cent per year⁷. Revenues grew every year over that period, with the annual growth rate reaching 2.6 per cent in 2015. Since the majority of cultural and heritage institutions are not for profit, revenue is not a meaningful indicator of the health of the sector – we have therefore focused on the revenue trends for TV, film and video, book publishing, music, and games publishing. **Figure 2.2** shows that while there was some decline in revenues generated by the four core creative industries, between 2011 and 2013, there has been a return to growth in recent years.

Figure 2.2: Creative sector revenue by industry, EU28, 2011 to 2015



Note: Estimates have been used for some smaller markets and industry sub-categories where data are not available. Music excludes radio since speech and music radio cannot be separated. Data from several sources are used in this chart; PwC data are reported separately in Appendix 5
 Source: PwC 'Global Entertainment and Media Outlook 2016-2020'; IFPI, Oliver & Ohlbaum estimates and analysis

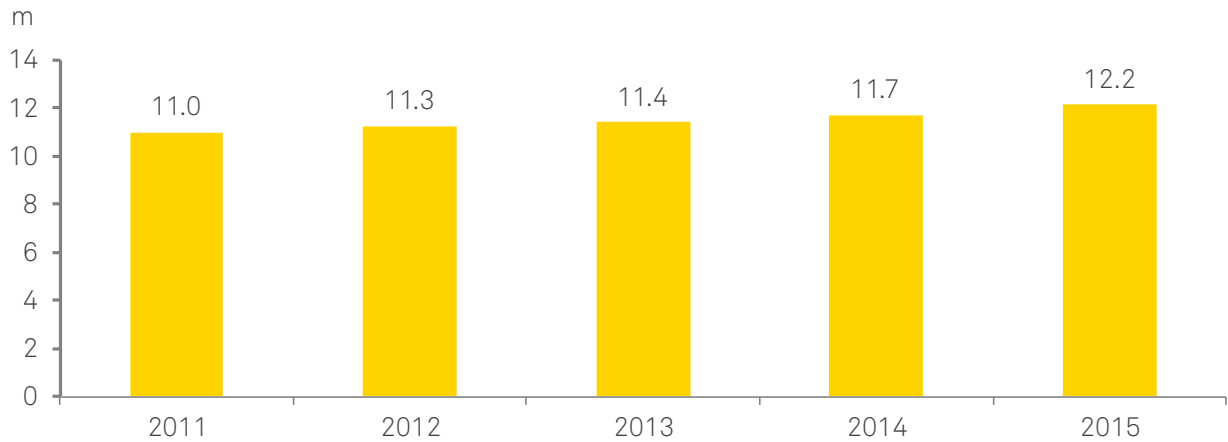
Since 2013, film and television, music, and gaming have all seen revenues increase, while book publishing revenues have been broadly flat (with a slight decline of 0.3 per cent per year). The games publishing sector has experienced the strongest growth in revenues, increasing by 4.9 per cent per year since 2013, driven by the emergence of mobile as well as strong growth in traditional PC and console games revenues.

2.2.2 Creative sector employment is growing

Based on Eurostat's LFS data and Nesta's work to define the creative industries, employment in the creative sector increased each year from 2011 to 2015. **Figure 2.3** shows that creative sector employment increased at an annual rate of 2.5 per cent over the period, reaching 12.2 million in 2015. This includes a large number of jobs which sit outside of our more focused definition of the creative sector, including those in occupations such as advertising and photographic activities, as well as less overtly creative occupations, which nevertheless meet Nesta's criteria – these include public relations and translation activities.

⁷ This is the nominal growth rate, but inflation has been remarkably low over the period in question – around 1.5 per cent on average and closer to zero in 2015.

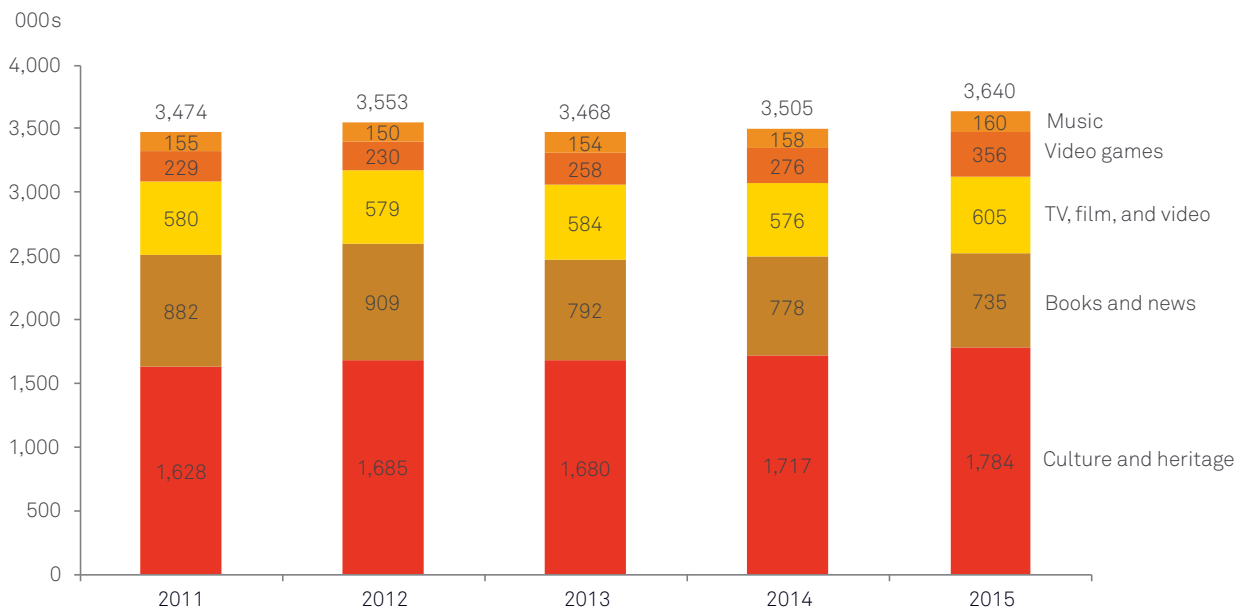
Figure 2.3: Total creative sector employment, EU28, 2011 to 2015



Source: Eurostat, Nesta, Oliver & Ohlbaum analysis

Taking a more focused approach and grouping the most relevant three-digit NACE codes used by Nesta, to best fit our focus areas, we can develop a high-level view of employment in the five industries we are focused on – our groupings are set out in Appendix 2. **Figure 2.4** shows that employment increased in four of the five focus industries between 2011 and 2015; as for revenues, the exceptions to the growth story are the books and news publishing sectors which have been challenged by decline in print media – and are grouped together in the Figure below. Across the five focus industries, creative sector employment increased at an annual rate of 3.2 per cent between 2011 and 2015. The most positive story is in the gaming industry, where employment increased at an average rate of 11.7 per cent per year.

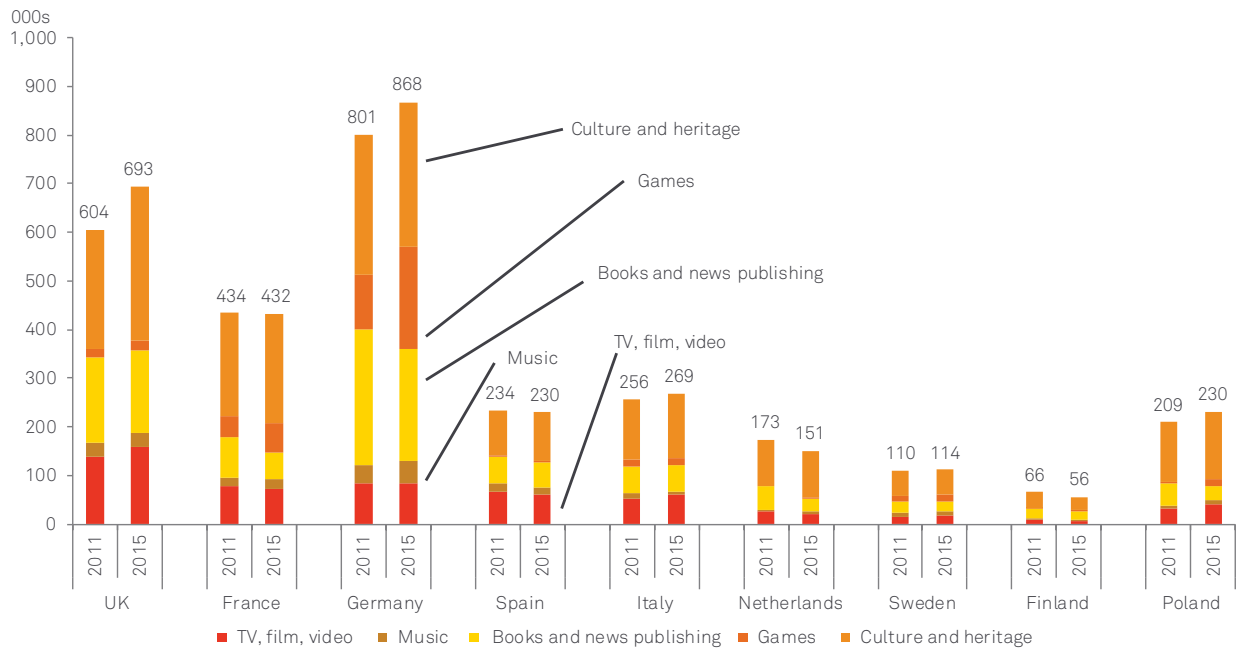
Figure 2.4: Creative sector employment in our focus industries, EU28, 2011 to 2015



Note: The available data do not allow us to distinguish between employment in books and news publishing
 Source: Eurostat, Nesta, Oliver & Ohlbaum analysis

Of course, the story varies by market, both in terms of the overall change in creative sector employment and within specific industries. **Figure 2.5** compares creative employment in 2011 with 2015 in our nine focus markets; five of the nine have seen an expansion in employment, with the UK, Germany, and Poland experiencing particularly strong growth. At an industry level, the story is, again, varied; some countries have experienced steady growth in well-established industries – such as the UK TV and film industry and the German music industry – while others have expanded rapidly from relatively low starting points – such as the games industries in Germany, Spain and Poland. The books and news publishing industries (presented here combined) are the main outliers as industries which have suffered, in terms of employment, in our nine focus markets.

Figure 2.5: Creative sector employment, by industry, by market, 2011 and 2015



Source: Eurostat, Nesta, Oliver & Ohlbaum analysis

In the next part we explore how the internet has enabled changes in the creative sector and the broader impacts it has had, before considering the impacts on our specific focus industries in more detail.

The internet has
given more people
more access to
creative content

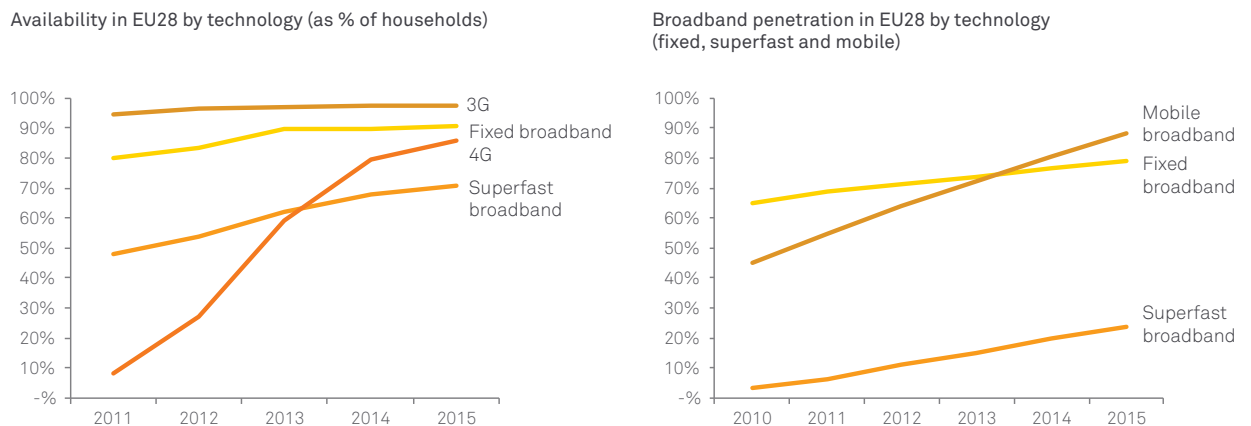
3 The internet as an enabler of the creative sector

The internet is now a firm fixture in the lives of hundreds of millions of people in Europe. It is now a vital tool for individuals and businesses, making daily activities easier, faster and cheaper. For the creative sector, the internet is rapidly becoming a major channel through which to reach consumers and distribute content.

Several characteristics of the internet act as an enabler of the creative sector. Both consumers and businesses have access to ever increasing speeds, which enable richer content to be delivered over the internet. As of 2015, 79 per cent of households in the EU were connected to the internet via broadband, an increase of 30 million households over five years⁸. For superfast broadband (speeds over 30Mbit/s), the increase has been even greater, from 48 per cent of households in 2011 to 71 per cent in 2015.

In parallel, mobile broadband coverage has extended to nearly all Europeans (98 per cent of the population), with 4G LTE covering 86 per cent of the EU28 population by the end of 2015. As of 2015 there were twice as many mobile broadband connections as in 2010, corresponding to 88 per cent of the population of the EU28, more than 450 million connections⁹. This is shown in **Figure 3.1**.

Figure 3.1: Availability and broadband penetration in EU28 by technology, 2011 to 2015



Source: Analysis Mason based on data from European Commission and ITU, 2016

Several technological factors, including higher speeds and better quality of services, but also reduced technical barriers to creating content, improved encryption (protecting content and user details), and the development and take-up of high-specification connected devices, are all helping suppliers to offer creative content online and enabling consumption.

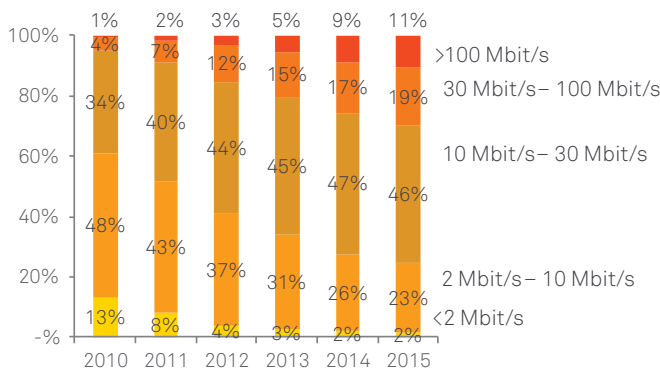
8 ITU, 2016

9 ITU, GSMA Intelligence, 2016

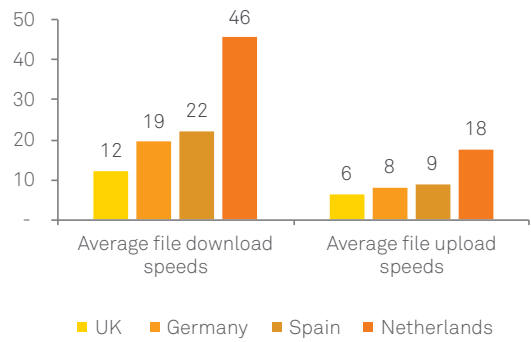
The widespread availability of high speeds is enabling the vast majority of Europeans to access rich content over the internet. At the end of 2015 over 75 per cent of EU households were buying services at advertised speeds in excess of 10Mbit/s, enabling the streaming of HD video content. On mobile networks, although quality varies significantly from one location to the next, testing by independent firm P3 suggested that more than 90 per cent of YouTube HD videos¹⁰ were played without any interruption across different geographical locations in the UK, Spain, Germany and Netherlands, demonstrating both high bandwidth and reliability. This is shown in **Figure 3.2** below. Further developments (including as yet undefined 5G mobile standards) will enable higher speeds and lower latencies, creating opportunities for new types of online creative experiences including VR and AR content.

Figure 3.2: Fixed broadband subscriptions by advertised speed in the EU28 and actual cellular mobile speeds in selected countries

Fixed broadband subscriptions by advertised speed in the EU28 (% of total fixed broadband subscriptions)



Actual mobile data speeds in small cities in 2015 by country, Mbit/s (as an average across all MNOs)



Note: For 2015 fixed broadband subscriptions a mid-year observation is used instead of year end data as this was the most recent data available at the time of writing

Source: Analysys Mason based on data from the European Commission, ITU, and P3 reports, 2015

A second important technological evolution includes the ease and rapidly falling cost of digital storage and computing power, thanks to cloud services in particular¹¹. For example, the distribution and storage costs faced by Netflix have scaled much slower than its revenues thanks to its extensive use of Amazon Web Services (AWS) for the provision of its video streaming services¹². This lower cost-base for distribution (less than 10 per cent of revenue in 2015) allows Netflix to invest more in content acquisition (nearly 70 per cent of revenue in 2015). Improvements in compression are also playing a role here¹³, as for example Ultra HD/4K video can be compressed to one sixth of the original size with no loss of quality.

In other places in this report we mention how firms in the various creative industries are combating piracy online. To a large extent, the digital rights management (DRM) that makes this possible also relies on technology, in particular strong encryption methods made possible by higher speed networks and more powerful devices. These devices, be they smartphones (over 77 per cent penetration in the EU28 in 2015), tablets (20 million of which had a cellular connection in 2015) or smart TVs (in over 30 per cent of EU28 households in 2015), are all increasingly ubiquitous, as shown in **Figure 3.3**. Smartphones in particular are now extremely powerful content consumption and creation devices, with high quality cameras for video and photos, as well as robust hardware able to digitally process and upload content over the internet seamlessly.

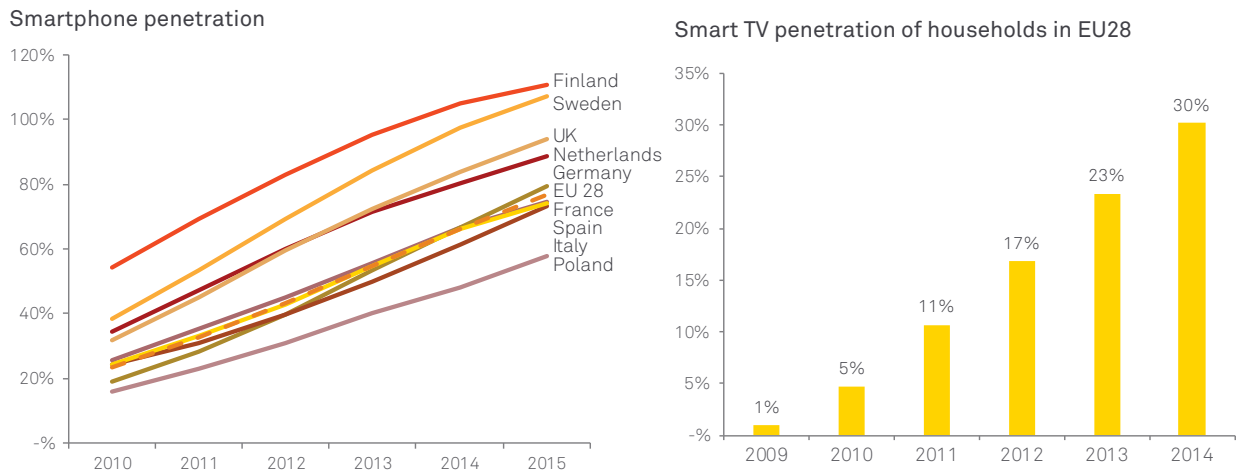
10 The HD test videos were of 720p resolution with a length of 30 seconds and total file size of 11.9MB

11 Cloud computing provides solutions for on-demand computing resources which are spread across multiple servers, storage facilities or processors, and which can be accessed over the internet.

12 Netflix uses both Amazon S3 storage services and Amazon EC2 virtual processing.

13 <http://www.bbc.co.uk/rd/blog/2016-01-h-dot-265-slash-hevc-vs-h-dot-264-slash-avc-50-percent-bit-rate-savings-verified>

Figure 3.3: Smartphone and smart TV penetration by market, 2010 to 2015

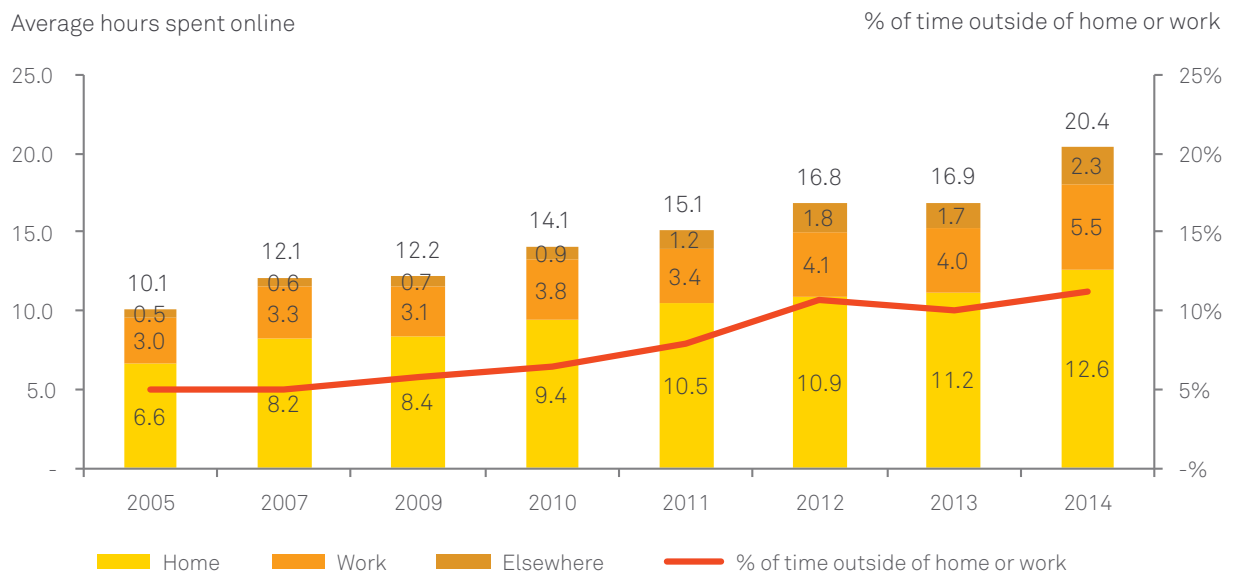


Note: The estimates are used for three smallest markets where no data are available, these are: Cyprus, Luxembourg, Malta

Source: European Audiovisual Observatory 2015, Analysys Mason, 2016

As a result, the **content consumption habits** of Europeans are changing. People are spending ever more time online, over 20 hours per week on average in the UK in 2014, double the amount in 2005. Increasingly this happens outside the home or place of work, as shown in **Figure 3.4**. These changes were enabled by increased smartphone penetration, higher 4G coverage and greater availability of wi-fi.

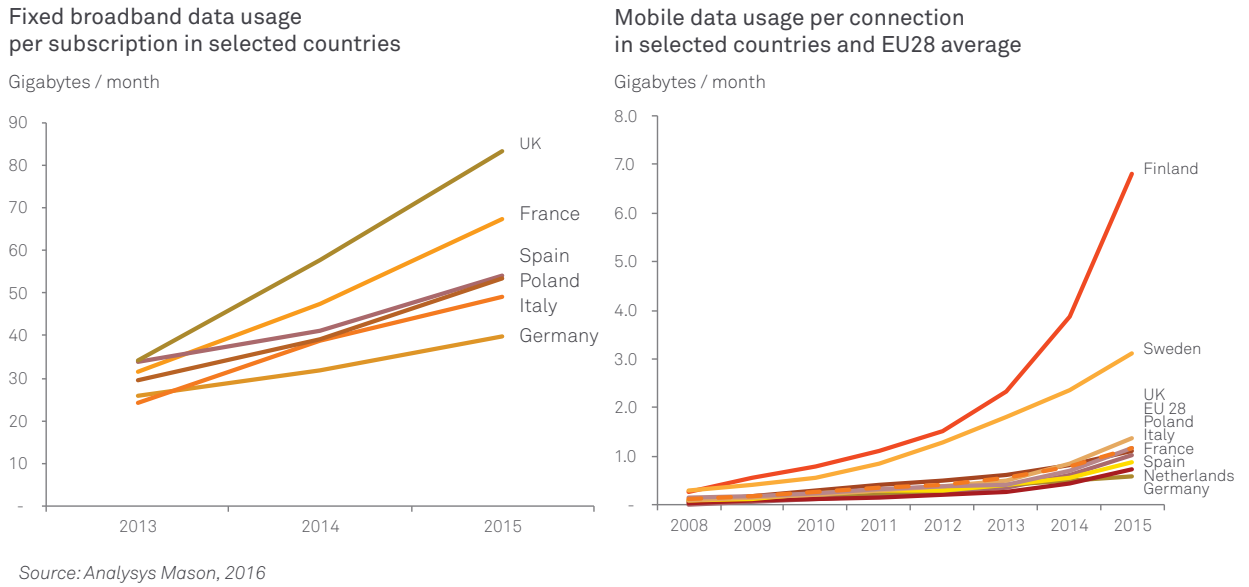
Figure 3.4: Hours spent online in a typical week by consumers in the UK, by location, 2005 to 2014



Source: Ofcom, 2015

Data consumption has grown apace as a result of increased coverage, better capacity on next generation fixed and mobile networks, and due to the richer content available to consumers. In 2015 in the UK, for example, data traffic reached 1000GB per year per fixed connection (typically one household), and over 10GB per month per mobile connection (typically one person), as shown in **Figure 3.5**.

Figure 3.5: Fixed broadband and mobile data usage per subscription in selected countries, 2013 to 2015

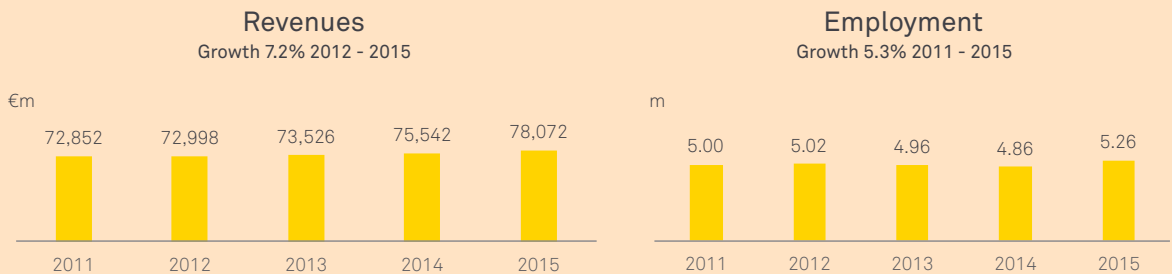


All these factors are creating a technological environment that is propitious to innovation.

The TV, film and video industry is experiencing a 'golden age' in terms of content availability and quality

4 TV, film and video

Overview of trends in revenue and employment



Note: Includes Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: Revenue – PwC 'Global Entertainment and Media Outlook 2016-2020'
 Employment – Eurostat LFS, Nesta, Oliver & Ohlbaum estimates and analysis

Characteristics of digital production and distribution

Reduced production and distribution costs

- In the UK, efficiency savings reduced the cost of PSB originated programming by 2.6 per cent between 2007 and 2013 (nominal)
- New possibilities in visual effects, along with lower costs, have enabled increased use in both TV and film

Reduced marginal distribution costs to almost zero, while removing international barriers

- Content can be served to online audiences without significant investment in broadcast technology
- Broadcasters and new AV services can reach international audiences at almost no extra cost

Increased competition has led to new business models

More television channels and AV services now compete for viewing time

- Across our focus markets, the number of nationwide TV channels increased by an average of 275 per cent between 2003 and 2013
- In 2015, our focus markets had an average of 125 on-demand AV services, with around half from traditional broadcasters

Content owners can access viewers directly, and no longer rely on distributors and platform owners

- Distributors' costs and profits account for around 34 per cent of industry revenues, with less than 45 per cent on content
- Online delivery is squeezing the share taken by distributors, enabling more money to be put into content

Competition has driven innovation, with internet delivered and closed-platform services providing new ways to access content

- In eight of the nine focus markets, the leading pay-TV platform now offers TV and film box sets on demand
- Online services such as Curzon, Realeyz, and FilmIN aggregate niche demand without incurring significant distribution costs
- Short form video offers an entirely new and additive content type, providing opportunities for new creators. YouTube's top ten earners made an estimated \$70.5 million (€63.5 million) in 2016 and have up to 50 million followers

There are benefits to consumers and content creators

More services means more choice for consumers and more diversity of content

- Viewers can access the content they want (both new and historic), when they want and on more devices than ever before
- In the UK, the number of cinema releases increased 36 per cent between 2011 and 2015, 33 per cent related to releases to fewer than 50 cinemas, with the remaining 3 per cent accounted for by films receiving a wider release
- Films receiving limited release, often with relatively low budgets, have benefited the most from reduced costs, in particular digital delivery saves cinemas around €10,000 for each reel of tape

Content quality has never been better

- Increased competition for viewing has driven investment in quality content – in the UK investment in 'high-end' TV originations increased by 20 per cent between 2014 and 2015

Creators have benefited from increased content consumption

- In the UK, consumers spent an average of 253 mins a day with AV content in 2016, compared to 212 mins in 2010
- 74 per cent of UK SVOD subscribers are also pay-TV customers, suggesting OTT offers complementary viewing
- In the UK, producer TV revenues increased by an average of 6 per cent per year between 2011 and 2015

In this part, we explore the impact of the internet and digitalization on the TV, film and video industries. While traditional producers and broadcasters continue to play an important role in the sector, the internet has led them to adjust their business models and approaches to content production. New entrants have disrupted the sector and created new types of content using new approaches to engage with viewers. As a result we are in what is widely considered to be a 'golden age' for AV content, with more choice than ever before – both in terms of the volume of output and the level of access – new and old, anytime, anywhere, on any device

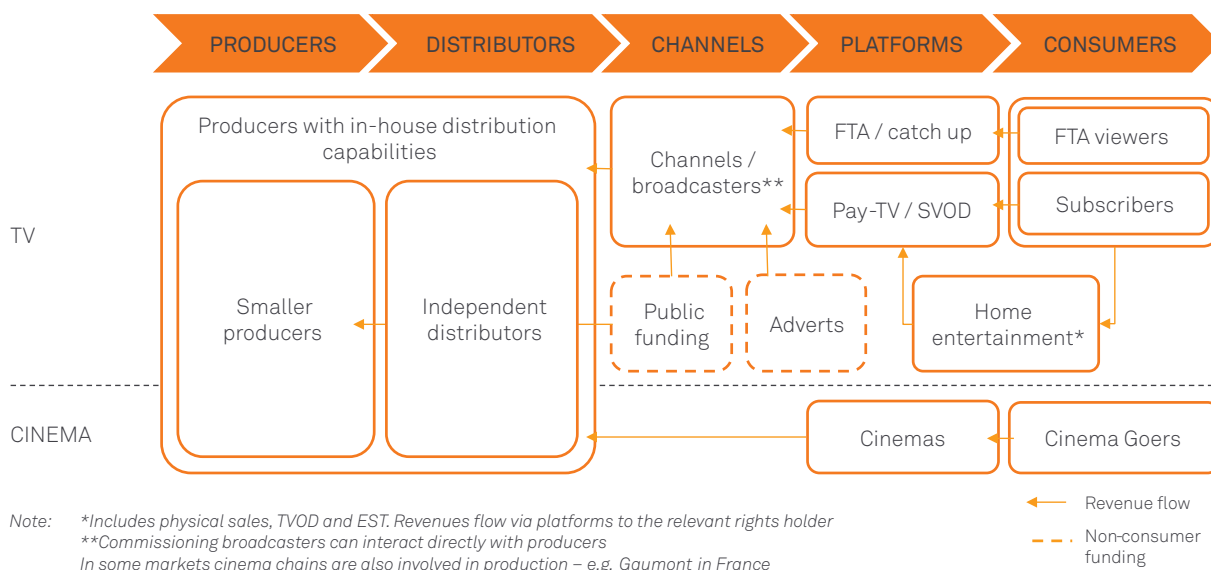
4.1 The structure of the sector and its evolution

In considering TV, film and video, we are interested in the traditional AV market as well as new AV services that have emerged as a result of the internet. Traditional players have benefited from new technologies throughout the value chain, from production to distribution. At the same time, new global powerhouses such as Netflix and Amazon have emerged as large-scale investors in, and distributors of, traditional-style content. The internet age has also seen short-form content emerge as an entirely new format, which is accessed and enjoyed daily by millions.

4.1.1 Content owners can now go direct to consumers

The specifics of the value chain in TV and film vary but they can broadly be characterised as shown in **Figure 4.1**. Funding flows from consumers, advertisers, and public bodies (e.g. licence fees), via platforms or cinemas, and broadcasters, to distributors and producers (which are often integrated). The inter-relationships between different levels of the value chain can vary; in television for example, some traditional organisations are vertically integrated to combine broadcast, distribution and production – this is often the case with PSBs. Similarly, many pay platforms also operate channels businesses, though under the traditional value chain, platforms were rarely integrated right through to production. Digitalization has changed this by providing space for more channels and increasing competition in distribution.

Figure 4.1: The value chain for television, film, and video



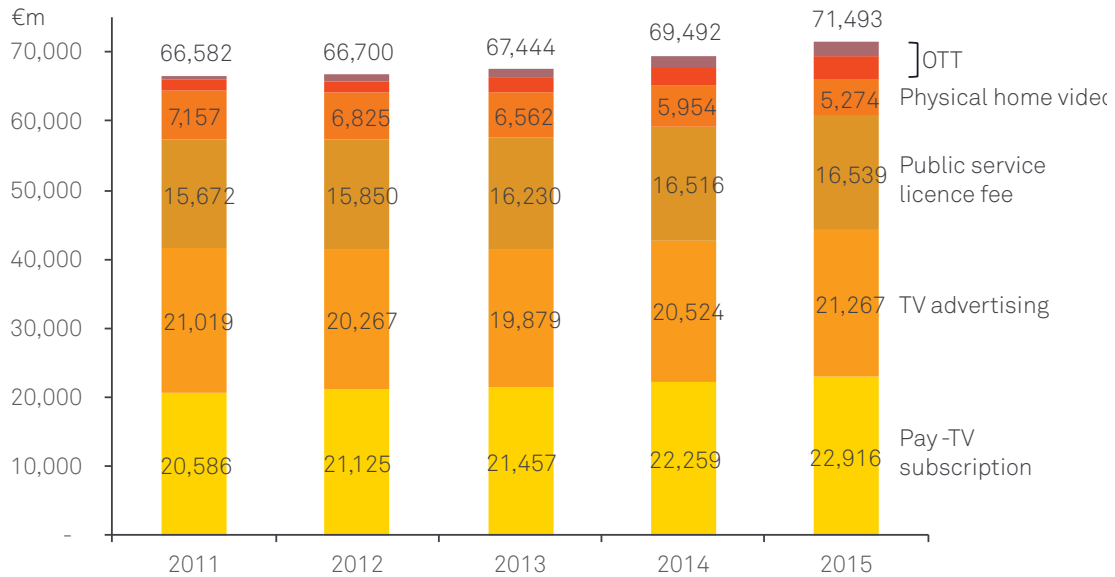
The internet has made it possible for content owners to go direct to consumers, without the need for traditional platforms. Although platforms have retained an important role in delivering content to consumers, most broadcasters also offer their content via online players; these services carry catch-up, on-demand and, increasingly, online-only content. The traditional players have also been joined by new content owners, without the traditional broadcast infrastructure – these ‘over the top’ (OTT) services, along with broadcaster-owned online services have changed the roles of traditional platforms, many of which now act as aggregators for online services as well as providers of traditional linear broadcast services. These changes have partially been enabled by breakthroughs in digital technology to prevent piracy, in particular, digital rights management (DRM) software which prevents the illegal sharing of AV content.

4.1.2 Revenues have increased in recent years

Television revenues in our nine focus markets have enjoyed strong and steady growth in recent years, with total revenues increasing at an average annual growth rate of 1.8 per cent since 2011, and around 3 per cent in 2015. **Figure 4.2** shows that, in our nine markets, all sources of revenue, with the exception of physical home video, increased between 2011 and 2015. Television advertising has performed reasonably well despite pressure due to a steady transition away from ad-supported services towards pay-TV (largely pay-lite)¹⁴ and increased uptake of SVOD services (though these are largely complementary to traditional TV). Nevertheless, television advertising has recovered from the global economic downturn in 2008 and grew at an annual rate of 0.3 per cent between 2011 and 2015 in our nine focus markets, reaching growth of 3.6 per cent in 2015. Pay-TV enjoyed strong growth over the period, while OTT services are an entirely new source of revenue – enabled by the internet – which, although small, is growing rapidly.

14 ‘Pay-lite’ refers to entry level pay-TV packages which are often offered at low cost by broadband providers – their attractive pricing is helping drive an increase in pay-TV penetration.

Figure 4.2: TV sector revenue by type, nine European markets, 2011 to 2015

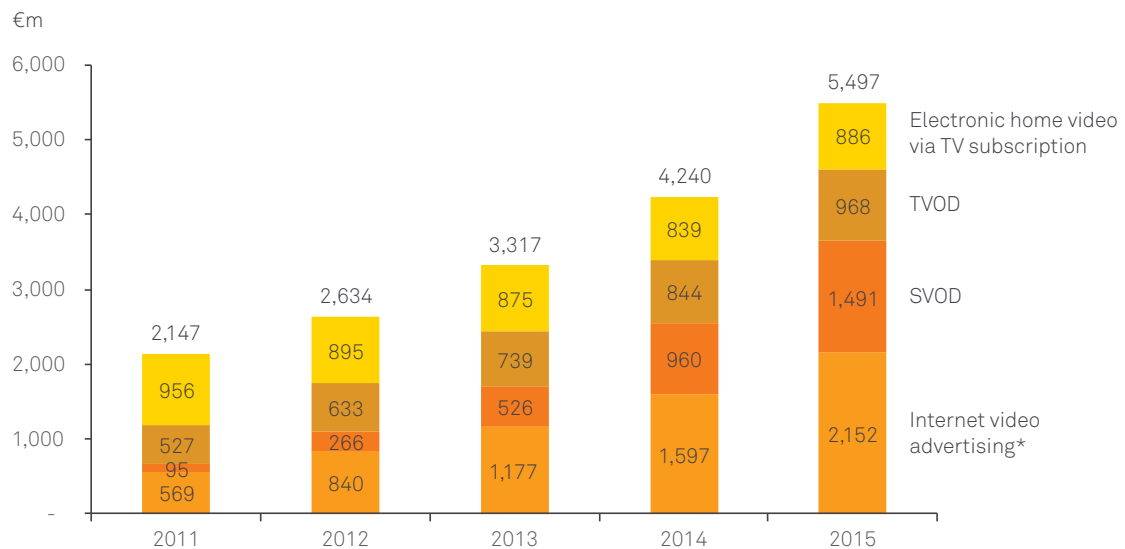


Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: PwC 'Global Entertainment and Media Outlook 2016--2020'

As we saw in the previous section, the internet has enabled the launch of a broad range of OTT services, which has changed the TV, film, and video value chain. While these services have provided more options for consumers, the vast majority of the TV industry's revenue still comes from traditional sources, with OTT services accounting for just 7.7 per cent of total industry revenues in 2015 in our focus markets.

Figure 4.3 shows the breakdown of revenues generated by internet based services. Internet video advertising (which includes, for example, YouTube), is the single largest contributor, followed by SVOD. We expect to see revenue from SVOD services grow rapidly, following the global expansion of Netflix and Amazon's Prime Video, both of which face at least one established local competitor in most markets – which is helping to drive acceptance of SVOD services amongst consumers.

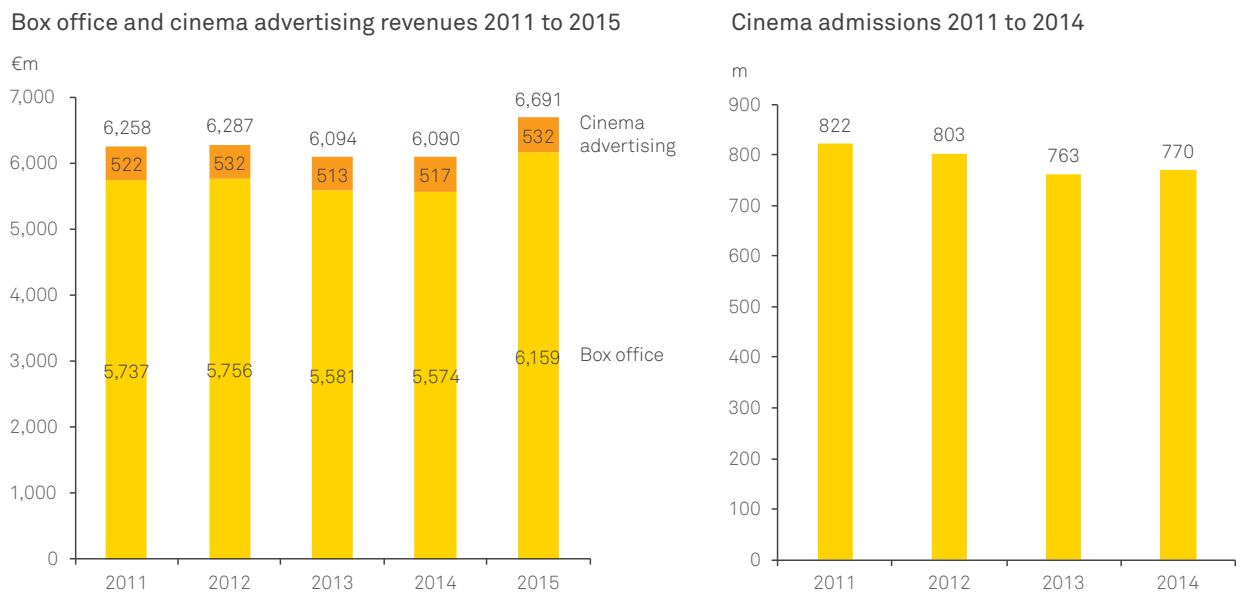
Figure 4.3: On-demand consumer revenues, for nine European markets, 2011 to 2015



Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 *includes revenue from both traditional broadcasters and internet-based websites, including YouTube
 Source: PwC 'Global Entertainment and Media Outlook 2016-2020'

The TV value chain and associated revenues, set out above, capture income from film in each of the TV windows (pay and FTA being the traditional windows, with SVOD now providing a further opportunity to access film content, typically – but not always – after initial pay-TV availability) and via home entertainment media, but do not reflect revenues generated at the box office. **Figure 4.4** shows how European box office takings evolved between 2011 and 2015; revenues have been broadly stable in recent years, but there was strong growth in 2015, driven in part by increased admissions (though 2015 admissions data are not yet available). While admissions declined between 2011 and 2013, this expectation of robust performance in 2015 indicates that recent technological developments, such as larger TVs and increased availability of films at home, has not had a long-term impact on theatrical releases.

Figure 4.4: European box office takings and cinema admissions, for nine European markets, 2011 to 2014/15



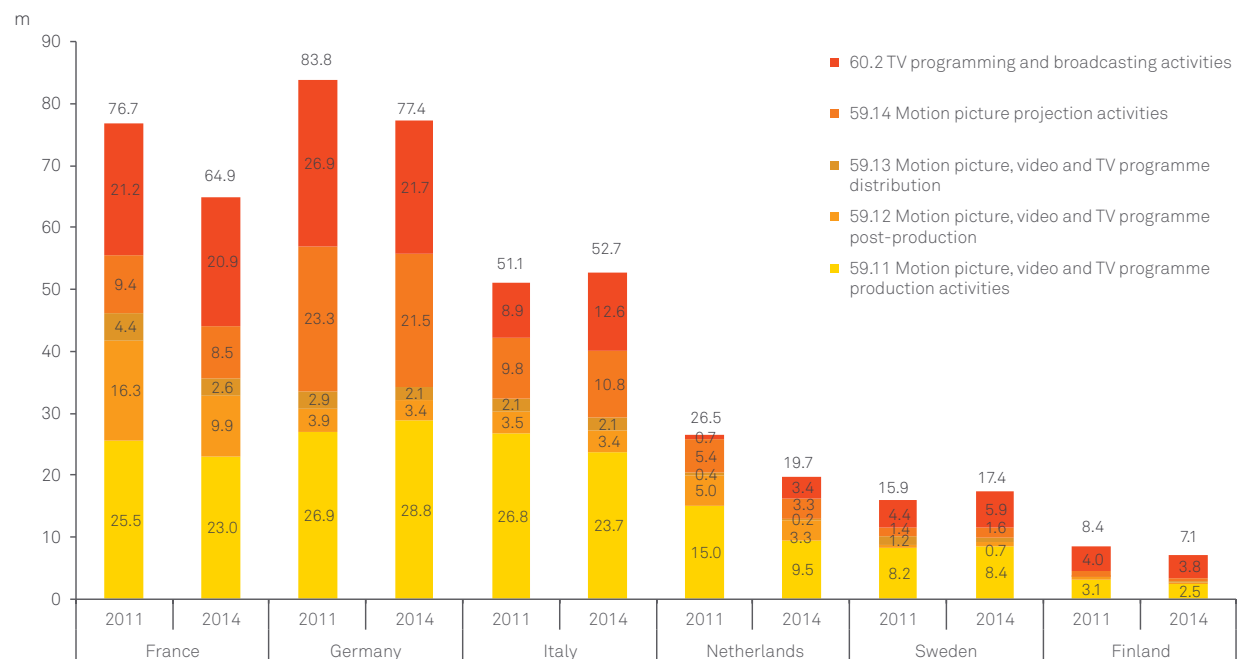
Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: Revenues – PwC 'Global Entertainment and Media Outlook: 2016-2020'
 Admissions – OBS

In addition to TV and film content, short-form video is now well established as an AV content category. This is a relatively new area, existing entirely because of the internet, and so short-form content activities are not yet fully captured in traditional revenue and employment figures. In any case, these activities are difficult to measure since individual creators can generate revenues from their bedroom, and are therefore more likely to be omitted from the LFS's employment data: those working full time as short-form content producers may report themselves as operating in the creative sector, but the EU LFS does not capture second jobs in sufficient detail, and will therefore fail to acknowledge a large number of creators who supplement their main income with advertising revenue from short-form content.

4.1.3 Changes in employment in TV, film and video vary by market

The Eurostat data on employment combines those involved in TV and film. We saw in Part 2 that total European employment in TV, film and video increased at an annual rate of 1.0 per cent between 2011 and 2015. Considering how this growth in employment is distributed between different occupations is difficult because of the lack of available data. We are, however, able to produce estimates for 2011 and 2014 for some markets. **Figure 4.5** breaks the employment data for TV and film down to four-digit NACE code level, and shows that the picture varies considerably by market and by industry sub-sector. The most significant changes were increases in employment in broadcasting in Italy, Netherlands and Sweden, while the French post-production sector and the Dutch production sector, both saw significant decreases in employment.

Figure 4.5: Employment in the TV, film and video sector, by market, 2011 and 2014



Source: Eurostat LFS, scaled using SBS NACE code split, Oliver & Ohlbaum analysis

As discussed in the previous section, industry employment data are unlikely to accurately capture the activity of creators on new video platforms such as YouTube and Daily Motion. These are important examples of the internet enabling creative employment in new areas which traditional measurement techniques are not able to capture – these data do not, therefore, provide a complete picture.

4.2 The impact of the internet on TV, film and video

We now turn to the specific impacts of the internet on TV, film and video, and explore them in more detail. We have identified four key areas of impact: increased access, the increase in competition and new business models, increased choice, and new AV experiences.

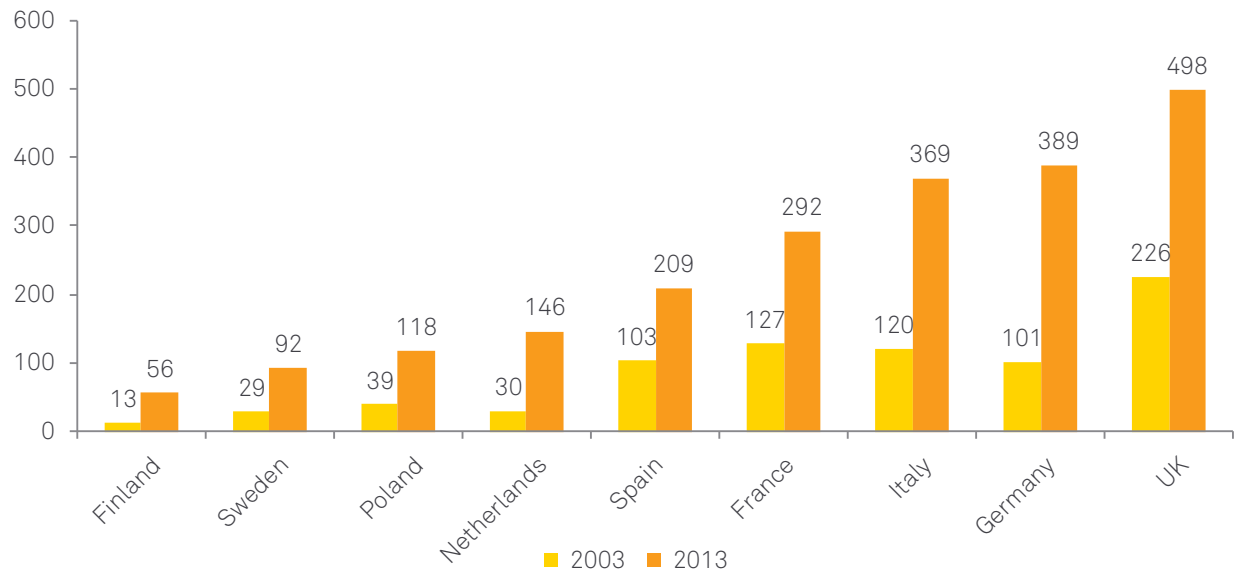
4.2.1 Increased access has changed viewing behaviour

Before digitalization, TV consumers in Europe tended to have access to only a small number of analogue services via their main TV set. Technology has revolutionised this. We saw in Part 3 that the availability of the internet and device penetration has given people access to content anytime, anywhere and on any device. In TV, service availability has also expanded providing more ways to access content, via more channels, increased access to recorded or catch-up content, and increased SVOD penetration. This explosion of access has led to significant changes in the way people consume content – and how they split their time between different types of AV content.

4.2.1.1 Consumers have access to more channels

Prior to digitalization, the number of available TV channels was restricted by the radio spectrum required for analogue broadcast. Digital transmissions are less prone to interference than analogue and so the channels can be positioned closer together in the spectrum. Compression technologies also mean that digital channels take up less space, making it possible to broadcast more channels on the available spectrum. Since 2000, most European countries transitioned from analogue to digital broadcast technologies and this was followed by an explosion in the number of available channels. **Figure 4.6** shows how the number of available nationwide channels changed between 2003 and 2013, either side of the digital switchover, in our nine focus markets.

Figure 4.6: Available nationwide channels, 2003 and 2013



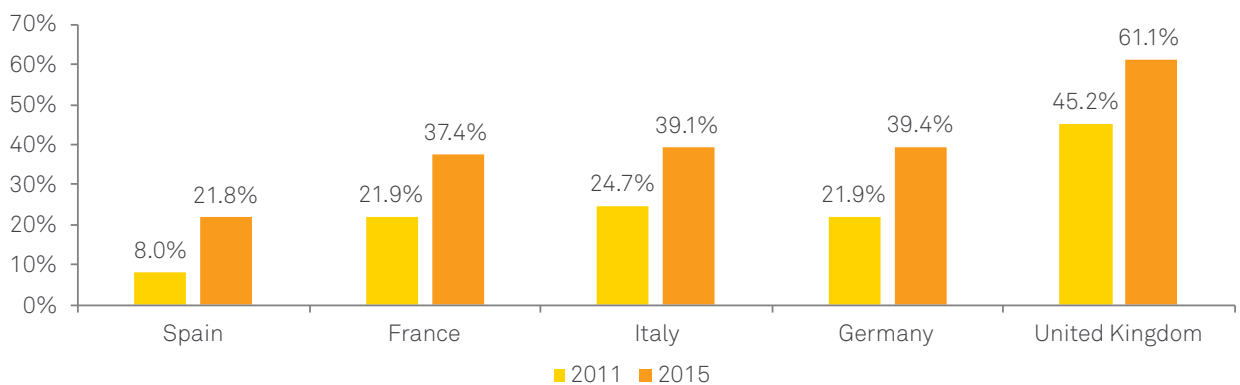
Source: OBS, Oliver & Ohlbaum analysis

Not only did digitalization facilitate the emergence of ‘multichannels’ (new channels often serving niche audiences), it also led to the arrival of spin-off and time-shifted channels, particularly from the leading public commercial broadcasters, as they sought to protect their viewing shares. Spin-off channels, such as ITV2 and E4 in the UK, give consumers access to original content while also providing an outlet for broadcasters’ archive material, to which consumers did not previously have access. Similarly, time-shifted channels have provided consumers with an additional opportunity to view broadcast content, meaning they are less likely to miss favourite programmes.

4.2.1.2 DVRs and connected TVs further enhance access to content

The availability of more channels has been complemented by digital video recorder (DVR) technology, which allows viewers to record their favourite programmes to view later. **Figure 4.7** shows that in recent years, DVR penetration has increased across Europe. In part this is due to the transition from VHS, but it is also facilitated by a reduction in price and the emergence of ‘pay-lite’ TV, whereby pay-TV service providers offer DVRs as part of their basic tier television package, which costs little more than their broadband subscription.

Figure 4.7: DVR installed base, percentage of households, 2011 and 2015



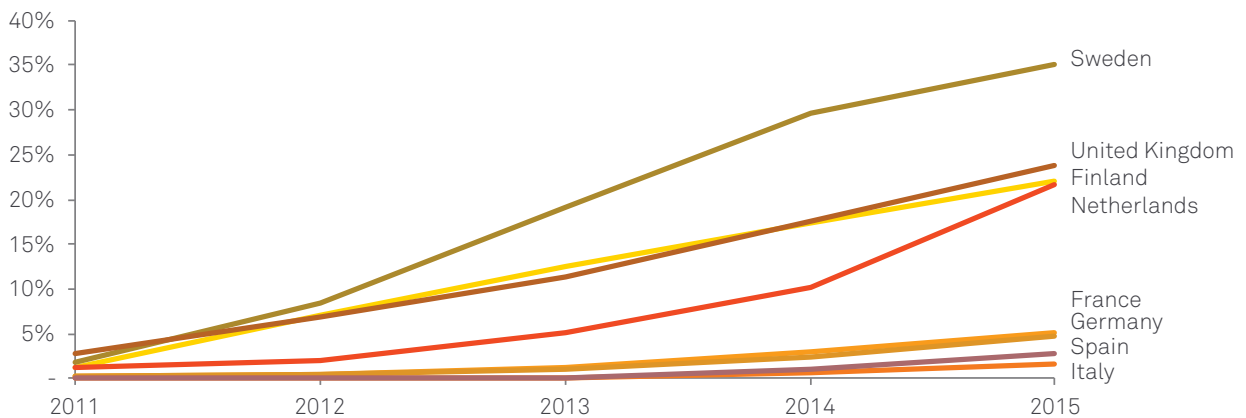
Source: OVUM, Oliver & Ohlbaum analysis

Increasing smart-TV penetration, as we saw in Figure 3.3, is also giving consumers more access to content via OTT services. While connected TVs and set-top boxes are substitutes for DVRs to some extent (there is no need to record programmes that can be accessed on-demand) both have given consumers more options as to how and when to watch TV programmes. The growing level of connectivity has given consumers access to large catalogues of both current and historic AV content. PSBs routinely provide access to their back catalogues, and pay-TV platforms offer box sets directly through their connected set-top boxes.

4.2.1.3 Increasing use of online video services further increases access to content

The most recent driver of increased access to content has been the emergence of OTT services. OTT encompasses a broad range of services distributed over the internet, which we consider in more detail in Section 4.2.2. Essentially, online distribution has given rise to new services from existing broadcasters and new players alike – with new entrants such as Netflix offering services directly to consumers’ smart TVs or set-top boxes, as well as new ways to receive content, such as via Apple TV and Amazon’s Fire TV Stick. This has given consumers more opportunities to access content broadcast on traditional television, whether on the main TV set or on other devices. SVOD services are the most recent development. **Figure 4.8** shows that there has been a rapid expansion in SVOD services across Europe since 2011 – these give consumers further options and allow people to access traditional TV-style content on the move.

Figure 4.8: Penetration of SVOD services, 2011 to 2015



Source: OVUM, Oliver & Ohlbaum analysis

User numbers for AVOD services are harder to measure, but there has been a steady increase in AVOD revenues since 2013. The UK is the most developed market in this regard, having seen annual revenue growth of around 48 per cent between 2013 and 2015 – totalling almost €1 billion in 2015, despite the most popular AVOD service (the BBC iPlayer) not generating advertising revenue. Other markets have seen similarly rapid growth, but from relatively low starting positions – the second largest market (of our nine) in terms of AVOD revenue generation in 2015 was Germany, at €365 million¹⁵.

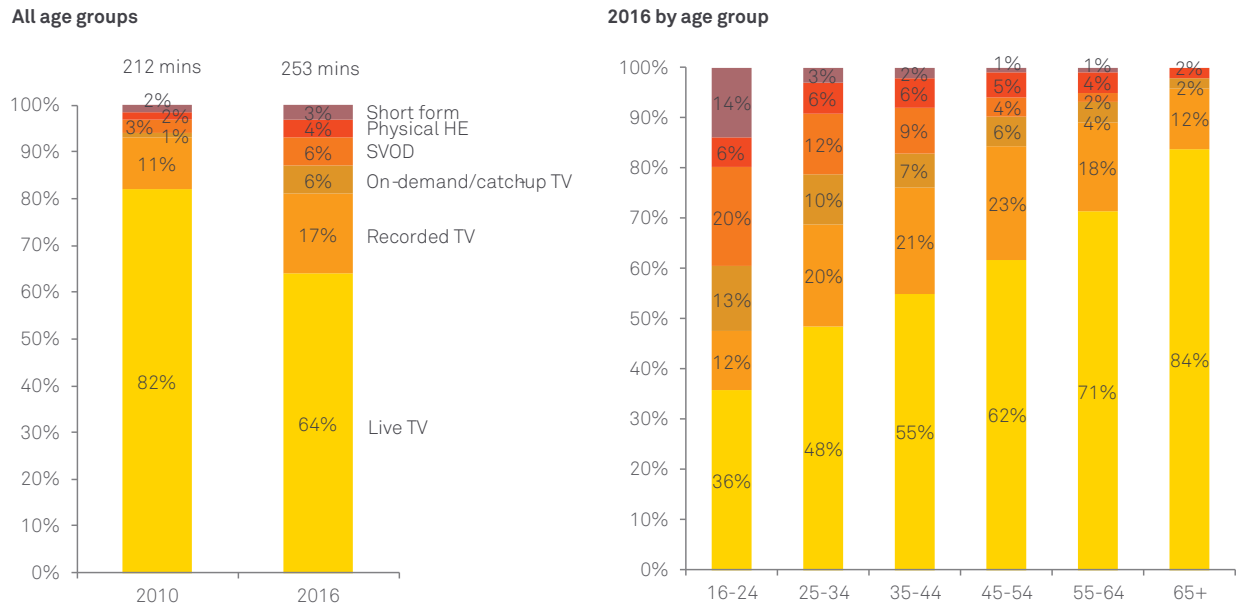
4.2.1.4 New access options have changed consumption habits

These changes to content access have resulted in significant adjustments to the way people watch AV content and the time they spend doing it. Research conducted by media regulator Ofcom, in the UK, tracked people’s ‘digital days’ to understand how the amount of time they commit to AV content is changing, and how the mix of services they use has evolved. It also noted some stark differences between age groups, with younger demographics more likely to take advantage of mobile access and short-form content than their older peers. **Figure 4.9** shows that not only has there been an expansion of new digital forms of AV content as a share of

¹⁵ Ovum, *World Television Information Service*, 2016

people’s overall daily AV content consumption, but the overall level of AV consumption has also increased considerably – on average people spent 253 mins a day with AV content in 2016, compared to 212 minutes in 2010.

Figure 4.9: Time spent with AV content



Source: Ofcom: Digital Day (2010, 2014), PSB annual report (2016), Oliver & Ohlbaum analysis

While linear viewing is in decline, it still makes up the majority of total viewing time. Traditional broadcasters have responded well to the challenges of the digital age, offering a wide range of online content and more channels than ever before.

4.2.2 More competition has led to innovation and new business models

Digitalization has reduced both production and distribution costs, providing opportunities to new and existing market participants alike – while offering consumers more content and more access to existing content. In this section, we explore the impact on the traditional value chain and the types of services and business models that have emerged.

4.2.2.1 Production efficiencies have reduced costs and barriers to entry

Digitalization has made television and film production cheaper and has increased the creative possibilities. In TV, examples include how single camera shooting has become the norm for some factual programming and, with restrictions on filming removed, it is possible to shoot much more footage and identify what works best in the editing room. In film, digitalization has brought new possibilities to visual effects and has enabled new approaches to collaborative working – since files can easily be shared and worked on from multiple locations simultaneously. It has also significantly reduced distribution costs for theatrical releases, enabling cinemas to take on films with less risk and thus increasing distribution, as we saw in the previous section.

In the UK, Ofcom recently published an O&O report which quantified the cost savings generated by PSBs between 2007 and 2013 as a result of changes to the input mix and production efficiencies¹⁶. The report examined the drivers of a recent reduction in PSB origination spending and found that savings in areas including the number of crew or filming days and technological impacts reduced costs by 2.6 per cent in nominal terms over the period – saving the five main PSB networks £59 million. Along with increased self-shooting in some genres and reduced editing time, the report found that the size of production teams and the number of filming days has reduced. These efficiencies are partly brought about by increased use of technology and the digitalization of production processes – which, seen in the context of increasing sector employment, have helped to enable more content production and greater focus on creative elements of the process.

New technologies have also enabled new approaches to film and video-making in areas from the filming itself to finance. The film *Tangerine* was shot entirely with three iPhone 5 smartphones. It premiered at the 2015 Sundance Film Festival before a limited cinema release via Magnolia Pictures. Other internet-enabled films include those financed via crowdfunding websites, often with backers from multiple countries. There have been several high-profile films funded in this way, such as *Veronica Mars*, which raised almost \$6 million (€5.4 million) – this approach to raising finance demonstrates demand ahead of production, reducing financial risk.

CASE STUDY: Double Negative

UK company Double Negative creates VFX for some of the biggest global cinema releases, the nature of the business means its entire production process and creative output rely on digital technologies. The VFX industry has changed considerably in recent years, with digitalization reducing costs significantly and thus removing barriers to entry and increasing competition in the sector. Historically, one of the biggest barriers to entry has been the cost of a render farm (around 20,000 high-performance PCs in the case of Double Negative), this type of processing power can now be rented and accessed via the cloud, opening up the market – particularly at the lower end. Small companies can now offer high quality VFX for TV, on a lower budget, and as such, TV commissioners have become more ambitious and VFX today is comparable to that of the movies just a few years ago – the popularity of TV drama is driving this.

At the top end of the market, where Double Negative operates, one of the key benefits of digitalization has been the ability to collaborate on an international scale. Increased internet speeds mean large files can be viewed and shared across multiple sites instantly – more people can contribute to the creative process, and production is no longer in a fixed location. For example, *Captain America: Civil War* was a global effort involving filmmakers in North America, shooting in Germany, and VFX editors in London. Similarly, the Double Negative team was able to collaborate with CalTech physicist Kip Thorne, in the creation of the black hole in *Interstellar*. The Double Negative team worked closely with the scientist, although they never met in person.

There have also been a number of benefits for consumers, with digitalization impacting on the quality and breadth of TV and film on offer. For example, *Interstellar* was produced photochemically to be shown on hi-resolution 70mm Imax screens, offering a previously unobtainable picture quality. Despite the improvement in picture quality, the cost of delivery has reduced significantly to next to nothing. Further, unlike traditional film, digital formats can be projected without the work of a specialist projectionist. Both of these factors are important for small cinemas and lower budget films, since the financial risk associated with a film not performing well is reduced significantly. This increases the choice available to consumers and further explains the increased breadth of films released in the UK, as shown in Figure 4.16.

4.2.2.2 Online distribution has challenged the role of traditional intermediaries

In most markets, free to air (FTA) broadcasters were the first to invest heavily in online players to complement their linear offers, but more recently pay channels are also taking advantage of the direct route to consumers. Pay channels previously relied on platforms to broadcast their services to consumers; they were sold as a bundle, meaning that consumers had to subscribe to a package of channels to access content on a given pay channel.

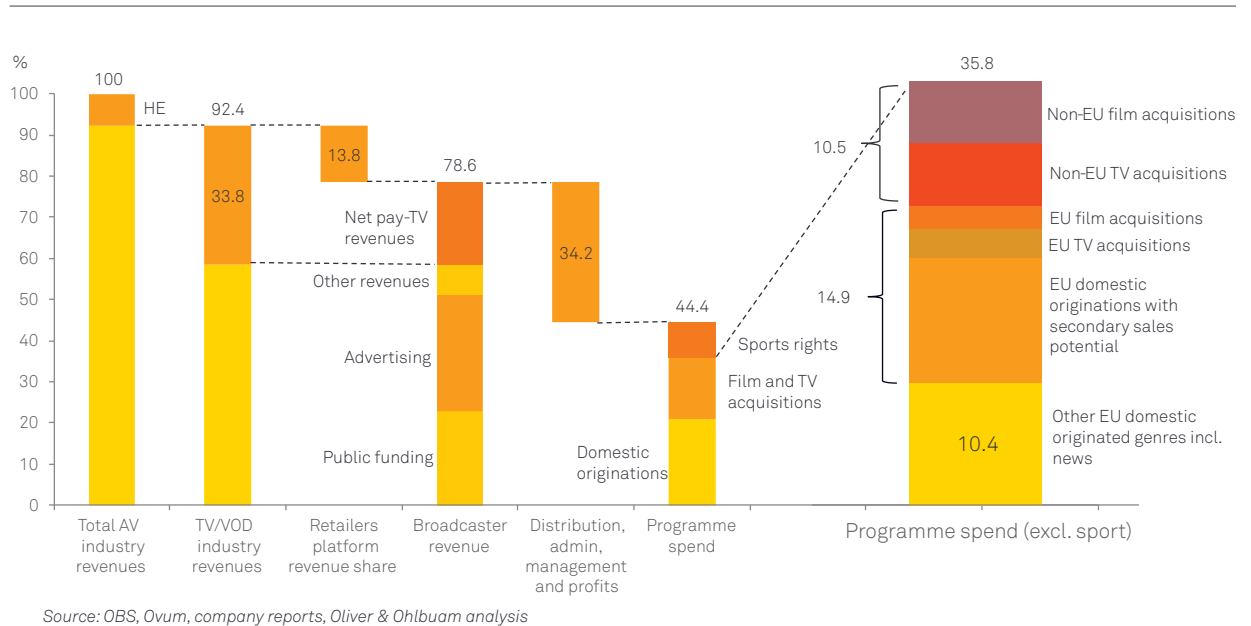
¹⁶ Oliver & Ohlbaum (commissioned by Ofcom), *Trends in TV content investment*, 2015

Online distribution means that pay channel owners can go direct to consumers with their own channel SVOD services. Services such as DPlay (linear and on-demand) and HBO Nordic (on-demand) allow consumers to unbundle their pay channels and subscribe only to the services and content which interests them.

These channel SVOD services are not just from traditional broadcasters; the internet has facilitated the rise of entirely new video streaming services from the likes of Netflix and Amazon. Having begun to invest heavily in content to attract new users, these services now span the entire AV value chain, from production through to consumers. These services have challenged the traditional platform owners, broadcasters and distributors, and have helped to drive innovation in terms of both content delivery (Netflix was amongst the first services to offer 4k streaming back in 2014) and quality (Netflix originations, such as House of Cards, and The Crown have won multiple awards, competing on equal terms with established providers of drama) across the whole market, by raising consumers' expectations of both new entrants and existing producers.

Having entered the market, these types of services can invest heavily in content due to the savings they can make on distribution. **Figure 4.10** shows how revenues flow through the AV industry, with less than half spent on programming. Since more than half of the industry revenues go to retailers and distributors, there is considerable scope for disruption. Taking out some of these distribution costs by going direct to consumers, content owners can spend more on production and still compete effectively with the traditional players. Indeed, this is what we are currently seeing through the increasing content investment by SVOD services such as Netflix and Amazon which spent an estimated £6.1 billion (\$8.2 billion) in 2016 according to BCG and SNL Kagan¹⁷. This is discussed in more detail in Section 4.2.3.1.

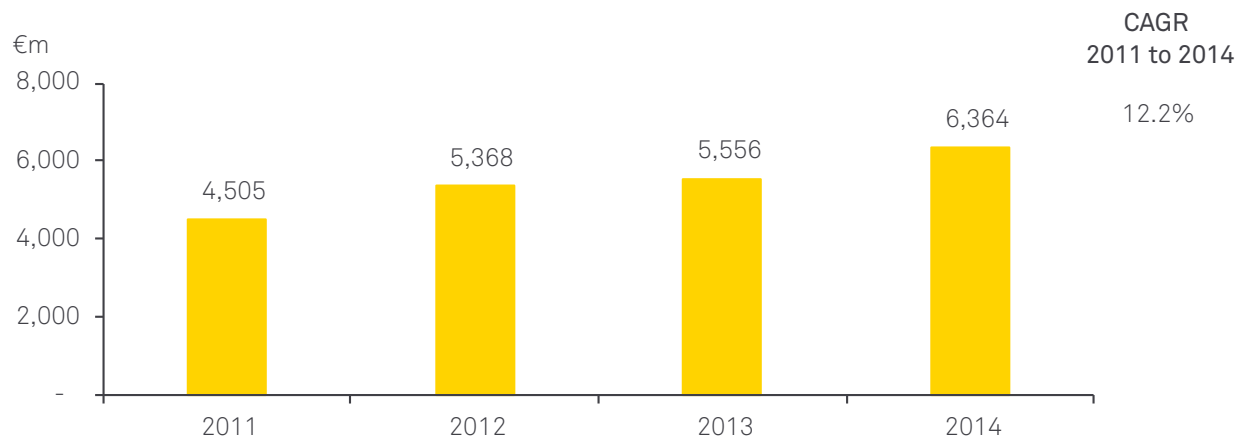
Figure 4.10: Percentage of European AV industry revenues and costs across the value chain, 2013



This squeeze on traditional distributors is difficult to demonstrate in the context of a changing market, with a growing number of consumers opting for pay-TV services, but examining producer revenues provides insight into how creators are being rewarded. **Figure 4.11** provides aggregated operating revenue data for 21 of the top 40 European producers (in both TV and film), for which data are available for both 2011 and 2014 – it shows that revenues have increased significantly over the period, at an annual rate of 12.2 per cent. While operating revenues could be boosted by diversification into non-production activities, this revenue growth exceeds that of the sector as a whole and provides strong indication that producers are benefiting from the digital age. Taking the UK as an example, and focusing on total UK producer revenues from TV related activities, shows that revenues increased from £2.4 billion in 2011 to £2.8 billion in 2015¹⁸, an increase of around 6 per cent a year – so creator revenues have increased faster than market revenues, implying that they are benefiting from a larger share.

17 <http://www.cnbc.com/2016/10/17/netflixs-6-billion-content-budget-in-2017-makes-it-one-of-the-top-spenders.html>

18 Oliver & Ohlbaum (Pact commissioned), UK Television Production Survey: Financial Census, 2016

Figure 4.11: Producer operating revenues, large European producers, 2010 to 2014

Source: OBS, Oliver & Ohlbaum analysis

The value chain in film has undergone similar changes to that of TV in terms of distribution for home entertainment, in that film content is available via these new online services. Digitalization initially caused a shift away from physical home entertainment towards online – either streamed, or downloaded via TVOD services¹⁹. This has squeezed those involved in production and distribution of physical products such as DVD and Blu-ray, but new distributors have emerged. The SVOD services described above offer access to an increasing range of AV content at no marginal cost to subscribers, while connected TV platforms and other online services offer instant access to vast libraries via TVOD. Due to the experiential nature of theatrical releases, and the fact that the cinema largely remains the first place to offer access to new films, the internet has had less effect on the value chain for cinema viewing, though the process has benefited considerably from technological advances.

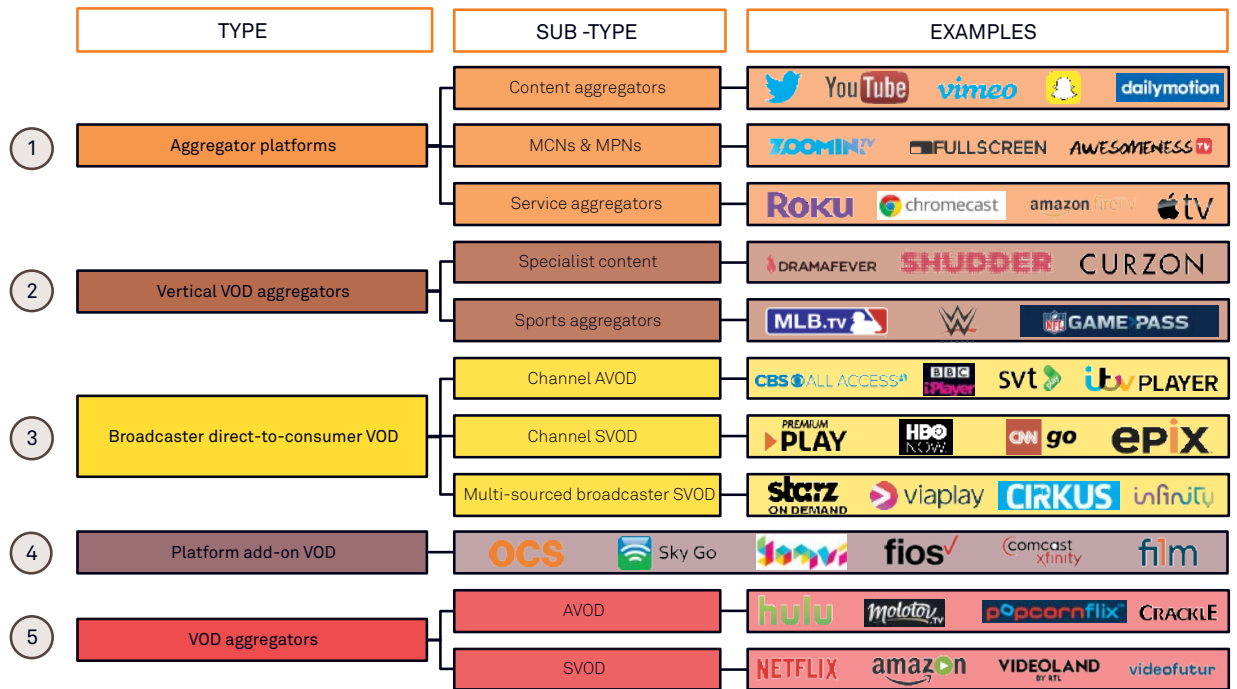
Short-form video content makes up the remainder of the AV industry. Short-form content of this type began as exclusively amateur user generated content but is becoming increasingly professionalised. This is an entirely new form of content, enabled by the internet – and it has rapidly become as important as more traditional content for some people, particularly younger demographics. As for TV and film content, the internet has enabled short-form video producers to reach and interact with consumers directly. We discuss this in more detail in Section 4.2.4.1.

4.2.2.3 A wide range of OTT services have launched from both traditional players and new entrants

Investment in catch-up services by FTA broadcasters, particularly PSBs, initially drove acceptance of online distribution as a viable complement to broadcast television. The early uptake and popularity of services such as the BBC's iPlayer in the UK, and RTVE's A la Carta in Spain inspired investment in similar platforms and services by other broadcasters. As we saw in Part 3, increasing broadband speeds, penetration, and reliability across Europe have made such services increasingly viable and organisations, at different stages of the value chain can all now offer content directly to consumers. **Figure 4.12** provides a typology to explain the main OTT services, which includes five core categories: aggregator platforms, vertical VOD aggregators, broadcaster VOD, platform add-on VOD, and VOD aggregators.

¹⁹ TVOD services include both download to rent and download to own services offering TV and/or film content.

Figure 4.12: Typology for OTT services

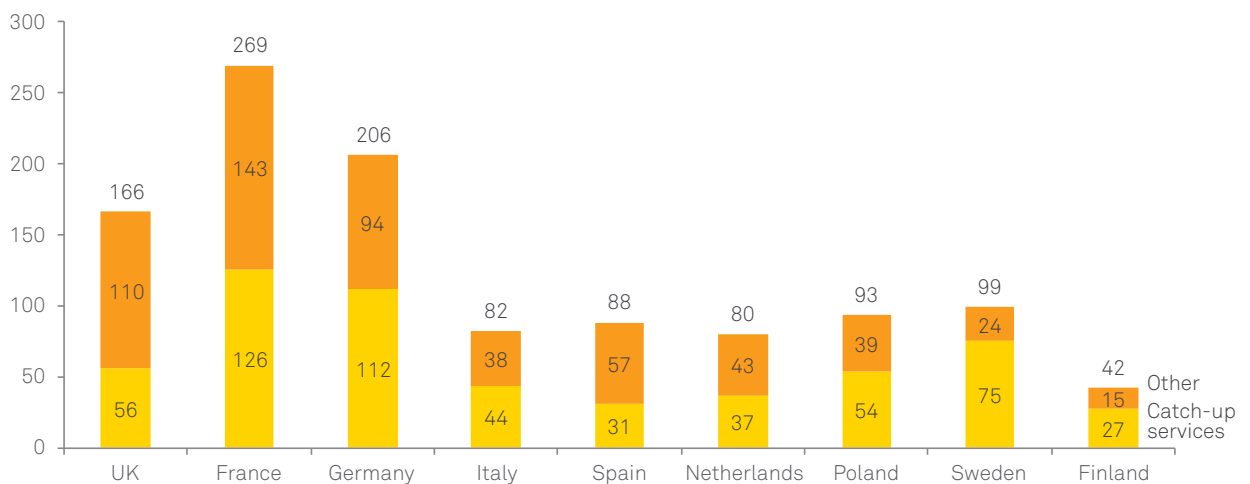


Source: Oliver & Ohlbaum

Some of these services are designed to offer new and unique content, not available via broadcast TV, while others are focused around providing an additional outlet for content broadcast on traditional TV. All have become a place for content discoverability, not just catch-up, and it is the consequent increase in competition that has helped to drive innovation in the sector.

Netflix and Amazon have emerged as the global forces in SVOD, but there are many other services available across Europe. Some are competing with the global players directly, while others offer more targeted/market specific services. Figure 4.13 shows the number of OTT services currently available in our nine focus markets. This has exploded in recent years, driven by changing consumer demand and expectations around content availability. In all cases, it is largely the content that differentiates the services and thus content investment has become increasingly important – we consider the availability of content in more detail in 4.2.3.

Figure 4.13: Number of on-demand AV services by market, 2015



Source: OBS, Oliver & Ohlbaum analysis

It is worth noting that the OBS definition of on-demand AV services is very broad. Figure 4.13 includes all OBS categories, where 'Other' includes specialist services relating to film trailers, sports events, search, video webpages and branded channels on platforms such as YouTube, amongst others. Many of these categories contain very few services, and broadcaster catch-up services are the most numerous in each market.

4.2.2.4 Traditional players have adapted to the OTT environment

Faced with growing competition from new global SVOD services, traditional players at all levels of the value chain have had to adapt to the new world. As we saw in the typology for OTT services, broadcasters and platforms now offer online access to content, but these groups have taken different approaches to monetising their audiences:

- **FTA broadcasters:** suffered a decline in viewers following the shift to digital due to the increased competition from new channels. They countered this with their spin-off and time-shifted channels, but are now facing similar pressures on their audiences due to competition from OTT services. These broadcasters are themselves seeing their audiences move from broadcast to their online equivalent services. Monetising online video has been challenging, but they are now beginning to do so more effectively as more ad spend moves online. Online content also provides broadcasters with new opportunities to target adverts and thus sell advertising impacts at higher price points
- **Pay channels:** while premium channels, such as sport, have maintained their value for platform owners, non-premium pay channels have been more vulnerable to the arrival of several FTA competitors, which have reduced their value to platforms. Several of these channels now offer their own SVOD service, allowing subscribers to unbundle channels from pay packages and enabling them to retain a larger share of revenue from the viewer
- **Pay platforms:** as well as developing their own OTT services and developing their set-top boxes to act as aggregators for the many available OTT service, pay platforms have adapted the way they offer content. In response to competition from new services, pay platforms have improved their content offer to include on-demand and all-you-can-eat box sets – adding to the breadth and depth of content options that consumers can access both at home and on the move

Consumers clearly value the ability to watch content on their own terms, so these changes in traditional players' service offerings have been driven by demand as well as increased competition from new services.

CASE STUDY: European pay-TV platforms

We examined the services on offer from the lead pay-TV provider in each of our focus markets, to identify the extent to which they have adjusted their content offer to compete with new OTT services. In all markets except Germany, the lead pay-TV provider now offers on-demand box set access as part of the monthly subscription fee.

Country	Top pay-TV provider	Boxsets: TV	Boxsets: film	TVOD
Finland	DNA	✓	✓	✗
France	Canal Sat	✓	✓	✗
Germany	Kabel Deutschland*	✗	✗	✓
Italy	Sky Italia	✓	✓	✓
Netherlands	Ziggo*	✓	✓	✓
Poland	Cyfrowy Polsat	✓	✓	✓
Spain	Movistar TV	✓	✓	✗
Sweden	Com Hem	✓	✓	✓
UK	Sky Digital	✓	✓	✓

Note: Top pay-TV provider has largest share of pay-TV market in that country. Box set offering is from DNA in Finland through Cmore, from Com Hem in Sweden through Viasat and Cmore. Canal+ does offer TVOD, but not under the CanalSat brand. *owned by Vodafone.

Source: OVUM, TV provider websites

4.2.3 Digitalization has resulted in more choice than ever before

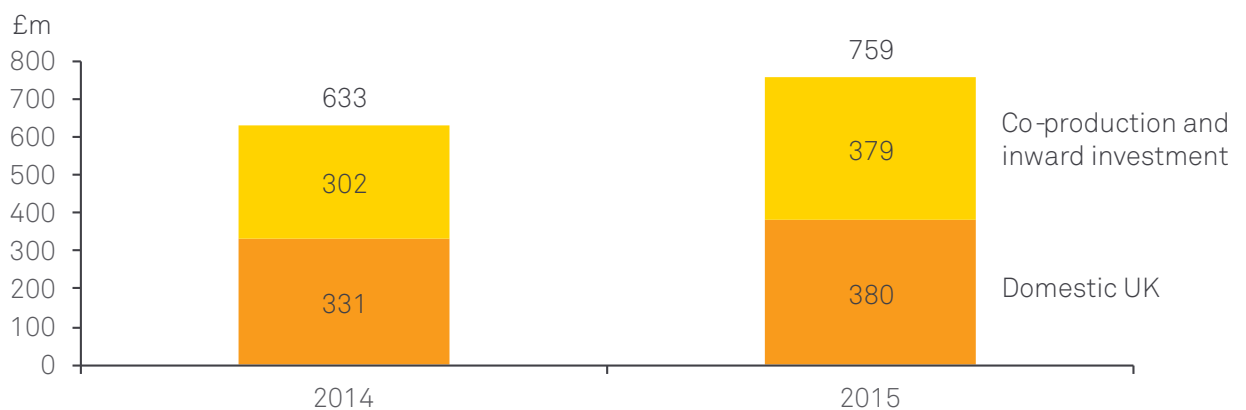
In both TV and film, the increased competition resulting from digitalization has brought more choice, as well as greater access. Drama has become the must-have genre to attract viewers and we are seeing more investment in content with global appeal than ever before – supported by new global players, such as Netflix and Amazon.

4.2.3.1 Competition has driven investment in high quality content

Increased competition between content creators and between distributors has led to increased investment in high quality content. Content creators need to make their content stand out amongst the competition, and distributors need differentiated content to distinguish themselves from other services and attract users. In particular, the rise of international SVOD services such as Amazon Prime Video and Netflix, has raised the bar for scripted content – in 2016, excluding spend on sport, these two services were estimated to make up around 36 per cent of the total content spend of the top ten global networks²⁰, and 20 per cent of Netflix’s content spend was in original content²¹.

Traditional players have had to rethink their content investment strategies, often putting more into high end content so they can compete with investment by SVOD services. The overall content investment picture is complex, with many competing effects meaning that total content investment need not increase in order for consumers to be better served. For example, technology has reduced production costs, and changing the genre mix can allow broadcasters to save money on certain parts of their schedules without adversely effecting viewer satisfaction – and even increasing it. However, spending on high-end programming (with a production budget of more than £1 million per hour, typically scripted content) is a good indicator of investment in quality. **Figure 4.14** demonstrates, that in the UK, investment in high-end TV productions increased by 20 per cent between 2014 and 2015. This is likely to be a direct response to the heavy investment in scripted content by new commissioning SVOD services such as Netflix and Amazon.

Figure 4.14: UK investment in high-end originations, produced in the UK, 2014 vs 2015



Source: BFI Statistical Yearbook 2016, Oliver & Ohlbaum analysis

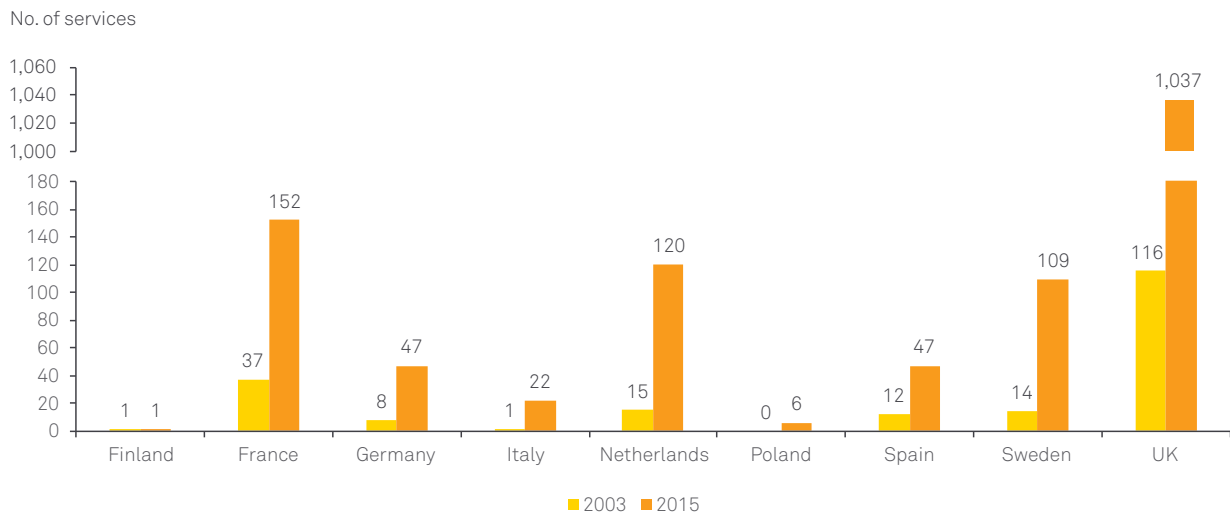
²⁰ SNL Kagan, Oliver & Ohlbaum analysis

²¹ Accenture, *Pulse of Media: Navigating the Complexity of an Evolving Digital World*, 2015

4.2.3.2 Ease of distribution has broadened content diversity

A more globalised TV landscape has resulted in more content being targeted at a global audience, and more scope for niche content to succeed. In European TV, this has led to greater sharing of culture and ideas as broadcast and OTT services look to differentiate their content offers. For example, Scandinavian crime fiction, or ‘Scandi Noir’ has developed into a genre in its own right, with the likes of *The Killing*, *Borgen*, *The Bridge*, and *Wallander* all achieving success well beyond their home markets – whether broadcast in their original form or remade. Many such programmes are broadcast on mainstream or premium channels, but there has also been an increase in the number of European linear services which target other markets. **Figure 4.15** shows how the number of these services increased between 2003 and 2015 for our focus markets.

Figure 4.15: Number of linear services targeting other markets, 2003 and 2015



Source: OBS, Oliver & Ohlbaum analysis

Emerging OTT services have also provided a platform for international content to reach a far wider audience. Specialist TV services such as HayU and Cirkus offer specific genre focus, while in film, SVOD services such as Curzon, Realeyz, and We Are Colony focus on art house film from across Europe – adding to the diversity of content on offer and helping to grow interest in new areas.

CASE STUDY: Niche SVOD Services – Independent Film

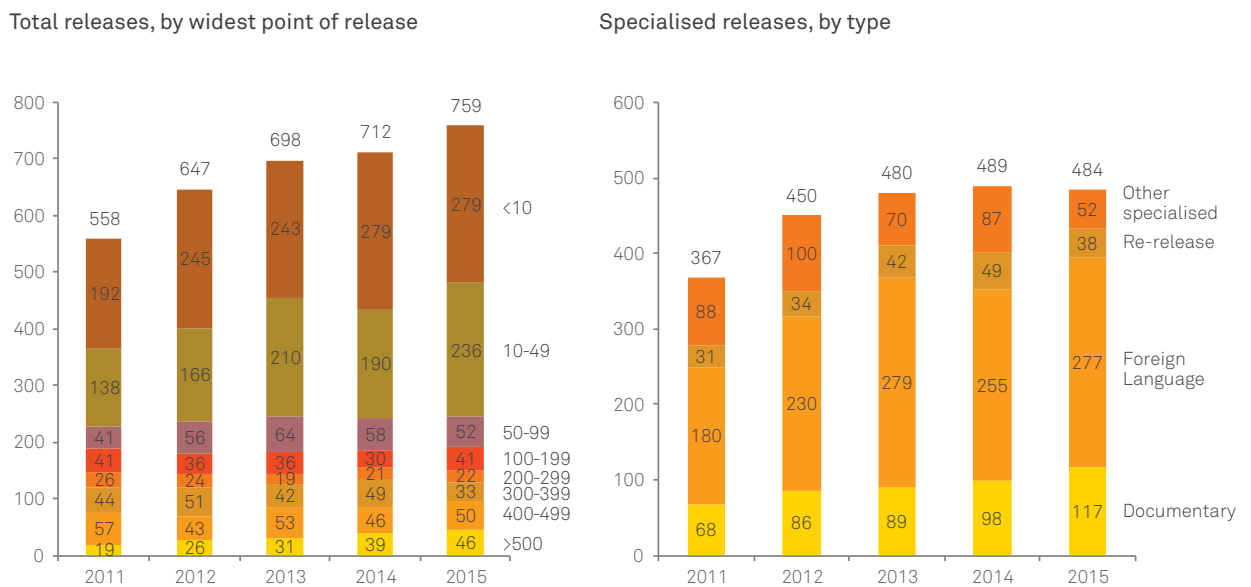
Prior to digitalization, films which did not fit the mainstream mould were restricted to specialist cinemas and film festivals and did not tend to be available on TV, since demand in any given market tended to be insufficient to justify the costs of acquisition and broadcast. This has changed thanks to the internet and digitalization; as the success of Netflix and Amazon Prime Video shows, there is a global appetite for VOD film. The internet has enabled online services to aggregate niche demand from multiple geographies, making such content economically viable. Film from world cinema to forgotten Hollywood gems, from early avant-garde shorts to contemporary indie documentaries can all find an audience online.

In the UK and Ireland, Curzon Home Cinema is a TVOD service which provides access to independent films on the same day as their cinema release, at prices starting from £2.20. The German platform Realeyz, like Curzon, was started by a company who ran physical cinema theatres, EYZ Media. Realeyz is an SVOD service, priced at €5.50 a month, through which subscribers have access to independent films on any internet-connected device. New titles are added daily, and many are available in HD. Realeyz is available worldwide, although due to licensing, not all titles are available everywhere. According to an article in Der Tagesspiegel (26 March 2015), Realeyz had over 40,000 subscribers at point of writing. Another subscription platform with a focus on independent film is FilmiN (only available in Spain). Users have access to over 10,000 titles, including television, for €8 a month.

The above-mentioned Realeyz and FilmiN also keep site visitors up-to-date with film comment and opinion, and the latest indie releases, through blog posts and commentary. This creates a “scene” for alternative film, and services a community of people who want film recommendations that are more esoteric. The film curation and subscription service MUBI takes this a step further. For £5.99 a month, subscribers can watch a new film every day, available for thirty days, which has been specially selected by MUBI film experts. They can also download films for offline viewing.

Research by the BFI in the UK demonstrates a knock-on effect on the number of theatrical releases. **Figure 4.16** shows that the number of annual releases in the UK and Ireland increased significantly between 2011 and 2015, from a total of 558 films in 2011 to 759 in 2015. Films receiving a relatively limited release, to less than 50 cinemas, were the largest beneficiaries. These films with narrower appeal are the group most able to benefit from technological developments in the sector. It is therefore no surprise that there has been a significant increase in the number of specialist films released in cinemas over the same period – the most significant increase has been in foreign language film – increasing the diversity of films shown in cinemas.

Figure 4.16: Number of theatrical releases, UK and Ireland, 2011 and 2015



Note: ‘Other specialised’ releases are films with a distinctive genre, hook or style
 Source: BFI, Oliver & Ohlbaum analysis

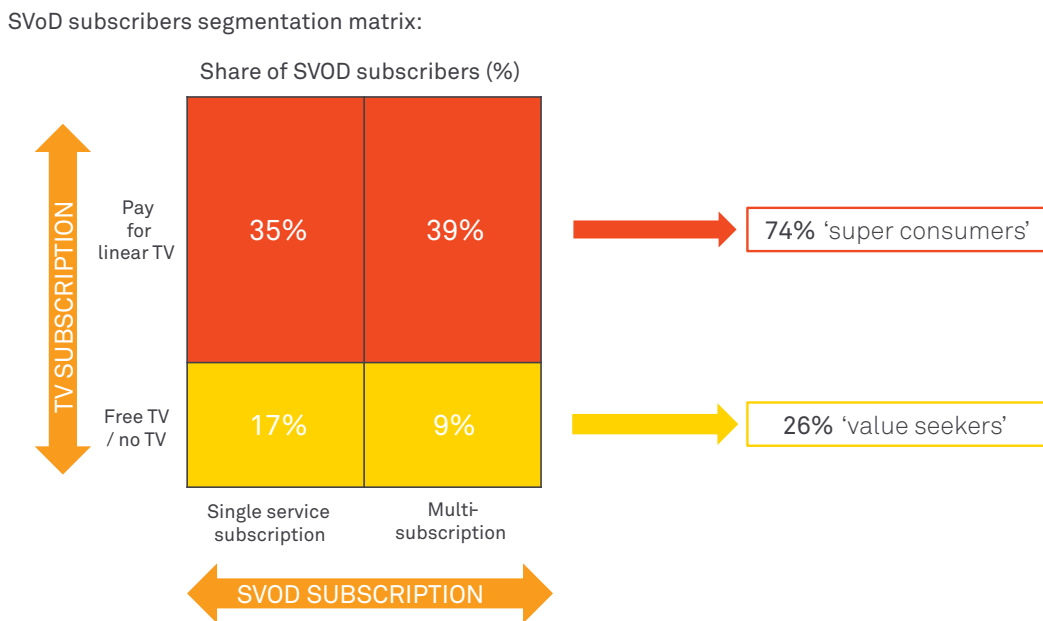
As well as supporting increased diversity in TV and film, digitalization has enabled short-form video, which makes an important contribution to the diversity of AV content. Not only does it provide increased choice in a new format, such content is well suited to distributing ‘hyper niche’ content since it can be produced and distributed at low cost, with international demand aggregated via online platforms. Indeed, this has led new types of content taking off on a large scale – particularly with young audiences – for example, the YouTube channels associated with video games network Machimina generate around 3.5 billion views a month²². This type of content simply did not exist prior to digitalization. We discuss short-form video content in detail in Section 4.2.4.1.

4.2.3.3 Consumers largely use OTT services as complements to traditional services

While there has inevitably been some reduction in linear viewing as OTT services compete for audiences with traditional players, linear has been surprisingly robust, particularly in Italy and Germany where non-linear viewing has been slower to catch on than in the UK, France and Spain²³. Even where OTT services substitute linear viewing time, they are currently largely additive in terms of revenue since European consumers tend to stick with their traditional pay platforms rather than churn down to lower cost SVOD services only.

Figure 4.17 uses the O&O UK consumer media habits survey to demonstrate that SVOD subscribers tend to take multiple pay services. The figure shows all households with at least one SVOD service – as we can see, three quarters are traditional pay-TV subscribers and 40 per cent subscribe to two SVOD services on top of their traditional pay-TV subscription. Just a quarter of SVOD subscribers use FTA television only and respondents reporting themselves to be in this group were less likely to have dropped a pay-TV subscription in the last 12 months than the TV viewing population as a whole.

Figure 4.17: Uptake of SVOD services by household type in the UK



Source: Oliver & Ohlbaum UK Consumer Media Habits 2016, n=4,006

22 <https://socialblade.com/youtube/top/networks/mostviewed>

23 <http://www.broadbandtvnews.com/2016/07/27/italy-watched-most-tv-in-western-europe-in-2015/>

These findings clearly demonstrate that SVOD services are currently providing additional benefits to consumers and creating new opportunities for content businesses – they also agree with similar research commissioned by BARB²⁴. Of course, this situation could change; as consumers become more familiar with SVOD services they may begin to see them as substitutes for traditional pay services. This is what has happened in the US, where the ‘cord cutting’ phenomenon has led to a significant reduction in traditional pay-TV revenues as consumers have switched to ‘pay-lite’ SVOD options. It is possible that Europe will follow suit as the global SVOD players reach maturity and continue to extend their originated content offers, but there are a number of factors which distinguish the European market from the US.

- **Higher pay-TV penetration in the US:** around 85 per cent of US households with TV take a pay-TV package compared to around 60 per cent, on average, in Europe. This is due to the structure of the US market and the relatively low quality of FTA services. With a relatively large number of people paying for television, it is inevitable that a larger number is sufficiently sensitive to churn down to lower cost services if they offer similar quality content
- **More ads in the US:** US television has no formal restrictions on the number of advertising minutes per hour, but there is an average of around 20. This is considerably higher than the 12 minute norm in Europe. The fact that SVOD services do not carry advertising is an additional incentive for US viewers to drop traditional TV and use only SVOD
- **The number of SVOD services in the US:** since the US is such a large market with homogeneous demand, it can sustain a larger number of SVOD services than Europe. This is particularly true for niches, such as sports SVOD services, which appear to be financially viable in the US. Conversely, the fragmentation of the European market into different languages and cultural clusters means there is less scope to sell to niche audiences at a suitable scale

Taken together, these differences could see Europe continue to avoid a trend towards ‘cord-cutting’ and OTT services could thus continue to complement total viewing, while traditional players continue to provide consumers with their main television service.

4.2.4 Digital innovation has led to new AV experiences

As well as advancement in the way that traditional content is accessed, the internet has led to the emergence of some entirely new experiences and content types in the AV sector. The emergence of short form video content is arguably the most significant new experience, but others have also been enabled by the internet, such as second screen content, as well as immersive cinema experiences which engage participants online ahead of the event itself.

4.2.4.1 Short form content is now a well-established form of AV content

Having previously conducted most of their viewing on the main TV set, consumers now use multiple devices to access multiple content types. According to Accenture, more than 300 hours of video are uploaded to YouTube every minute²⁵. The advertising revenue generated by such platforms is shared with creators and provides an important new source of content investment. Of course, not all short-form content is monetised, but it provides millions of people with the opportunity to be creative – and as it has become more mainstream, businesses have grown around it, to help the best creators maximise their audiences, driving further content creation.

There is little data available on revenue generated by creators of short-form content on platforms such as YouTube, Dailymotion, and now Facebook, but the successes of top YouTube creators have been widely reported. For example, YouTube’s top ten earners were paid an estimated \$70.5 million (€63.5 million) in 2016 and have up to 50 million subscribers²⁶. SocialBlade, a website specialising in data relating to social media, estimates the revenues of YouTube channels based on daily views and an estimated CPM range of \$0.25 (€0.23) to \$4.00 (€3.6).

²⁴ BARB, *UK Television Landscape Report*, 2016

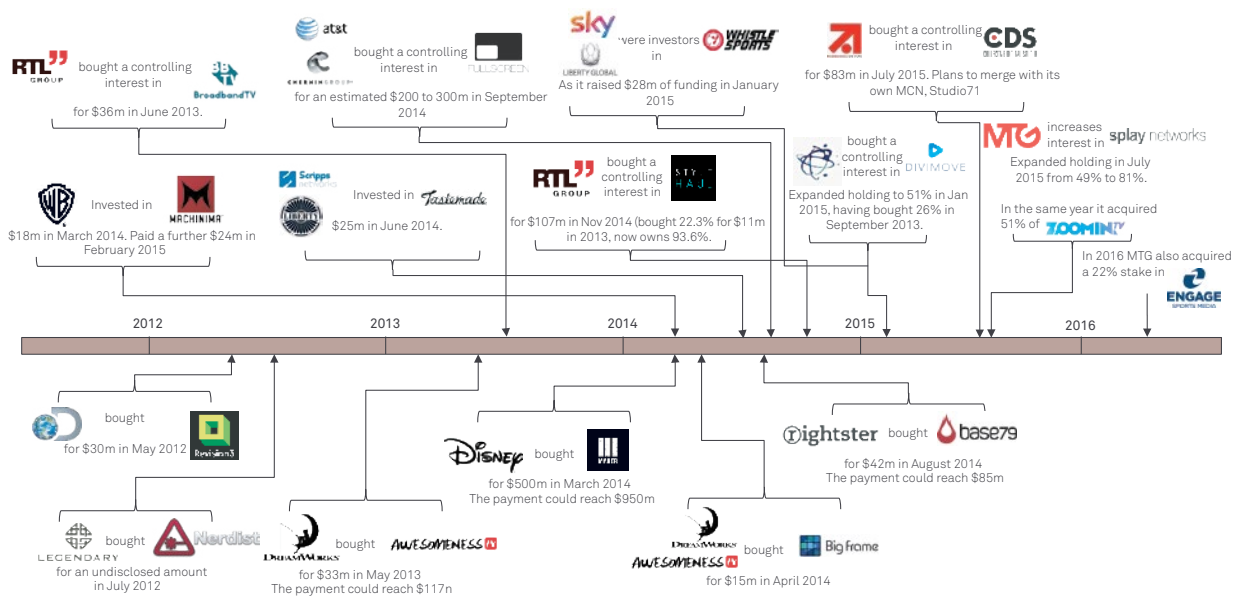
²⁵ Accenture, *Pulse of Media: Navigating the Complexity of an Evolving Digital World*, 2015

²⁶ <https://www.forbes.com/sites/maddieberg/2016/12/05/the-highest-paid-youtube-stars-2016-pewdiepie-remains-no-1-with-15-million/#5b4ba03d6b0f>

Taking their most conservative CPM value of \$0.25, at the time of writing, the 500th most viewed YouTube channel earned \$15,122 (€13,625) in the last month²⁷. Data are not available beyond the top 500 channels, but this indicates that there is space for a significant number of channels to earn smaller amounts which supplement income and act as a platform for a new breed of creators. Indeed, the potential for people to monetize YouTube is increasing: in 2016 the number of YouTube channels making six-figure sums was up 50 per cent on the previous year²⁸.

Multichannel Networks, or MCNs, are perhaps the most significant company type to emerge in support of short-form video creation. These organisations provide a wide range of services to creators, from facilities to support content production, to assistance in building audiences and monetising their content. Growth in short-form viewing, particularly amongst younger people, has led many traditional media companies to invest in MCNs as they seek to maintain access to young audiences as well as using short-form video to support their more traditional content and brands. **Figure 4.18** provides an overview of the recent land grab by traditional media companies, as they have invested heavily in MCNs over the last five years.

Figure 4.18: Traditional players are investing in short-form content



Source: Oliver & Ohlbaum

The output of short-form video creators has become increasingly professional; supported by MCNs and YouTube itself, creators have access to production facilities as well as expertise to help them market their content. Interestingly, the boundaries between the creators of short-form and traditional media are beginning to blur. On the one hand, traditional broadcasters such as the BBC and Channel 4, in the UK, are creating short-form content for their VOD services, such as the BBC's comedy shorts *Matt Berry Does...*, and C4's horror collection, *A Moment of Horror*. On the other hand, established YouTube talents are being used in more traditional media; this includes short- and mid-form series such as *RoboCop* from Machinima and *The Adventures of Annie & Ben* from BroadbandTV, as well as full-length feature films such as *The Smosh Movie*, created by Awesomeness. Vlogger Zoe Sugg (Zoella) broke the UK record for the highest first-week sales for a first-time novelist with her book *Girl Online*²⁹, while The Sidemen, who started as a group of gamers on YouTube, now have an internet TV programme on Comedy Central. Some MCNs have developed into their own standalone platforms; the likes of Vevo and Fullscreen have their own apps, and Fullscreen has its own SVOD service as an outlet for its mid- and longer-form originations.

²⁷ <http://socialblade.com/youtube/help>

²⁸ <https://www.theguardian.com/technology/2016/dec/06/youtubers-increase-earnings-forbes-top-12-ranking>

CASE STUDY: YouTube

Founded in 2005, the video-sharing platform YouTube has transformed the consumption of digital content. YouTube is most associated with short-form video, uploaded by individuals and organizations, which can be accessed for free. The site has, however, evolved: many people now use YouTube to access long-form content and to catch up on things they have missed across all media. New long-form content is even created specifically for YouTube.

As a platform, and not an editor, YouTube can be a great place for original content to reach a target audience. Indeed, YouTube provides resources to enable creators to optimize and develop their content, and gives advice on how to engage fans. The *YouTube Creator Hub* is the digital portal for these resources, while for active creators, *YouTube for Creators* offers a tiered benefit system to help creators develop successful channels and get to know others in the community. The *YouTube Academy* provides online courses including: creating a video on a budget, 360-degree video and VR, growing your audience, and activating your community. These video tutorials are presented by successful YouTubers or YouTube employees. Another digital resource is *YouTube for Artists*, in which musicians can for example view video stats and insights, and get advice on music rights. In the non-digital world, *YouTube Spaces* in major cities worldwide, provide physical locations in which creators can meet, take part in workshops, and make use of recording facilities.

Traditional media is able to work with YouTube to engage users who are migrating away from traditional consumption. For example, BBC Radio 1 worked with the platform to become the world's most watched radio station²⁹. In addition to this, YouTube has enabled entirely new players to emerge. A new group of YouTubers are becoming celebrities. Their relationship with traditional media is often complex, with talent being discovered on YouTube, and then translated to other branches of the creative industries such as film and books. The popularity of gaming content on YouTube demonstrates how the platform provides a space in which individuals with shared interests can form communities and create unique content.

The financial success of a YouTube channel is very difficult to assess – revenues from advertising, brand endorsements and merchandise largely depend on the location of a specific audience. However, many creators consider YouTube to be an outlet for their passions, and a way in which to create a community; in this sense success can be measured in terms of personal and societal benefits as well as through monetization.

4.2.4.2 Second screen services have developed to support the viewing experience

With the growth in penetration of connected devices, up to 87 per cent of global consumers use the TV and a second screen simultaneously³⁰. Of course, second screen use need not relate to content being watched on the main screen, but it provides opportunities for broadcasters and content owners to further engage with their audiences. A wide range of uses have developed for the second screen, both to increase the enjoyability of the programme, and to provide an opportunity to build brand relationships.

- **Play along apps:** *The Million Pound Drop* app is one example of increasing engagement by allowing users to play along in real time, essentially competing with those on the show
- **Social media:** apps like Twitter and Facebook are widely used by viewers to discuss TV programmes in real time – supporting live viewing and encouraging more people to tune in to be part of the debate
- **Brand-building apps:** Shazam began life purely as a music recognition app, but now offers its technology for use in TV advertising. Brands such as CocaCola have used Shazam in their campaigns to allow viewers to access vouchers for free drinks

²⁹ https://www.youtube.com/watch?v=zs_xyD5UoUQ

³⁰ Accenture, *Digital Video and the Connected Consumer*, 2015

All of these new types of engagement are enabled by digitalization and the internet – they encourage people to watch more, watch live, and watch together, sharing the experience with friends and family online.

CASE STUDY: Monterosa

Monterosa is a UK-based company which helps organizations and brands tap in to the potential of multiple device viewing, an entirely new type of audience engagement, enabled by digitalization, which goes beyond simply a “like” or a “view”. Through its proprietary cloud platform, LViS, Monterosa’s content creators design interactive app content to accompany programming and sporting events which can be accessed during real-time viewing. According to its website, at time of writing, Monterosa has engaged 53 million fans in over 90 countries, including play-along gaming, real-time voting and live fantasy.

In TV, Monterosa’s *The Million Pound Drop* app enabled audiences of the Endemol-produced quiz to experience the programme as though they were contestants. Viewers could answer questions in real time, and in turn statistics were fed back live to the studio. The game was a free app, with purchase options. The company produced an app to accompany ITV’s *I’m a Celebrity*, which allowed viewers to vote. A similar voting system was developed for Carlsberg, which enabled fans to watch videos of games and goals, then to vote for their Man of the Match and Goal of The Tournament during UEFA Euro 2016.

One of the overarching benefits of digitalization is that it has aggregated localized, niche audiences, meaning that brands can reach out to new, larger communities of fans. Not only are brands now able to monetize what used to be small pockets of hard-to-reach fans, but those fans can feel part of a community. Although Monterosa started in TV, the company now works with a variety of industries, including cultural institutions and sport. Indeed, growing online audiences for arts and culture means that brands are keen to operate in this space and are seeking to contribute in a genuine way, beyond simply communicating a commercial message.

4.2.4.3 New services are combining multiple art forms to create new experiences

The way that people watch and engage with film has changed in recent years, with the internet providing opportunities for new and more immersive experiences. Companies such as Secret Cinema have developed entirely new cinema experiences, recreating films in real life and blurring the boundaries between audience and performance – these experiences often involve online participation before the event, and would not have been possible without the internet. Furthermore, AV content is becoming an important part of previously unrelated creative industries, as we will see in the remaining parts of this report – whether music, games, books or culture, the creative industries are developing new ways to incorporate AV content into their products, providing consumers with more options and experiences.

4.3 Outlook to 2020

While we have seen a rapid expansion of on-demand viewing in recent years, this has largely been driven by increasing uptake of hardware, whether connected television sets and set-top boxes, or mobile connected devices. Device penetration will continue to be an important driver of TV and film viewing habits, but these technologies are now widely adopted in several markets, and so growth in uptake is likely to slow – leading to some slowdown in changing viewing behaviours. At present there are no signs of imminent cord cutting in the European markets, and we therefore expect to see the decline in linear viewing stabilise in the short term, as a balance is struck between on-demand and linear viewing. Viewing patterns are likely to continue to differ between age groups – with younger viewers more likely to favour on-demand services.

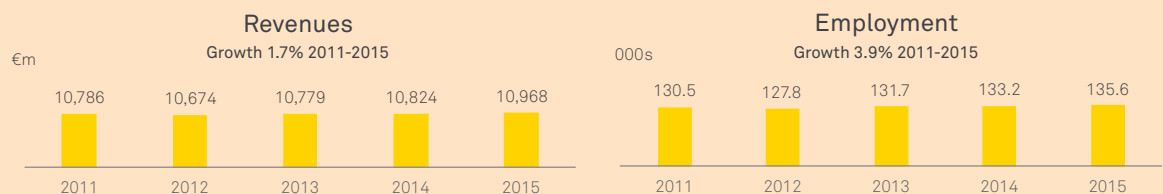
Nevertheless, developments in on-demand, internet delivered services are likely to continue for two reasons. Firstly, ad-supported services prefer catch-up viewing to take place on their online player than via DVRs, where adverts can be skipped. Secondly, as the traditional channel businesses continue to compete with pure OTT services, they will continue to innovate – in the UK, for example, the BBC has acknowledged that it must ‘reinvent public service broadcasting’ to take on the likes of Netflix and Amazon. Although the specifics of this strategy are not yet known, it is likely to involve a move towards ‘binge-first’ viewing, whereby consumers can purchase content ahead of broadcast, should they wish. Platform owners could also contribute to further changes in viewing habits, for example satellite TV provider, Sky, recently announced that it will make its full TV service available via online distribution from 2018. Innovations such as this will help support yet more investment in content, further increasing the quality of what is on offer.

As OTT services become a more established source of content discovery, service fragmentation will be more of a problem for viewers – the role of platforms in aggregating OTT services and creating a seamless viewing experience, alongside linear broadcast television will be important. Other technological innovations are unlikely to lead to any further significant developments in how people view AV content. In television, 4K picture quality is perhaps the most significant technological change of recent years, but for more viewers, the difference between HD and 4K is not substantial enough to accelerate the replacement of their viewing equipment. The same could be said for 3D television and VR as far as their impact on traditional TV and cinema viewing; these technologies provide new opportunities for film and television content markets, but they are likely to be more widely used in specialist cinemas than adopted for home use.

Following a
challenging period,
streaming services
have established
themselves and music
industry revenues have
returned to growth

5 Music

Overview of trends in revenue and employment



Note: Includes Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Data from several sources are used in this chart; the included PwC data are presented separately as part of Figure 5.1
Source: Revenue – IFPI, PwC ‘Global Entertainment and Media Outlook 2016-2020’, Oliver & Ohlbaum analysis
 Employment – Eurostat LFS, Oliver & Ohlbaum analysis

Characteristics of digital production and distribution

Digitalization has reduced production and distribution costs

- Developments in recording equipment have reduced the production costs needed to create professional quality sound
- Online delivery makes marginal distribution costs close to zero
- Global marketing spending on music fell by around 22 per cent between 2009 and 2015, from \$2.2 billion to \$1.7 billion

Increased competition has led to new business models

Digitalization increased competition in retail and challenged physical format sales

- Online music retailers, with relatively low fixed costs, challenged traditional intermediaries such as HMV and Virgin Megastores
- Physical format’s share of recorded music fell from 75 per cent in 2011 to 56 per cent in 2015, this growth in digital squeezed intermediaries, enabling more revenue to flow to creators

Online distribution has brought new intermediaries

- Downloads challenged physical formats but did not replace them
- Streaming services have led to a shift from ownership to access, but have taken time to establish themselves as financially viable

Competition is driving acceptance of streaming and a variety of new services are increasing content diversity and discoverability

- Revenue from paid streaming increased at 51 per cent per year between 2011 and 2015, in our nine focus markets
- Average subscriber spending is around twice that of the average downloader, so the transition to streaming is important
- Services such as Last.fm, Shazam, and Soundgood are examples of new approaches to aid curation and discoverability

There are benefits to consumers and content creators

Purchase and subscription services provide more ways to listen and more choice

- Both downloads and streamed music tend to be easily accessible across a range of devices
- Streaming services such as Spotify and Deezer have libraries of 30 to 40 million tracks, broadening listeners' musical experience

Online services aid content discovery and help creators engage with audiences and build loyalty

- 38 of the 40 most viewed YouTube videos are music videos – South Korean musician Psy's *Gangnam Style* video has been viewed 2.7 billion times, launching him to international fame
- Four of the five most followed Twitter accounts are musicians, with between 68 and 95 million followers

More creators have a route to market, further adding to consumer choice

- Amateur performers can now reach a global audience – for example, Hannah Trigwell launched her career on YouTube; her performances have been viewed 40 million times
- The ability to track artists' performance via digital platforms reduces labels' risk – encouraging them to sign more new acts

Live music has seen significant growth in recent years

- Live music revenues increased by 3 per cent between 2011 and 2015 as artists put more emphasis on touring
- In the UK, GVA from live music increased by 37 per cent from £662 million in 2012 to £904 million in 2015

The music industry has changed significantly as a result of the internet and the pros and cons of the changes have been widely debated. The shift towards online access to music is arguably the most significant change, but the internet has also given listeners more choice and options to engage, while creating new opportunities for musicians. In this part, we explore how the value chain has adapted because of the internet, and look at the specifics of where the impact has been most profound.

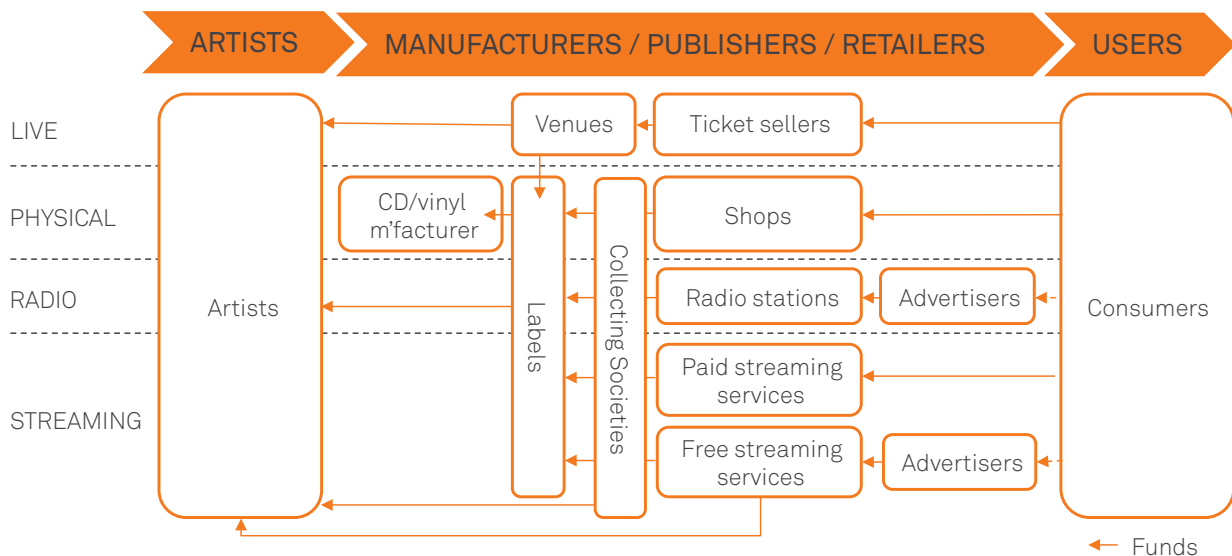
5.1 The structure of the sector and its evolution

As with the other media industries, the single largest impact of the internet on the music industry is in distribution. This has shaken up the traditional value chain, by enabling artists to distribute their work directly to consumers. In this section, we set out the value chain and discuss recent trends in revenues and employment in the industry.

5.1.1 The internet has reshaped the role of intermediaries

The key roles in the music value chain are much the same as they always have been: musicians make music and the financial risk is taken on by record labels which provide support such as advances and access to recording facilities, the music then makes its way to consumers via retailers. However, the internet has significantly reduced the costs associated with producing and distributing music, and offers new ways for artists to reach and engage with their listeners. **Figure 5.1** sets out the key participants in the music value chain, split by live, physical, radio, and streaming.

Figure 5.1: The value chain for music



Retail has seen the most significant changes, where physical sales moved online before music itself became accessible online – whether to download or stream music. These formats have grown in popularity at the expense of physical sales, putting pressure on traditional high-street retailers.

The role of record labels has also been challenged. Previously they were vital in identifying talent, and providing technical, marketing and financial support in exchange for the rights to artists' work. As revenues from physical sales were challenged by online distribution, labels began to squeeze musicians, and as a result some artists found that they could do without a label's support, since they can record their music relatively cheaply (supported by increased capability and falling costs of recording equipment), and distribute their music directly to listeners via online services, while engaging fans directly using social media. Labels have therefore shifted their focus and are increasingly moving back towards pure promotional activities to help artists maximise their reach. This shift to digital distribution initially exacerbated the problem of piracy, but it may in part be prevented by new methods of digital distribution; along with copyright enforcement strategies, streaming is providing an alternative way to access music, which may turn people away from piracy³¹.

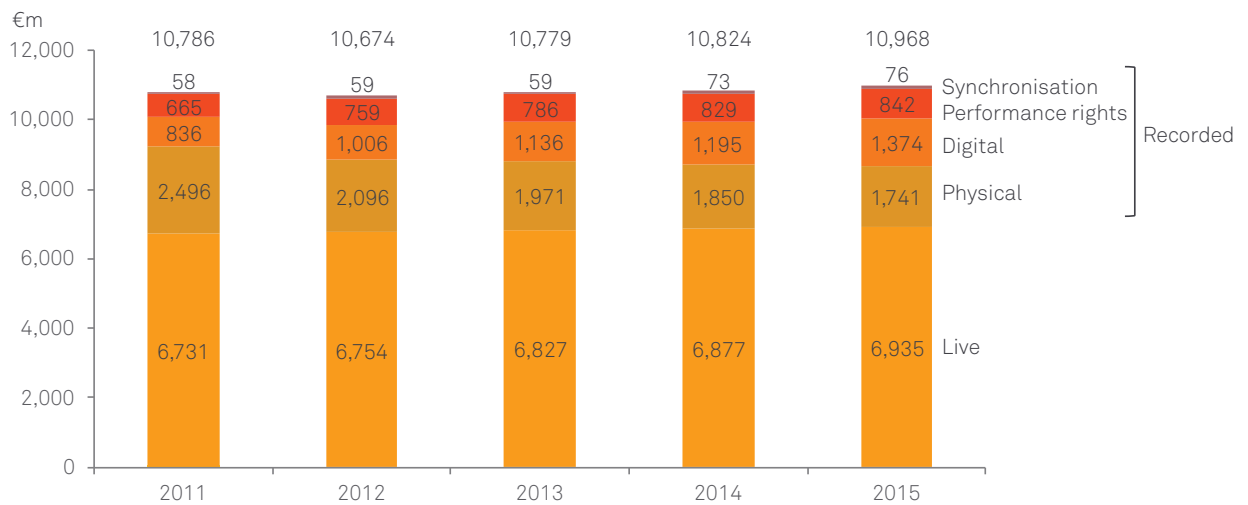
Live music has been largely unaffected by the internet (though events are now marketed and tickets sold online), and radio continues to provide much the same listener experience (though it is now available via digital and online channels).

5.1.2 Increasing digital revenues are driving growth

Music revenues fell between 2011 and 2012 as the sector adjusted to a new economic model, but 2013 to 2015 saw a return to growth for both recorded and live music. As shown in **Figure 5.2**, the initial decline was driven by falling revenue from physical recorded music sales, which was not fully replaced by increasing revenues from digital recorded music. This remained the case until 2013, which was the first year when digital growth more than offset the decline in physical sales, and digital has broadly compensated for falling physical revenues since then. Live music revenues have increased steadily since 2012 as artists placed greater emphasis on touring, while performance rights revenues (which include revenues from use in radio and TV broadcasts as well as public performance) have also grown steadily despite radio facing growing competition from on-demand alternatives – whether music related or other forms of entertainment.

31 IFPI, *Digital Music Report*, 2015

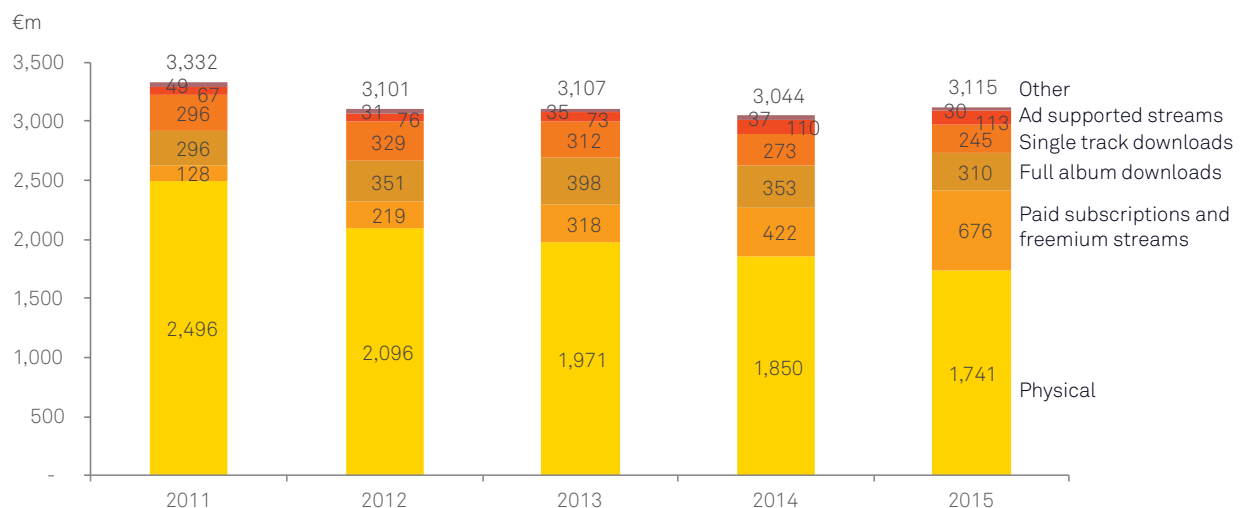
Figure 5.2: European music revenue, for nine European markets, 2011 to 2015



Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: Recorded – IFPI
 Live – PwC ‘Global Entertainment and Media Outlook 2016-2020’

Figure 5.3 shows the breakdown of recorded music revenue, including the development of various digital formats. Total recorded music revenues experienced growth in 2015, driven by expanding streaming revenues. Downloading peaked in 2013 and streaming is now the highest revenue earner of the digital options. Ad-supported revenue streams remain a very small proportion of streaming revenues, underlining the importance of converting users to paid services. Strong growth in paid services, however, suggests that the industry is slowly adapting to the digital age as competition amongst streaming services and growing consumer acceptance are resulting in viable business models emerging.

Figure 5.3: European recorded music revenues, for nine European markets, 2011 to 2015

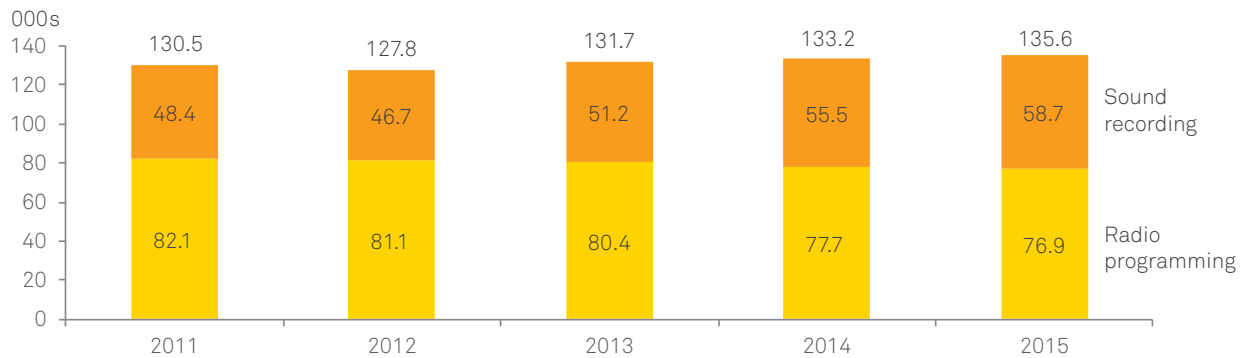


Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK. Other includes mobile personalisation and other downloads. Chart excludes performance rights and synchronisation
 Source: IFPI, Oliver & Ohlbaum analysis

5.1.3 Employment has increased significantly

The best-fit NACE codes to capture employment in the music sector are NACE code 59.2 (sound recording and music publishing) and 60.1 (radio broadcasting). We have included employment linked to radio broadcasting on the basis that, while it covers both speech and music radio, the majority of radio stations are music-based. As shown in **Figure 5.4**, in our nine focus markets there has been significant growth in employment in sound recording and music publishing, expanding at an annual growth rate of 4.9 per cent between 2011 and 2015. Over the same period, employment in radio broadcasting fell at an annual rate of 1.6 per cent, meaning that total employment in what we define as the music industry increased at an annual rate of 1.0 per cent.

Figure 5.4: Employment in the European music sector, for nine European markets, 2011 to 2015



Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK. Employment in sound recording (NACE code 59.2) and radio programming (60.1). An average of 2010 and 2012 is given for 2011 radio employment in Netherlands

Source: Eurostat, LFS, Oliver & Ohlbaum analysis

5.2 The impact of the internet on the music sector

The internet and digitalization have challenged traditional intermediaries and changed the way that recorded music is delivered to consumers. In doing so, the industry has faced significant monetization challenges, but new business models are emerging and subscription streaming services are showing signs of reversing the downward trend in revenues. Digital developments have also brought new opportunities for musicians and improved access for listeners. In this section, we explore these impacts in more detail.

5.2.1 Digitalization changed the recorded music market

The sale of recorded music has been affected by digitalization in two ways, firstly retail moved online, and now the music itself is online. The first change was to the detriment of traditional music retailers, such as HMV, Virgin Megastore (in several markets) and Tower Records; these companies operated high street stores specialising in music and were amongst the first casualties when online retailers entered the market. Online retailers could offer music more cheaply since their online-only positioning means a much lower cost base than their high-street equivalents³². Since then, the move away from physical products towards downloaded or streamed music has squeezed some of the less creative value chain participants, such as manufacturers, and put pressure on traditional revenue models, but new business models and intermediaries have emerged.

32 This effect saw Amazon enter the market for physical home entertainment products; according to the entertainment retail barometer from Kantar World Panel, in the UK, Amazon currently enjoys around 20 per cent of the market – which was previously held by highstreet retailers.

The music industry is no stranger to technical upheaval: cassettes cannibalized the vinyl market, before CDs took over from cassettes. Up until 1983, physical analogue sales made up the entire recorded music market, but this changed with the arrival of CDs which ultimately rendered cassettes obsolete. From 2004, when online sales were first recorded, downloads provided a new means of accessing recorded music, broadening the market and allowing consumers to unbundle, and only purchase the individual tracks they wanted. Since 2008, streaming has taken online music to a new level and has seen people move away from ownership, instead paying for unlimited access to large libraries of content³³.

Taking the UK market as an example, the period from 1983 to 2001 is an abnormality in recorded music revenues. During this period revenues expanded significantly in real terms, from around £0.54 billion to just more than £1.2 billion⁴⁸. This expansion was due to strong growth in the volume of album sales largely driven by two factors: people replacing vinyl collections with CDs, and the fact that CDs were priced to encourage consumers to purchase albums rather than singles. Following the arrival of digital downloads, which are priced by the track with little or no financial incentive to purchase the entire album, consumers were more inclined to only buy the tracks that they wanted and by 2013 total revenues were back to the same level as 1983, in real terms.

5.2.1.1 Digital downloads challenged CDs but were not widely adopted

Digital downloads initially shot to prominence between 1999 and 2001, when Napster launched an online platform for users to share their music collections via a peer-to-peer network. Of course, this activity enabled users to access music which they had not paid for and the platform was successfully challenged for copyright infringement, and shut down in June 2001. Nevertheless, Napster paved the way for digital downloads to become the normal way of accessing music in the digital age, and iTunes ultimately established itself as the go-to platform for legal downloads. Since then, other music retailers have developed online stores for music downloads, with the likes of Amazon offering digital downloads alongside physical purchases.

While digital downloads are beneficial to consumers, they were of limited economic success, due to the rigid pricing structure imposed by labels and by the intermediaries, such as iTunes. This structure means that artists have limited control over the price charged to consumers, and there is limited scope for competition between online retailers. Downloading also has some issues from a consumer perspective, such as a lack of flexibility: initially, users of iTunes, for example, could not easily move files out of the iTunes ecosystem for use on other devices and as mobile device penetration has increased, any hindrance on access to content is seen as a major drawback by consumers. Streamed services offer more flexible options, since music can easily be accessed on any device, provided internet connectivity is good enough. With improvements on that front, particularly in mobile broadband (as discussed in Part 3), streaming services have seen very rapid growth since 2011.

5.2.1.2 Streaming services represent a shift from ownership to access

Enabled by the increased penetration of broadband internet and rapid mobile data connections, music streaming services have taken over as the primary source of digital music over the last few years. Across Europe streaming revenues increased by 43.1 per cent in 2015, while download and physical revenues fell by 11.8 and 6 per cent respectively³⁴. Rather than purchasing individual tracks, consumers subscribe and receive access to large libraries of music. This represents a shift away from ownership, as consumers lose access if they end their subscription. European start-ups have made a global impact in this area, with Spotify (Sweden) and Deezer (France) offering their streaming services around the world. It is important to note, however, that streaming take-up is inconsistent across our focus markets; for example, while streaming makes up 67 per cent of the Swedish recorded music market, in Germany, 60 per cent of the market is still made up of physical sales³⁵.

Unlike for digital downloads, where iTunes dominated and there was little scope for differentiation, a range of streaming services have emerged. This competition is helping drive acceptance amongst consumers, increasing demand for streamed services and thus incentivising the development of new business models. The established services have different USPs: services like Spotify and Deezer are all-access services, offering broad catalogues

³³ Maurice Samuel, *Winds of Change: Journey of UK Music from the Old World to the New World*, 2014

³⁴ IFPI, *Global Music Report*, 2016

³⁵ Ibid.

suitable for the large majority of listeners. Others serve niche audiences, such as Tidal which offers high definition streaming quality; Tidal's one million paid users is small compared to Spotify's 43 million and Apple Music's 20.9 million³⁶, but it is still a significant number and the service is made possible by the internet's ability to aggregate this niche demand across geographical borders. However, the complexity of music licensing remains a barrier to start ups entering the market; efforts to re-aggregate licences to make payment simpler, may encourage greater diversity.

CASE STUDY: Spotify, Deezer and Tidal

Spotify (Sweden) and Deezer (France) are two of the largest European music streaming services, with large catalogues catering for mass-market tastes. With around 100 million users, 43 million of which are subscribers, Spotify is one of the largest music streaming services in the world. Available in 60 markets, Spotify holds over 30 million songs and 2 billion playlists. As of September 2015 Spotify had paid \$5 billion in revenue to rights holders. Like Spotify, Deezer offers both subscription (£9.99 a month) and free ad-supported listening. It has a smaller subscription base of 6 million, is used in 180 countries, and holds 40 million songs and 100 million playlists. In January 2017 Deezer announced the 'Deezer Next' programme, which will support 12 emerging artists per selected country, promoting their work through Deezer and providing assistance in the creation of individual content, such as video.

Tidal (Norway/Sweden) is a more niche service, specialising in high quality audio. Tidal is a subscription-only service with one million users, over 40 million songs, and 130,000 videos, available in 46 countries. It was part-founded by musicians including Jay Z and Alicia Keys, and places emphasis on fair remuneration of artists, claiming to pay the highest ratio of royalties to revenues of any streaming service. Its 'Tidal X' programme connects artists and fans by giving the highest streaming users access to exclusive fan experiences, such as concerts. The 'Tidal Rising' programme supports artists who are on the verge of big success, through prominent placing on Tidal, access to stylists and media trainers, tour support, and funding for music videos. Through 'Tidal Discovery', selected unsigned artists are given featured placements on the site, help with custom video content, and live performance opportunities. Tidal offers a tiered subscription of either \$9.99 per month, or \$19.99 per month for HiFi streaming. This option provides lossless, CD-quality, uncompressed sound files, streaming at 1411 kbps versus the normal 320 kbps.

As well as start-ups, established players such as Apple Music, Google and Amazon are entering the streaming market. Whether mainstream or niche, these services are striving to differentiate themselves from the competition; core business models have emerged, targeting different price points and types of user:

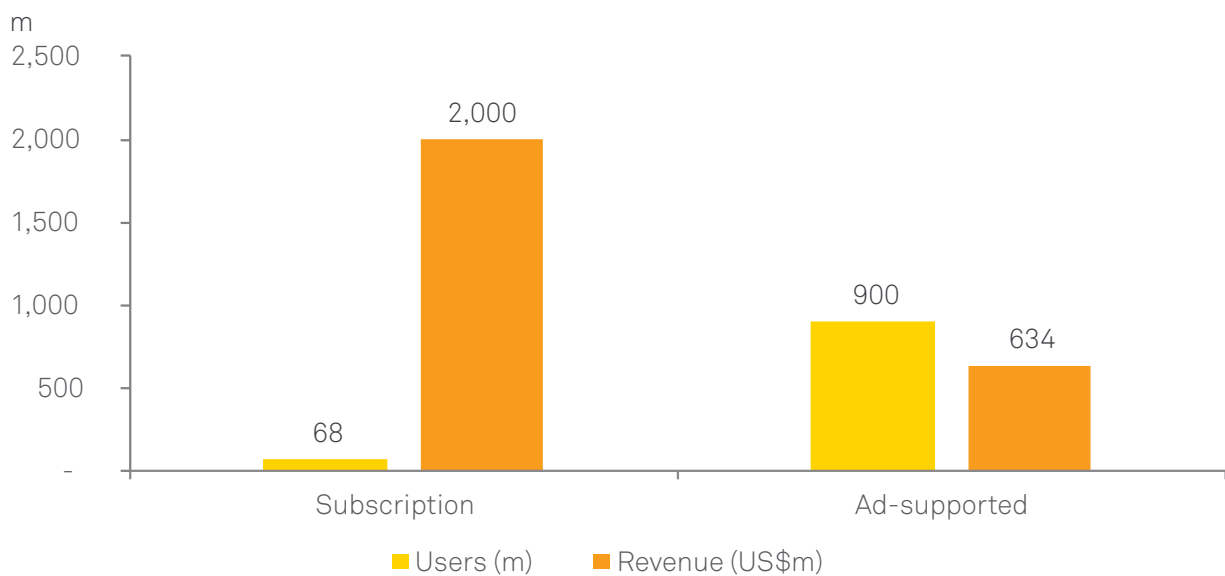
- **Ad-funded:** these services are comparable to traditional music radio, in that they are regularly interrupted by adverts, the revenue from which funds the service. As well as ad breaks, listeners tend to be restricted in what they can play; some services do this by offering radio-like services with restricted 'skips' while others allow users to select specific albums or playlists, but not individual songs
- **Subscription:** most services offer unlimited access for a fixed monthly subscription fee. Features often include being able to download tracks for use offline, as well as access via multiple devices. Some services allow 'family' access, meaning that one account can be shared and tracks can be streamed on multiple devices simultaneously
- **Bundled services:** several services have made deals with mobile phone providers to offer both trials and reduced subscription fees to the mobile network's subscribers. This provides another option for customers to access music streaming services and encourages their use on mobile phones
- **Device specific:** some services are available at reduced subscription fees if they are restricted to specific devices – this is the case with Amazon's recently launched music service, which offers access to 40 million songs for £3.99 a month, if usage is restricted to Amazon's Echo speaker

36 Anna Nicolaou (Financial Times), *How Streaming Saved the Music Industry*, 2017, Source: Midia

5.2.1.3 Streaming services faced challenging economics, but are now driving growing sector revenues

At first streaming services did not appear to be financially viable and faced challenge from some artists for not providing them with a fair return, but this is changing. One of the main challenges has been the difficulties in adequately monetising ad-supported services; with a wealth of free music available from other sources, the premium streaming services struggled to differentiate themselves and convert users from free to pay. As we have seen, this resulted in a period of uncertainty from a revenue perspective, with some perception that artists are not being fairly compensated. Although free music has always existed in some form, services such as YouTube are accused of enlarging this 'value gap', as the ad revenues paid to performers do not match the royalties paid by subscription streaming services. **Figure 5.5** shows the difference in revenues generated from free users compared to subscribers. The transition of users to subscription services is therefore extremely important in growing industry revenues.

Figure 5.5: Subscription and ad-supported streaming services, global users and revenue, 2015



Source: IFPI, Oliver & Ohlbaum analysis

Indeed, as the streaming market has matured, competition has driven innovation, and consumers are slowly converting to paid services – as reflected in the growing streaming revenues. At the same time, free services continue to provide an important means of monetising customers who are not willing to pay – just as radio did in the pre-digital age (and continues to) – ad supported music services help build awareness and engage listeners. Furthermore, there are other advantages to the ad-based streaming model, which we discuss in more detail in Section 5.2.2.1, and online video channels provide marketing opportunities beyond limited traditional audiences. In many ways ad-based streaming is an extension of radio's role in raising awareness of music content.

5.2.1.4 New revenue models are emerging for the digital age

One of the largest ongoing challenges for the music industry is the collection of royalties in a digital environment. We have seen that industry revenues are beginning to show signs of recovery, as subscription streaming services become more established, but the fragmentation of services makes the rights environment extremely complex. Collecting societies face significant challenges in ensuring that online services offering access to their members' music are appropriately licensed – and the administrative effort associated with ensuring compliance can be significant. While traditional collecting societies continue to develop their approaches for the online world, companies such as Kobalt (in the UK and Sweden) and Sounday (in Italy) provide alternative, and increasingly accurate ways for artists to monitor usage and monetize their work.

CASE STUDY: Kobalt and Sounday – New revenue collecting intermediaries

Founded in 2000 in the UK, Kobalt uses technology to make sure that artists collect as much as possible from royalties. They represent over 40 per cent of the top 100 songs and albums in the UK and US. As the largest neighbouring rights administrator in the world, Kobalt uses its established relationships with collecting societies throughout the world, to ensure that global sales are accounted for. Kobalt maintains its up-to-date knowledge of music sales through analysis of music society databases to identify gaps in clients' income, ensuring that a client's discography is up to date, and through song fingerprinting. They allow creators to access real-time financials, and track how their music is being accessed – from the number of streams to usage on YouTube. Their KORE Platform is a rights and royalties management system which records microtransactions, while their ProKlaim for YouTube finds undetected use of their clients' music on the video streaming site, to make sure that musicians receive fair payment.

Sounday was founded in 2009 in Italy, and to date has over 1.5 million users, and a catalogue of half a million songs. Sounday is a platform which enables musicians and labels to manage their own music projects, for which they receive 100 per cent of the royalties. This means that independent artists can monetize their own work without having to sign with a label. Users upload their songs and make a one-off payment depending on whether it is a single or album, and on the scope of distribution they wish to use (so for example, a single uploaded to Spotify only costs €3.99, while an album available across multiple channels costs €60). Users can check their sales, make videos, and monetize the use of their music on YouTube. By sending their music to the YouTube database, musicians ensure that when their music is used, they receive ad payments. By creating an 'Art Track', a video is automatically created for their track on YouTube.

The transition from an album model to streaming of individual tracks has been particularly challenging for musicians in the middle of the spectrum of popularity. While the number of individual musicians receiving rights payments has increased, the size of those payments has reduced in many cases. Where musicians selling an album would receive large block payments at that time, they now receive much smaller payments in line with the volume of streaming their music generates. The most popular musicians have been largely unaffected, since they generate a large volume of streams, while the smallest musicians also benefit from a new found audience – but those in the middle may find that the volume of streaming does not make up for the lost album sales.

5.2.2 Musicians benefited from lower costs and greater engagement with fans

One of the largest impacts on the sector has been increased access to the market for artists. Any musician now has a direct route to market, meaning talent which may have previously gone undiscovered has a much better chance of success. This is due to reduced barriers to entry in terms of the costs associated with producing and distributing music; where physical formats had to be manufactured and distributed, digital formats can be supplied to consumers at almost zero marginal cost.

5.2.2.1 Reduced production and distribution costs give more artists a route to market

Creators have been empowered by digital music, as they are no longer reliant on being discovered by a record label. Artists are much better positioned to self-publish than they were in the analogue world; recording equipment is cheaper and artists can reach potential fans directly, by posting their work online. In addition, many listeners have become accustomed to user generated content and are thus more willing to try lower quality recordings shared on social platforms. Such use of social media platforms started with MySpace in 2003, and music is now shared on a wide range of services from Facebook to more specialist platforms like SoundCloud and Vevo.

The exact savings from reduced production and distribution costs are difficult to quantify, but the impact is apparent from the increase in music produced. Research by Joel Waldfoegel, which focused on the US market, found that the total number of album releases increased from less than 8,000 in 2000 to almost 10,000 in 2010. This can be closely associated with the shift to digital distribution; indeed, there were almost no digital-only releases in 2000, but by 2010 they accounted for almost 50 per cent of the total releases – and over that period, releases by major labels declined by more than half as more acts from independent labels entered the market, taking advantage of the reduced financial barriers to entry³⁷.

Perhaps the largest self-publishing platforms in Europe are SoundCloud and YouTube. These platforms offer a range of services to support artists, from a forum for feedback from peers, to the ability to monitor listening and viewing stats. Not only do these services give creators direct access to a global and engaged audience, they are often used by traditional publishers to identify new talent, and thus complement the traditional value chain. Established acts can also benefit from self-publishing, one high profile example is Frank Ocean's album, *Blonde*, which was released directly to Apple Music; taking this approach rather than going through a record label reportedly increased the artist's share of total revenues from 14 per cent to 70 per cent³⁸.

Unlike radio which tends to focus on popular music to maximise listening, YouTube offers all artists, regardless of status, the same opportunity to connect with a global audience. Hannah Trigwell is one example of how online video platforms can support new artists. Trigwell started out as a busker in Leeds, uploading covers onto YouTube; this led to a growing fan base, and some original material. This online exposure, on a global scale, resulted in her first single reaching number one in Vietnam and, since then, several tours of the UK. YouTube, and other services which are more specialised in music, have significantly reduced barriers to entry to the music industry, providing opportunities for artists to build a fan base and access traditional record labels who can help take their careers to the next level.

The reduced production and distribution costs, and new routes to market, have also benefited record companies, by reducing costs and increasing profit margins. Data from the US Census Bureau suggests that US music publisher expenses declined by almost 50 per cent between 2007 and 2010 and have been broadly stable since then. This compares to a decline in US music publisher revenues of around 10 per cent between 2007 and 2010, followed by a period of steady growth³⁹. IFPI also reported reducing costs, with estimated global spending on talent of around \$4.5 billion in 2015, compared to \$5 billion in 2009 – total Artists & Repertoire (A&R) budgets have been stable (\$2.8 billion), with marketing spending reducing significantly (\$2.2 billion to \$1.7 billion)⁴⁰. While this still represents a significant investment – around 27 per cent of global industry revenues in 2015, down from 29 per cent in 2009 – the ability to take out marketing spending has been supported by online approaches to engaging fans.

5.2.2.2 Online video services and social media allow artists to engage fans

For mainstream music, radio chart shows have always provided an important means for artists to get their music into the public eye and build a fan base. Similarly, niche radio stations offer an important base for new music in more alternative genres, allowing artists to build interest, which translates into concert ticket sales or purchases. Several online services have brought this free access to music into the digital age, and this remains vital to drive awareness and facilitate monetization. The very nature of music means that listeners require access to identify what they like. Along with 'all you can eat' streaming services, access via free online services is an important enabler of content discovery for consumers and helps artists build their fan base.

37 Joel Waldfoegel, *And the Bands Played On: Digital Disintermediation and the Quality of New Recorded Music*, 2012

38 <http://www.billboard.com/>

39 Statista, *Music Industry in the U.S. – Statista Dossier*, 2016

40 IFPI, *Investing in Music*, 2010 and 2016

At the time of writing, 38 of the 40 most viewed video clips on YouTube are music videos, demonstrating the importance of the platform in providing exposure for musicians. The number one video, Psy's *Gangnam Style*, is perhaps the perfect example of YouTube's power as a promotional tool, having clocked up more than 2.7 billion views in the four years since it was first posted. The success of this video was part of a wider social media campaign by the artist's record label to send it viral, showing that with careful planning, YouTube can be a powerful tool to generate global reach.

Many of the most viewed videos on YouTube are from the MCN Vevo, which is owned by the 'big three' record labels (Universal Music, Sony Music, and Warner Music), along with Abu Dhabi Media and Google. Vevo offers the official outlet for music videos from the big three labels, and its high-quality content is designed to attract advertisers. It has been highly successful in attracting online audiences: at the time of writing, its YouTube channels for Justin Bieber, Rihanna, One Direction and Taylor Swift make up four of the top ten, based on subscriber numbers, with 20-26 million subscribers each. Given that young people are more likely to use YouTube and less likely to listen to radio than their older peers, YouTube is a vital means of engaging young audiences.

Services such as Twitter and Facebook have made it possible for fans and artists to build relationships in new ways, and at zero cost. At the time of writing, four of the five most followed accounts on Twitter are musicians, with between 68 and 95 million followers, and it is not just Twitter, most musicians use a broad range of social media services to maximise their reach. Katy Perry, the most followed Twitter user with almost 95 million followers, also has more than 70 million likes on Facebook, and 59 million followers on Instagram. All of these services help artists raise awareness, promote new albums and tours, build loyalty, and facilitate greater monetisation through other channels.

The importance of online services in promoting musicians can be seen in the extent to which airplay is correlated with album success. Research by Joel Waldfogel⁴¹ found that the proportion of the Billboard 25 which appeared on the Billboard radio airplay charts fell from around 50 per cent in 2000 to 28 per cent in 2012⁴². This demonstrates that alternative means of reaching and engaging audiences are growing in importance.

5.2.2.3 The breadth of listening has increased, creating opportunities for more musicians

The lower costs associated with online distribution and the increased discoverability of fledgling acts, has reduced the risk for record labels looking to sign them. Local acts have been particular beneficiaries: the IFPI's latest *Investing in Music* report points out that streaming can help local artists reach their fan base more effectively, with some record companies such as Cloud 9 in the Netherlands, increasing their investment in local acts by more than 300 per cent over the last two years. Similarly, Martin Jessurun, president of Warner Music Benelux, recently told the IFPI that he could sign local acts, including the psychedelic rock band Indian Askin, because it was possible to track their popularity on Spotify and Deezer⁴³. In some markets, this has supported significant increases in the percentage of local acts in the top 10 album charts, for example, between 2013 and 2014 this increased from 75 per cent to 90 per cent and 70 per cent to 80 per cent for France and Germany respectively⁴⁴.

This increased diversity of content availability is also reflected in listening; Joel Waldfogel's 2012 analysis of the Billboard 200, found that the number of distinct artists featuring in the weekly listing of the top 200 albums increased from around 650 in 2000 to 1,000 in 2010. In addition, this increased breadth of listening reflects improved access to the market for independent artists. Waldfogel found that in 2010, 35 per cent of the Billboard 200 came from independent labels, compared to just 14 per cent in 2001⁴⁵.

41 Joel Waldfogel, *And the Bands Played On: Digital Disintermediation and the Quality of New Recorded Music*, 2012

42 The Billboard 200 ranks the 200 most popular music albums and EPs in the US, and is published weekly – the Billboard 25 refers to the top 25 albums on the Billboard 200.

43 Ibid.

44 IFPI, *Investing in Music*, 2014 and 2016

45 Joel Waldfogel, *And the Bands Played On: Digital Disintermediation and the Quality of New Recorded Music*, 2012

5.2.2.4 Interest in live music has grown significantly

We saw in Figure 5.2 that revenue from live performances has increased. This growth has been driven by a combination of more touring from artists keen to offset falling revenues from reduced physical sales, and a growing appetite for live performance from fans, who are more engaged than ever before. Whereas musicians used to tour to promote an album, they are now more likely to produce albums to facilitate their tours. Perhaps the best example of the importance of touring is Rihanna's 2011 album, *Talk That Talk*, which made it to number one in the UK album chart on the back of fewer than 10,000 sales and downloads. This was the lowest number of sales required to hit the number one slot since modern records began, yet Rihanna's tour the next year sold out on 84 of its 87 nights and grossed over \$141 million.

The internet has enabled musicians to generate the level of interest required to tour, on a larger scale than ever before. Not only are fans better able to discover artists, artists can use social media to inform fans about upcoming events. New intermediaries have also sprung up online, offering services which keep fans informed and help them acquire tickets for events. Apps such as Gigbeat/Songkick in the UK identify users' favourite artists based on their music services and alert them when live dates are available. Other sites such as Twickets and Swapmyticket help fans acquire tickets by facilitating resale amongst fans. All of these services help to maximise the audience at live music events, bringing live music to new audiences and supporting artists.

UK Music reports that Gross Value Added (GVA) – the value produced by an industry, excluding the impact of intercompany trading – from live music in the UK has grown from £662 million in 2012, to £904 million in 2015⁴⁶. In 2015, the total live music audience in the UK was 27.7 million⁴⁷, of which 3.7 million was constituted by festival attendance. This type of live performance has experienced particular success in recent years, with a 71 per cent increase in the number of outdoor rock and pop music festivals held in Britain between 2003 and 2007⁴⁸. Not only are music festivals important cultural celebrations, they also generate revenue and employment (£1.7 billion direct and indirect spending in 2014, sustaining 13,500 jobs)⁴⁹. Furthermore, festivals are increasingly accompanied by mediation from other industries, for example, television and radio, act as both marketing tools and a means of anticipating, sharing and extending the experience for fans⁵⁰. Festivals as events can therefore provide opportunities for other cultural industries.

5.2.2.5 Vinyl is an unlikely winner

Despite the decline in physical music sales, there has been one unusual success story: vinyl. Global vinyl sales have been growing over the past nine years, with sales up 36.6 per cent to \$465 million (€419 million) in 2015, and unit sales up tenfold in that time period from 3.1 million to 32 million. The last time that unit sales of vinyl were comparable to today, was the mid-1990s. Six of the top ten markets for vinyl sales in 2015 were EU28: UK (2), Germany (3), Netherlands (4), France (7), Italy (9) and Spain (10), with EEA country Norway 10th⁵¹. This could be because, as music is increasingly purchased in digital format, many people are turning to vinyl for its aesthetic qualities: as a physical piece of art, and for its unique sound qualities.

5.2.2.6 Entirely new ways to engage with and share music are emerging

Digitalization has enabled novel methods of consumer engagement. Karaoke One is one such example, which provides a new way for listeners to engage with music. This social media site for music fans allows users to record their singing (and associated videos) and share them online.

46 UK Music, *Measuring Music 2016 Report*, 2016

47 Ibid.

48 Emma Webster and George McKay, *From Glynedebourne to Glastonbury: The Impact of British Music Festivals, An Arts and Humanities Research Council Funded Literature Review*, 2016. Norwich: Arts and Humanities Research Council/University of East Anglia

49 Ibid.

50 Webster and McKay

51 IFPI, *Global Music Report*, 2016

CASE STUDY: Karaoke One

Karaoke One is an Italian app enabling users to record themselves singing their favourite songs. Recordings – audio and video – can then be shared with the Karaoke One community, or via wider social media platforms such as Facebook. Karaoke One builds on consumers' increasing preference for digital formats and growing appetite to circulate their own cover versions of songs, on platforms such as YouTube.

The app started as a catalogue of backing tracks – with no recording or social media features – and it was only available on Windows computers. Nevertheless, Karaoke One reached almost half a million downloads and, in response to user feedback, it developed the app into its current form. Karaoke One uses a freemium model at entry level, with users able to access a limited catalogue – those wishing to use the whole catalogue must pay a monthly subscription.

The site allows users to sort singers by number of followers. This, with the ability to browse themed playlists, helps people to discover new songs and supports the emergence of new talent. As well as being used by amateur musicians, the app allows more casual users to be creative. Indeed, Karaoke One's founders note that the app is used in innovative ways, with some users incorporating choreography and even including comedy sketches. Observing usage allows Karaoke One constantly to improve the product by reacting to what the community wants.

In 2016 Karaoke One collaborated with X Factor Italy. Fans of the show could sing the songs performed by participants, as well as creating their own cover videos. The videos that received the most reactions (with listeners leaving the reaction "You Rock"), were featured on X Factor Italy's official website. Thanks to the app, users could take part in the show – just one example of how digitalization has enabled multi-format entertainment, in combining TV and music with UGC.

5.2.3 Consumers have more choice and can engage with musicians

The decline of physical sales has not been matched by a decline in engagement by music fans. As well as new ways to purchase music content, the internet has brought increased access for consumers and new ways for them to engage directly with musicians.

5.2.3.1 As well as increased access, consumers have greater choice from better quality content

Consumers have access to more content than ever before. Following the initial transition of music retail from the high street to online, consumers saw the availability of music increase dramatically. Rather than being restricted by the size of the store, online retailers had vast warehouses and offered consumers a wider variety of music from across the globe. Streaming services took this a stage further: consumers previously only had access to the content they chose to purchase. Now, listeners have access to far more than they could ever listen to – as discussed in 5.2.1.2. This provides a much richer consumer experience, with access across devices, more choice, and more opportunities to discover new content.

One of the most important benefits of reduced barriers to entry is the positive impact on quality. With more acts able to reach their audience, there is more chance that 'winners' are identified, acknowledged by mainstream listeners, and achieve commercial success. This impact on the quality of available music has been discussed in two recent papers by Aguiar and Waldfogel⁵² and ⁵³ - they argue that costs have fallen by more than revenues, so more songs can be distributed. More products means that more potential 'hits' become actual 'hits'.

52 Aguiar and Waldfogel, *Quality Predictability and the Welfare Benefits from New Products: Evidence from the Digitalization of Recorded Music*, 2016

53 Aguiar and Waldfogel, *Even the Losers get Lucky Sometimes: New Products and the Evolution of Music Quality Since Napster*, 2016

5.2.3.2 Recommendation services increase discoverability and broaden listening

Most music streaming services help consumers find new music in ways that were not previously possible, while other services exist exclusively to recommend new music. Streaming services such as Spotify and Deezer include features (Discover and Flow, respectively) which recommend tracks and thus broaden listeners' horizons. Many ad-supported streaming services restrict listeners' ability to choose what they listen to, forcing them to try new artists. This benefits listeners, who are likely to develop broader tastes, and discover news acts which they enjoy, while artists also benefit from increased exposure.

Services, such as Last.fm, Shazam and Soundsgood have developed specifically to aid discoverability. Last.fm is a recommendation tool which collects information on listeners' preferences by connecting to their preferred music services – it then offers artist information and recommendations. Shazam uses audio recognition technology to identify songs being played and allows users to purchase music they identify from several online sources. These types of services have naturally led to a change in listening preferences, away from albums and towards playlists, focusing on preferred tracks. Playlists can be shared on most streaming services and as well as improving the overall listener experience, they can be used by influencers and brands to engage their audiences. Soundsgood is one service specialising in this area.

CASE STUDY: Soundsgood

With the emergence of streaming as a widely accepted approach to listening to music, playlists have become an important means of engaging and building communities of music listeners. Rather than listen to whole albums, streaming services are often built around track lists compiled by the service, or other users, making playlists an increasingly important social currency for brands and influencers. However, the wide range of streaming services means that those wishing to share their playlists must do so across several platforms, making it difficult and time consuming to reach everyone (for example, a playlist on Spotify cannot be shared with Deezer users).

French company Soundsgood (founded in 2014) provides a solution to this problem. As a music curation platform, it enables users to create their own playlists and distribute them across streaming platforms such as Spotify, Deezer, YouTube or SoundCloud. The users can also share a single universal player on their website and social networks, thereby smoothing out the disjunction which users experience due to the fragmentation of the streaming landscape. Soundsgood is available worldwide, and as of writing, is used by over 10,000 influencers in culture and music. These influencers, Soundsgood maintains, are vital for the music industry, in enabling music discovery, breaking new artists and ultimately, driving streaming volumes and revenues. Certified users have the ability to monitor their playlists' stats to gain a deeper understanding of which are the most successful.

One of the biggest advantages that Soundsgood offers is the potential for brands to use playlists to grow their consumer following. Soundsgood staff blog about the ways to make the most out of playlists – for example on how to target song selection to a specific audience, how best to promote a playlist, and how to make that playlist go viral. Brands, influencers and individuals can create playlists which are accessible across streaming platforms; in so doing, they reach not just one segment, but the whole of the streaming community.

5.3 Outlook to 2020

The music industry has faced some significant challenges in recent years, as physical sales declined and the business models associated with digital distribution established themselves. While there is still a long way to go before music industry revenues recover to historic highs, recent growth in revenues from streaming services suggest that digital business models are becoming economically viable. Indeed, the industry expects to see continued strong growth in digital revenues over the coming years – supported by continued strong performance from broadcast and live, so that total industry revenues continue to expand.

The key to ensuring digital revenues perform strongly will be converting those who pay to download music, or are using digitally delivered formats for the first time, into paid streaming subscribers. We have seen several streaming services, which hold appeal to a wide range of listeners, establish themselves, and with the average monthly subscription costing around twice the amount spent by the average digital downloader (based on US data)⁵⁴, a continued transition towards streaming services will underpin growth in total music revenues. Since most streaming services are yet to become profitable, this will also be necessary to prove that streaming can form a sustainable part of the music ecosystem. We expect that this is only a matter of time.

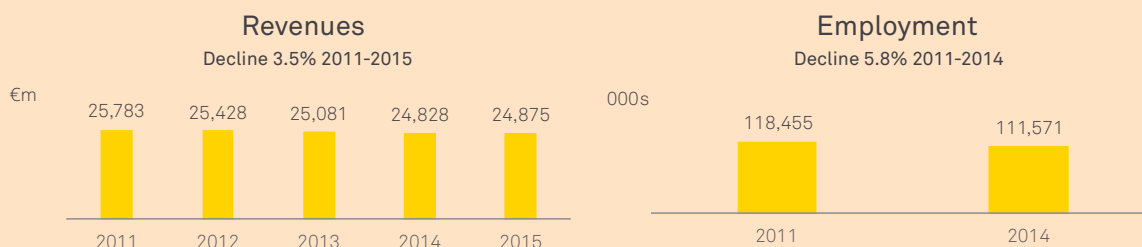
Further differentiation between subscription services, could help maximise subscriptions at different price points and service types. However, the licensing landscape represents an ongoing challenge for the industry. While new approaches are being developed to manage digital rights and support collection of royalties, the administrative costs associated with collection across such a fragmented platform landscape is likely to continue to present a barrier to entry for further competition in the sector. This could slow the development of niche services which might otherwise develop as a further means of monetising existing freemium users, by offering relatively low price points and/or specialised content, compared to services with larger, more general catalogues.

54 <http://www.billboard.com/articles/business/7565475/record-business-back-streaming>

A balance appears to have been struck between eBook and physical book sales, with both experiencing revenue growth in recent years

6 Books

Overview of trends in revenue and employment



Note: Revenues includes Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK; employment includes Finland, France, Germany, Italy, Poland, Sweden and UK, employment data for UK is 2010

Source: Revenue – PwC ‘Global Entertainment and Media Outlook 2016 – 2020’
 Employment – Eurostat LFS, SBS, Analysys Mason and Oliver & Ohlbaum analysis

Characteristics of digital production and distribution

Digitalization has reduced distribution costs significantly

- Developments such as the increased availability of print on demand (POD) services has reduced the cost of print publishing
- Digital distribution of eBooks and audiobooks has significantly reduced costs

Increased competition has led to new business models

Digitalization increased competition in retail from online suppliers and challenged physical book sales

- Online suppliers compete with high street retailers – in Sweden, online retailers accounted for 32.3 per cent of publishers’ sales to retailers in 2015, compared to 22.2 per cent in 2007
- Physical sales in our nine focus markets fell in 2014, but grew by 1.4 per cent between 2014 and 2015

New business models have emerged to curate content, as well as supporting new authors and content types

- Self-published titles account for 41 per cent of the Italian eBook market in 2015 – eBooks have thus supported new authors
- Services such as Smashwords, Bookbaby, Lulu, and Tolino offer online self-publishing platforms across several markets
- Services such as iClassics, offer new literary experiences including multimedia interaction with classic novels

Fanfiction services offer authors new ways to engage fans

- Online communities have emerged around fanfiction sites
- They help new talent to emerge, and build reader loyalty and provide merchandising opportunities for the original authors

There are benefits to consumers and content creators

Readers have more access to more titles than ever before

- Online retailers can carry more stock than high street retailers
- eBook retailer, Amazon, offers more than five million titles
- Smashwords, a significant self-publishing platform, carries more than 400,000 titles, with 65,000 available for free

Creators and publishers benefit from increased purchases and increased margins

- eBooks have increased reading options, resulting in additive purchases as well as some substitution of physical books
- eBooks are typically only 20-25 per cent cheaper than physical books, despite the distribution cost saving exceeding this – meaning profit margins have benefited from a shift to digital

More authors have a route to market, and online platforms are often used by publishers to identify talent

- *Fifty Shades of Grey* started as fanfiction and went on to sell over 100 million copies after being picked up by Random House
- *The Martian* started as a self-published serial and, like *Fifty Shades of Grey*, was adapted for film

The book publishing industry has seen considerable change due to the internet, in terms of both supply and demand. Digital technologies have created opportunities right along the value chain, helping to discover works that would otherwise go undiscovered and allowing access and engagement with literature in new ways. This part illustrates how the internet and digitalization have impacted on authors and readers, as well as on the traditional intermediaries whose business models have been disrupted, but who are developing new approaches and new products to serve consumer demand for more content.

6.1 The structure of the sector and its evolution

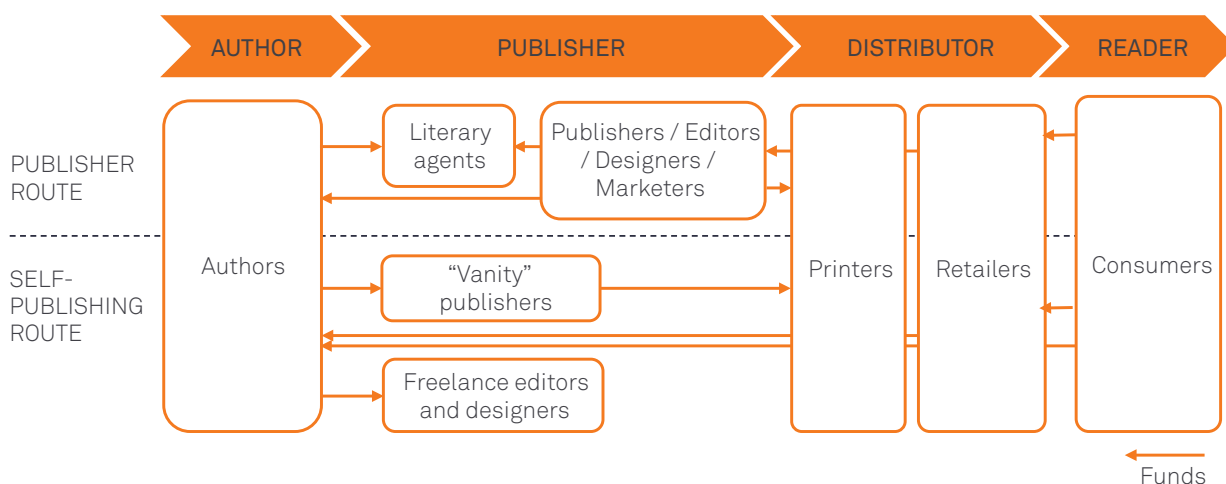
Along with music, book publishing was one of the first creative industries to feel the effects of the internet due to its transformative impact on retail. Indeed, Amazon arguably set the template for online retail when it started trading as a bookseller. It changed the way in which books were sold, before technological advancements changed (in part) the way they are consumed through eBooks. Undoubtedly, the internet has presented challenges for some traditional players in the market, but many are now finding their place in the digital age and there have been significant positive effects on the creative aspects of book production and consumption. Of course, like all digital creative industries, book publishing continues to experience the threat of piracy, but several initiatives are being tested to prevent this⁵⁵.

⁵⁵ For details see Rüdiger Wischenbart, *Global eBook Report*, 2016

6.1.1 Traditional roles remain, but self-publishing is now more realistic

The book publishing value chain has two distinct routes: the traditional publishing channel and self-publication. **Figure 6.1** sets out the key stages for each route; these have not changed significantly because of the internet – the roles are the same, but the emphasis has adjusted. This is largely because authors are now empowered to publish and distribute their own work more cheaply and with less risk, competing more directly with publisher-led channels.

Figure 6.1: The traditional book publishing value chain



The traditional publisher route involves an author relinquishing full control of their work in exchange for professional editorial, design and marketing services, and support in bringing works to new formats, such as audiobooks and translations. Publishers take on the financial risk of authorship and provide authors with a route to market via their relationships with retailers. Self-publishing requires the author to take more risk, but they maintain full artistic control and have more scope to cover niche topics, which are unlikely to be picked up by traditional publishers. In most cases, the costs associated with self-publishing have traditionally been prohibitive for authors and even if financially successful, self-published works are normally ineligible for book prizes (although Amazon has recently launched a self-publishing prize)⁵⁶ and may struggle to shake off the reputation that they are of lesser quality - indeed successful self-published authors tend to be signed by traditional publishers. The publisher route to market is broadly unchanged in the internet age, but the attractiveness and accessibility of self-publishing has changed significantly.

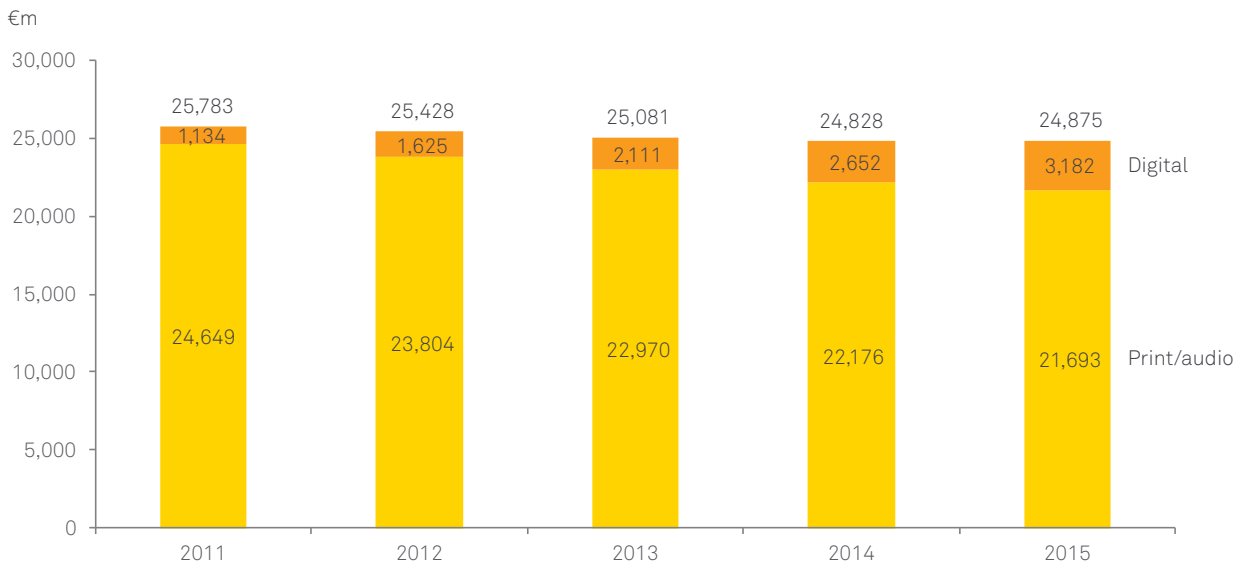
6.1.2 Revenue was challenged by digital but is now recovering

We saw in Section 2.2.1 that there was a gradual decline in total book publishing revenues across Europe between 2011 and 2014, followed by a recovery in 2015. **Figure 6.2** shows that our nine focus markets followed a similar pattern, with an annual decline of 2.3 per cent between 2011 and 2014, followed by growth of 3.5 per cent in 2015. The decline between 2011 and 2014 was characterised by falling revenues from print and audio books (of 4.6 per cent a year), which were not fully compensated for by growth in digital (eBooks) – over that period. In 2015, print and audio revenues returned to growth, increasing by 1.4 per cent, while digital revenues continued to expand, increasing by 20 per cent in 2015.

This return to growth for print and audio book publishing revenues is an important turn around, indicating that the industry may have arrived at a new equilibrium. Naturally there has been some reduction in print revenues as online retailers have brought books to market more cheaply, and some consumers have switched away from physical books towards eBooks (at slightly lower price points). But eBooks are not always seen as a direct substitute for physical books and, as such, it comes as no surprise that the market for physical books appears to have stabilised and both physical and digital revenues are now growing simultaneously.

56 <http://www.thebookseller.com/news/amazon-launches-20000-kdp-prize-472661>

Figure 6.2: Book market revenues, for nine European markets, 2011 to 2015

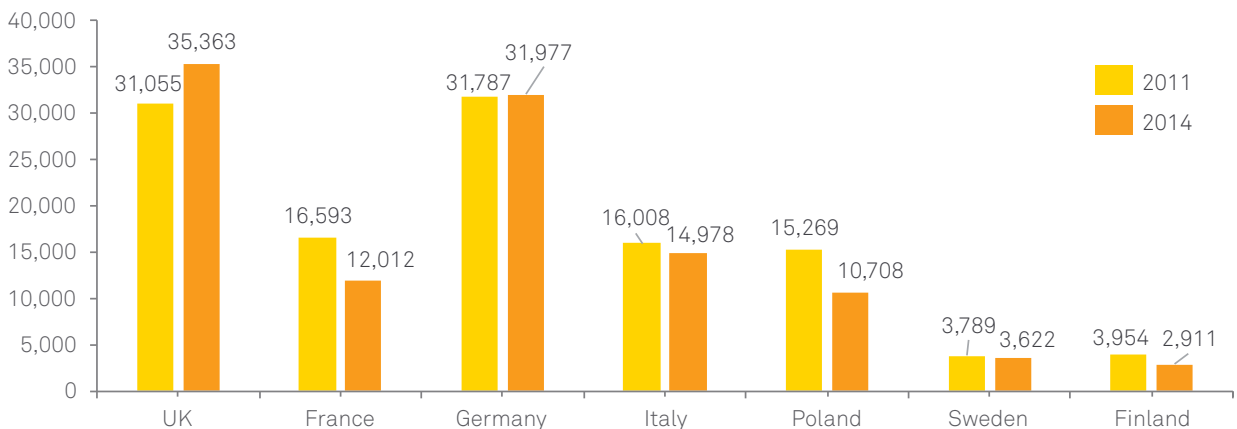


Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

6.1.3 Employment presents a mixed picture

Our high-level analysis of EU creative sector employment in Section 2.2.2 did not allow us to differentiate between books and news publishing, but it is possible to compare book publishing employment in 2011 against 2014 for a selection of our key markets. **Figure 6.3** shows employment in book publishing (NACE code 58.11), presenting a mixed picture across the markets; while the UK saw a significant increase in employment between 2011 and 2014, the French and Polish book publishing industries both saw a large decline. Others were broadly stable though most were reducing rather than increasing.

Figure 6.3: Employment in the book publishing industry, by market, 2011 and 2014



Note: UK data is for 2010 rather than 2011
 Source: Eurostat LFS, SBS, Analysys Mason and Oliver & Ohlbaum analysis

While 2014 is the latest employment data available at 4-digit NACE code level, the tendency towards falling employment to 2014 is unlikely to tell the whole story. As we have seen, book publishing revenues increased from 2014 to 2015 following a period of decline, and employment could therefore have seen a similar change of fortunes as print publication of books began to recover and digital revenues continued to grow rapidly. It is also worth noting that, according to a report on its members, commissioned by the Independent Publishers Guild in the UK, 93 per cent of independent publishers who responded, employ freelancers – mostly in editorial and design⁵⁷ - these activities may not be fully captured by the employment data collected through the LFS.

6.2 The impact of the internet and digitalization on the sector

While the role of publishers remains critical, writers now have more ways to reach readers directly and the benefits to consumers, through increased access and availability of content, are significant. In this section, we examine the impact on the sector in more detail, focusing on three key areas: the increase in access to literature, the impact on competition and authors, and the increase in choice for consumers.

6.2.1 The internet has increased access to books

There have been two key stages in the digital development of the book publishing market. First, the sale of print books moved online, challenging traditional retailers and providing opportunities for new players. Then, books themselves were digitalized. eBooks became a credible alternative to physical copies and audiobooks also became more easily accessible.

6.2.1.1 Online sales of printed books benefited consumers and challenged traditional retailers

The book-purchasing experience traditionally involved a visit to a high-street bookshop, but the internet brought new competition to the sector. Rather than having to pay for a premium location on the high street, and seeing capacity restricted, online retailers can maintain large warehouses at relatively low cost, offering consumers both a larger selection of books and potentially significant discounts. This is clearly demonstrated by the emergence of online retailers; in most markets they now account for a significant share of physical sales – in Sweden for example, internet retailers accounted for 32.3 per cent of sales from publishers to retailers (less returns), compared to 22.2 per cent in 2007⁵⁸. With few restrictions from publishers around what prices books must be sold for in most EU countries, online retailers have been highly successful in growing their share of the retail market. Amazon is the most notable success, having taken a significant share of the online books sale market in most countries. For example, it accounts for 50 per cent of the online book sale market in Italy⁵⁹.

In some countries, however, fixed book price (FBP) laws prevent retailers discounting books for a certain period after publication, with the aim of protecting smaller booksellers. In France, for example, the Lang Law instituted a maximum of 5 per cent discount for consumers, and 9 per cent for libraries, for two years after publication, or six months after the last supply to booksellers. Under the Lang Law no discounts are allowed for eBooks, with no time limit. FBP laws vary by country, however; for example in Italy the FBP does not cover eBooks. Of our nine major markets, FBP rules are in place for France, Germany, Italy, Netherlands and Spain⁶⁰. There are arguments both for and against FBP rules; in Poland, where there is no FBP rule in place, the Polish Book Institute is concerned that the sale of books at a reduced price by publishers and wholesalers does have a negative impact on the book market⁶¹. For countries such as the UK, where the Net Book Agreement (a fixed book price agreement between publishers and retailers which was in place throughout most of the twentieth century) was abolished in 1995, FBP rules are considered by many to have stifled a free market.

57 IPG, *The Harbottle & Lewis Independent Publishing Report, Executive Summary*, 2016

58 The Swedish Publishers' Association, *Publishing Statistics*, 2015

59 Rüdiger Wischenbart, *Global eBook: A report on Market Trends and Developments*, 2016

60 International Publishers Association, *Global Fixed Book Price Report*, 2014

61 Instytut Książki, *The Polish Book Market*, 2013

Regardless of the extent to which online retailers can offer discounts compared to high street retailers, online purchasing has some drawbacks for consumers. The purchase experience of browsing before deciding on a title is hard to replicate online. Online retailers have tried, by offering previews of pages on the internet, but many people still enjoy the experience of book shops. That said, one problem which threatens to impact all bricks-and-mortar book retailers, is 'showrooming' – browsing in a physical shop then buying the product more cheaply online. According to a 2013 survey by Censuswide of over 2,000 UK book buyers, two thirds admit to showrooming⁶².

It is worth noting that the extent to which consumers purchase books online varies considerably by market, reflecting pricing restrictions as well as national preferences. In Germany, Poland and Sweden the internet book trade accounts for around 20 per cent of total revenue, whereas in the UK online retailers generate 45 per cent of revenues⁶³. Despite the larger share of revenue taken by online retailers in the UK, high-street bookshop revenues remained steady in 2015, selling books worth £838m, whereas, in other markets, including Germany and Sweden, high street retailers have seen their share of revenues decline in recent years as online retailers have grown in popularity⁶⁴. The relative performance of online retailers in different markets is also affected by the competitive landscape, which varies across our nine focus markets; for example, Amazon does not have a local presence in Sweden or Finland, and only introduced a dedicated site to the Netherlands in 2014.

In most markets, online book retailers have been established for several years now, and while some high-street retailers have felt the pressure, a balance is emerging. The traditional retailers continue to offer certain benefits which online shops cannot, such as expert recommendations and immediate access to their purchase. Initiatives like the UK's Independent Bookstore Day and author readings and book signings, can help to maintain local loyalty. Some have also been able to adapt by selling online as well as in store, and companies such as Hive.co.uk offer innovative new approaches, allowing customers to search for a book online and decide from which local bookshop they will collect it. The number of indie bookshops in the UK did decline from 926 in 2014 to 895 in 2015⁶⁵, but larger chains such as Waterstones remain strong. In fact, the main casualties in the UK are supermarkets and non-specialist shops, who collectively in 2015 witnessed a 4 per cent decrease in purchases and 2 per cent in value⁶⁶.

6.2.1.2 eBooks provide consumers with a new way to access literature

The emergence of eBooks was the second stage of the internet's impact on the book publishing industry, giving more people access to books in a more convenient way. Rather than having to go to a bookshop or wait for a delivery, readers can access books immediately and can carry multiple books on just their eReader or other connected device. While some readers maintain that eBooks lack the charm of their physical equivalent, there is no doubt that they have led to increased access and, as we have seen, eBook publishing has been the main driver of growth in publishing revenues in recent years. According to the Federation of European Publishers, as of 2015 European publishers held almost 22 million titles in stock, of which over four million were digital⁶⁷, and eBooks constitute almost two thirds of the European e-publishing market (the rest being newspapers and magazines)⁶⁸.

Amazon dominates the eBooks market with, for example, an estimated 90 per cent share in the UK⁶⁹, and around 50 per cent of the Italian eBook market⁷⁰. In fact, because of this dominance other eBook retailers have struggled to establish themselves and what initially promised to be a competitive market has seen a steady consolidation in recent years. In March 2016 Barnes & Noble's Nook closed in the UK, with customers required to transfer their libraries to Sainsbury's, which had bought a majority stake in Anobii in 2012. But in September 2016 Sainsbury's also ceased to sell eBooks, and customers were again required to transfer their libraries, this time to Kobo.

62 <http://www.thebookseller.com/news/young-book-buyers-put-amazon>

63 Nielsen Book Research, *2015 in Review: The London Book Fair Quantum Conference 2016*; Börsenverein des Deutschen Buchhandels Press Release, *Fit for the Future*; Frankfurter Buchmesse, *Sweden Social and Economic Information*, 2014; Instytut Książki, *The Polish Book Market*, 2013

64 Börsenverein des Deutschen Buchhandels Press Release, 'Fit for the Future'

65 Rüdiger Wischenbart, *Global eBook Report*, 2016

66 Nielsen Book Research, *2015 in Review, The London Book Fair Quantum Conference*, 2016

67 Federation of European Publishers, *European Book Publishing Statistics*, 2016

68 Statista, 'Digital Media: ePublishing'

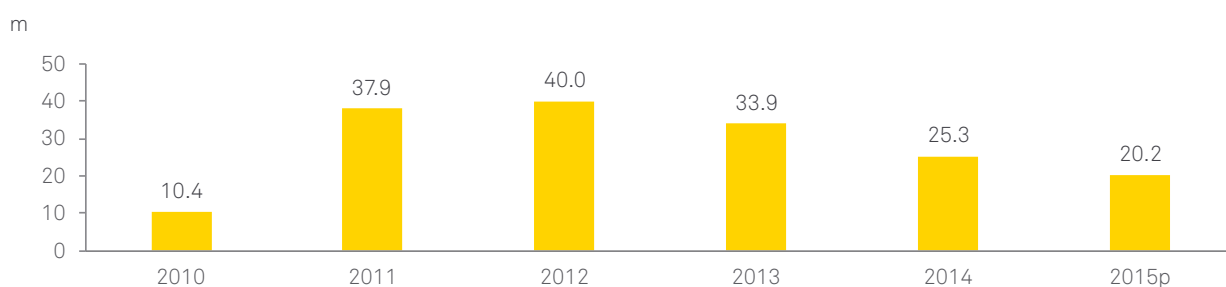
69 <http://www.thebookseller.com/news/sainsburys-exits-e-book-market-394536>

70 Rüdiger Wischenbart, *Global eBook Report* (2016)

Kobo has emerged as a credible competitor to Amazon, and also absorbed Waterstones' eBook customers, after it stopped selling eBooks in 2016, less than a year after it removed Amazon's Kindle eReaders from its stores⁷¹.

Demand for eBooks has been supported by the availability of devices which can be used to access them. eReaders, tablets, and mobiles have allowed consumers to access their entire eBooks library on the move, increasing the opportunities to read. **Figure 6.4** shows how eReader sales have evolved over the last five years. While penetration of digital devices supporting eBooks is high, sales of eReaders have fallen significantly since 2012. This suggests that the market is becoming saturated, supporting our assertion that a new equilibrium may now have been reached between print and eBooks. The decline could also be explained by consumers' growing tendency to access eBooks via other devices, rather than having a specialist device for eBooks. Indeed, Research from Nielsen suggests that this trend may have continued into 2015; eBook readers who read primarily on tablets increased from 30 per cent in 2012 to 41 per cent in Q1 2015⁷².

Figure 6.4: Unit sales of eReaders worldwide 2010-2015



Source: GfK, Oliver & Ohlbaum analysis

Similarly, the percentage of eBook buyers who said they used their smartphone to read books at least some of the time increased from 24 per cent in 2012 to 54 per cent in Q1 2015. The number who read *primarily* on their phones increased from 9 per cent in 2012 to 14 per cent in Q1 2015, while during the same period the percentage who read books primarily on eReaders fell from 50 per cent to 32 per cent. This may be because opportunities to read, such as while commuting, arise when people have only their phone to hand. Although the decline in eReader sales does not itself explain the switch to tablets and smartphones, it might be said that the longevity of the eReader hardware itself has impacted sales – with the current technology an already satisfactory medium through which to read.

6.2.2 Digitalization has increased competition and benefited authors

The internet has changed the relative attractiveness of the traditional publishing routes, making self-publishing a more affordable and less risky alternative to using a traditional publisher. This has increased competition in the sector by reducing the importance of the most established publishers – it helped the smaller players to compete and enabled authors who were not picked up by publishers to go it alone.

6.2.2.1 Self-publishing is now easier and lower cost

At almost every stage of the creative process there are online tools to help authors make the best of their ideas, from editing through to marketing and self-publication, whether as an eBook or in print. While most established authors still use publishers, self-publication can be attractive to established and aspiring authors alike. For an established author, removing traditional intermediaries means they retain full creative control and do not need to pay out a share of their income. For an aspiring author, self-publication means they do not need publisher or agent approval. While this has always been possible, self-publication previously involved

71 <http://www.thebookseller.com/news/waterstones-cuts-e-book-deal-kobo-330270>

72 <http://www.wsj.com/articles/the-rise-of-phone-reading-1439398395>

significant financial risk. The reduced cost of distribution in the digital age has therefore made self-publication a feasible option for authors who would not have been able to go ahead in the past.

Most self-published titles are published as eBooks only; self-published titles hold a significant and growing share of some eBooks markets. In Italy, for example, 41 per cent of eBooks published in 2015 were self-published, compared to 1.2 per cent in 2010⁷³, while in the UK self-published titles accounted for 12 per cent of the eBook market in 2012⁷⁴. But there are also better options for physical publication. In the pre-digitalized world, authors had to commit to a given sized print run before they knew how well the book would sell – this could be both costly and risky – but new options exist which allow authors to print on demand, meaning that there is no wastage. Several mainstream self-publishing platforms are now well established, for both eBooks and print, including Smashwords, Bookbaby, Lulu, Tolino self-publishing in Germany, Amazon CreateSpace, and Amazon Kindle Direct Publishing (KDP). These services typically allow authors to sell their work through retailers such as Amazon, Apple iBooks, and Kobo.

Of course, the output of these self-publishers ranges in quality, from hobbyists to those who go on to global success. The curation of self-published books is therefore the key role of these platforms. Indeed, many allow readers to discuss books, and thus help to establish the most promising titles; there are also ‘book club’ style platforms such as Goodreads which can help to get self-published titles noticed, while marketing tools such as those provided by Smashwords can help authors target the right audience effectively, without the need for a traditional publisher. Indeed, there are several examples of high profile authors who started out on self-publishing platforms, and who might not have been discovered without the internet.

Perhaps the most famous example is E L James’s *Fifty Shades of Grey*, which started out as online fanfiction of Stephenie Meyer’s *Twilight* trilogy. James sold 250,000 self-published copies, before being picked up by Random House, after which her book sold over 100 million copies⁷⁵. Andy Weir wrote *The Martian* because of a personal interest in space, and uploaded chapters to the internet. When Weir made his novel available for Kindle readers for the minimum price allowed, it became a hit and was picked up by a mainstream publisher. These are, however, exceptions: more than half of the self-published authors questioned by German self-publishing help-site Selfpublisherbibel, reported that they earn less than €50 a month, and only 4 per cent earned over €2,000 a month⁷⁶. But nevertheless, the internet has provided the possibility for budding authors to share their work on a global scale.

Crowdsourcing is another new and innovative way for authors to edit their manuscripts. Services such as Inkitt in Germany, allow authors to publish works in progress and receive creative feedback from other authors and readers alike. These preliminary reviews help authors to tailor their work and broaden its appeal and impact before completion, as well as helping to highlight promising titles. These types of platforms are now used by traditional publishers as a means of identifying upcoming authors who they may then sign up and support with further marketing and distribution.

6.2.2.2 Print books remain popular; eBooks are a complement, not just a substitute

While there were initial fears that eBooks would seriously damage the physical book publishing market, the impact has not been as significant as feared. Despite the new options offered by eBooks, physical book sales have remained fairly robust. We saw in Section 6.1.2 that print revenues returned to growth in 2015 and it appears that a new equilibrium may have been reached – with eBooks complementing print, not just providing a substitute. Additionally, in the UK market, some sources suggest that the strong 2015 performance for print books may be due to the popularity of adult colouring books: this genre constituted £25 million worth of sales in 2015, and six of the top ten paperback non-fiction books⁷⁷. This is just one example of how the print industry has been able to respond to minimise the impact of eBooks being adopted as a substitute, by emphasizing the unique aspects of print.

73 Italian Publishers Association, *From Self-Publishing to Samizdat*, 2016

74 Rüdiger Wischenbart, *Global eBook Report*, 2016

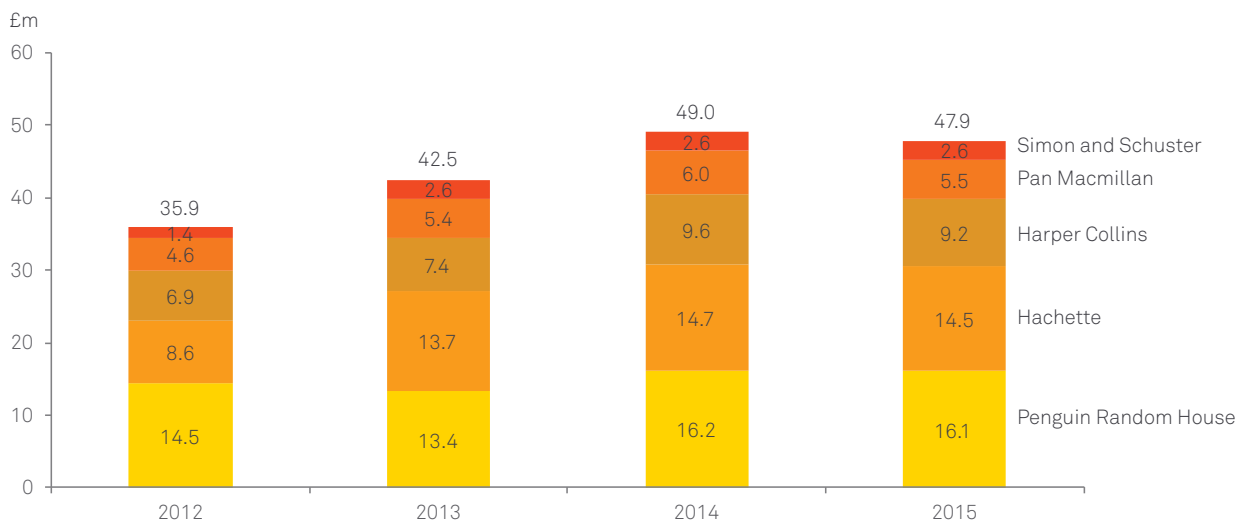
75 Federation of European Publishers, *Report of Activities May 2015*, 2016

76 Rüdiger Wischenbart, *Global eBook Report*, 2016

77 Nielsen Book Research, *2015 in Review. The London Book Fair Quantum Conference April 2016*, 2016

Indeed, there are signs that growth in eBook sales are slowing down, coinciding with the bounce back in print revenues. **Figure 6.5** shows that in the UK, following a steady increase over three years, eBook sales for the ‘Big 5’ publishers fell in 2015 by 2.4 percent. As well as suggesting that a balance between physical and eBooks has been achieved, this could indicate that self-publishers are flourishing, and taking sales from established players. Either way, the recovery of print is a positive sign for the industry.

Figure 6.5: eBook sales for the UK Big 5 publishers



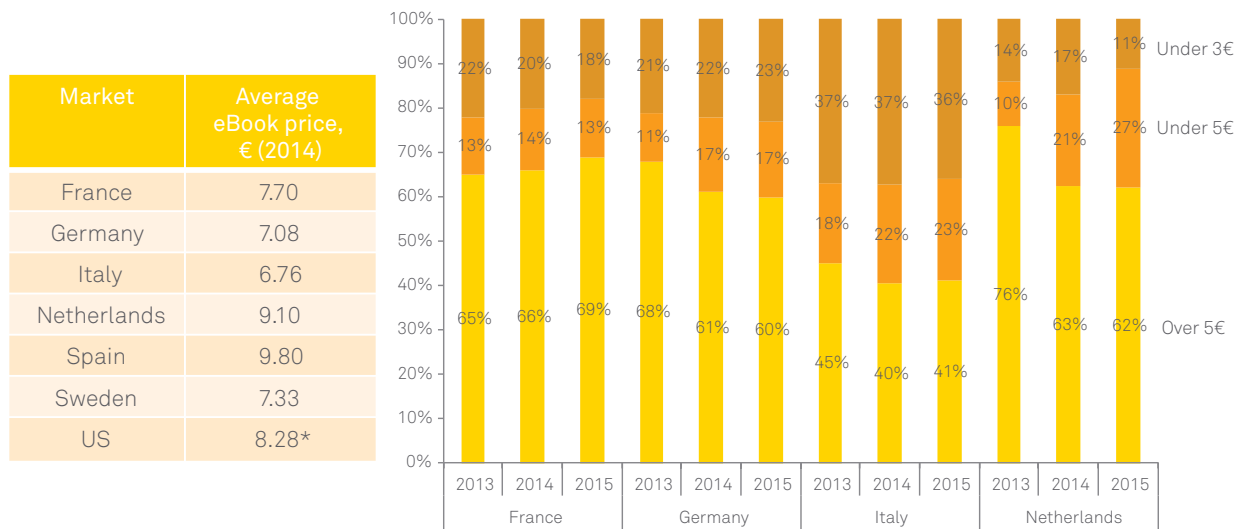
Source: Alison Flood (*The Guardian*), *Ebook sales falling for the first time, finds new report*, 3 Feb 2016, Oliver & Ohlbaum analysis

This new-found balance is in part down to the industry’s approach to eBooks in Europe. Despite eBooks costing considerably less than their physical equivalents to distribute, publishers do not, in general, pass on this saving to consumers. For starters, the ability to differentiate prices between print and eBooks is influenced by rules around VAT; in all of our focus markets except Italy and France, VAT on eBooks is charged at the standard rate, whereas print books are subject to a reduced tax (in recognition of their educational and cultural importance). Publishers have argued that this system is out of date in the digital age, and the argument in favour of reduced VAT on eBooks is becoming more compelling. As it stands, though, higher VAT rates do limit the pricing options on digital books, and may be contributing towards making the format less attractive than print for some consumers.

In addition, prices are often set by publishers, rather than retailers, to ensure that the price differential between eBooks and their hardcover physical equivalent is not sufficiently stark to undermine the physical market. In 2010 Penguin, Hachette, Harper Collins, Pan Macmillan and Simon & Schuster, agreed a pricing structure with Apple on the basis that it was the lowest price at which the eBook was available. However, in 2012 the US DOJ concluded that the publishers had unlawfully fixed prices, and prevented them from striking a similar deal for two years. Since the end of that cooling-off period, all of the major publishers have established similar pricing deals with Amazon over eBooks. These deals have ensured that prices of eBooks from publishers have remained relatively close to print price in several European countries – an average discount of 20 to 25 per cent is maintained in France, Germany, Netherlands and Poland – although exceptions are Italy and Spain, where discounts are around 40 per cent⁷⁸.

Figure 6.6 details average eBook prices for seven countries in 2014, and the distribution of the share of the eBook market in four countries by price. The table shows that there is a difference of over €3 between prices in Italy and Sweden, but it also shows that Spain’s preference for heavily discounting eBooks is not reflected in the average price. The adjacent graph again shows that there are differences across markets in what people are willing to pay for an eBook.

Figure 6.6: Average eBook prices



*average price of eBook from the Big 5 publishers (\$10.99), at average 2014 exchange rate USD-EUR, oanda
 Source: Rüdiger Wischenbart, Global eBook report 2016, Oliver & Ohlbaum analysis

6.2.2.3 Audio books have enjoyed increased popularity

Another form of book publication affected by the internet is audiobooks; these have been around for some time but faced considerable limitations in the pre-digitalized world. Whether sold on tape or, more recently, on CD, capacity limitations made them cumbersome – CDs hold just 74–80 minutes of audio and so a single audiobook could run to ten or more CDs. The internet has made audiobooks much more accessible. While the file size is largely unchanged, internet speeds have made audiobooks downloadable, and increased storage capacity on consumers’ mobile devices has made it practical for audiobooks to be used on the move.

While we are not able to differentiate between revenues generated from physical and audio books, it is likely that audiobook revenues have expanded in recent years. According to Nielsen, audiobook purchasing in the UK was up 50 per cent year on year in 2015, and made up 2.3 per cent of all UK book purchases, with £47 million spent on the format⁷⁹. In Sweden, where eBooks represent 33 per cent of titles published, but only 2 per cent of sales in monetary terms, audiobooks represent 8 per cent of titles published and 4 per cent of sales in monetary terms⁸⁰. In Poland the audiobook market grew by 23 per cent in 2012⁸¹. These increases might also be explained in part by the migration of podcast listeners to audiobooks.

CASE STUDY: Word Audio Publishing

Word Audio Publishing is a Swedish audiobook publisher which was founded a decade ago, when the Swedish audiobook market was already well established. Word Audio focused its efforts on digital output from the start, believing the audiobook industry would undergo rapid transformation due to the evolution of digital technologies. It offers audio books in several formats: physical (on CD), for download, and streaming.

The Swedish market has seen a decline in physical audiobook sales in recent years, most likely because of the fact that digital alternatives tend to be easier for consumers to access and that the physical CD book is a high-priced product. These new digital options have grown in popularity and while digital downloads were the first format to see growth, it is now audio streaming services which are seeing the most growth. For Word Audio Publishing, streaming now accounts for the largest proportion of revenues and will continue to do so.

79 Nielsen, *UK Books and Consumer Survey*, quoted in the Futurebooks conference programme, 2016

80 The Swedish Publishers’ Association, *Publishing Statistics*, 2015

81 Instytut Książki, *The Polish Book Market*, 2013

Word Audio believes that subscription services, comparable to Netflix in video and Spotify in music, are likely to experience growth. This business model is well suited to the books market since it provides consumers with more flexibility; they experience less friction because they pay for one service and can easily switch between titles – i.e. they are not committed to a title they may not be enjoying on the grounds that they have paid for it. And if they in fact do like an author it is very likely that they will continue to the next book by the same author - frictionless.

Digitalization has democratized both the production and consumption of audiobooks in Sweden. Where bookshops used to have power over which titles were promoted and occupied shelf space, digital has made room for less well-established authors. While the big-name authors are still highly successful, some titles which have not widely appealed to traditional readers in physical form have been highly successful in audio. Perhaps most importantly, audio books have increased access to stories – appealing to new audiences, including those from social backgrounds which are less likely to engage with traditional publishing, and those wishing to listen while engaged with other tasks. Overall, the main purchaser of audiobooks is female, aged 30 to 60.

6.2.3 Consumers have more access to more content

A symptom of the new online options for purchasing books has been an explosion of content availability and access. As well as having access to more titles (whether physical or eBooks), consumers have more devices with which to access and engage with content, which in turn has seen new types of literary experiences emerge from creators.

6.2.3.1 Consumers have greater access to existing titles and more new titles from which to choose

One of the most far-reaching effects of the internet on book publishing has been the increase in consumer choice. For physical books, the move to online retail means that where readers were previously restricted by the number of books in their local book store, they are now spoiled for choice. Online retailers stock many more books than can practically be stored on the high street, and the arrival of global online players, such as Amazon, inevitably helps to support the diversity of available titles. The benefits of online retail extend to second hand books as well, with websites such as AbeBooks allowing people to locate rare second-hand books much more easily. Digitalization has even helped to prevent titles from going out of print. POD services are often used by self-publishers, since demand cannot easily be judged, but this approach can also be used to ensure that older titles need not fall out of print.

The availability of eBooks not only gives consumers another format option, but also adds to the availability of titles. eBooks remove the need for warehouse space altogether, allowing retailers to offer as many books as they wish. To provide some indication of the wealth of choice available: Amazon is the market leader in eBooks and offers almost five million titles⁸², Smashwords is a significant self-publishing platform and has published more than 400,000 books, of which more than 65,000 are available for free⁸³. All of these eBook titles can be accessed almost instantly and new business models give consumers even more choice as to how they do this. For example, Amazon Prime subscribers who own a Kindle, Fire tablet or Fire phone, can borrow one eBook a month with no due date⁸⁴, while Kindle Unlimited customers pay a monthly subscription for unlimited access to books.

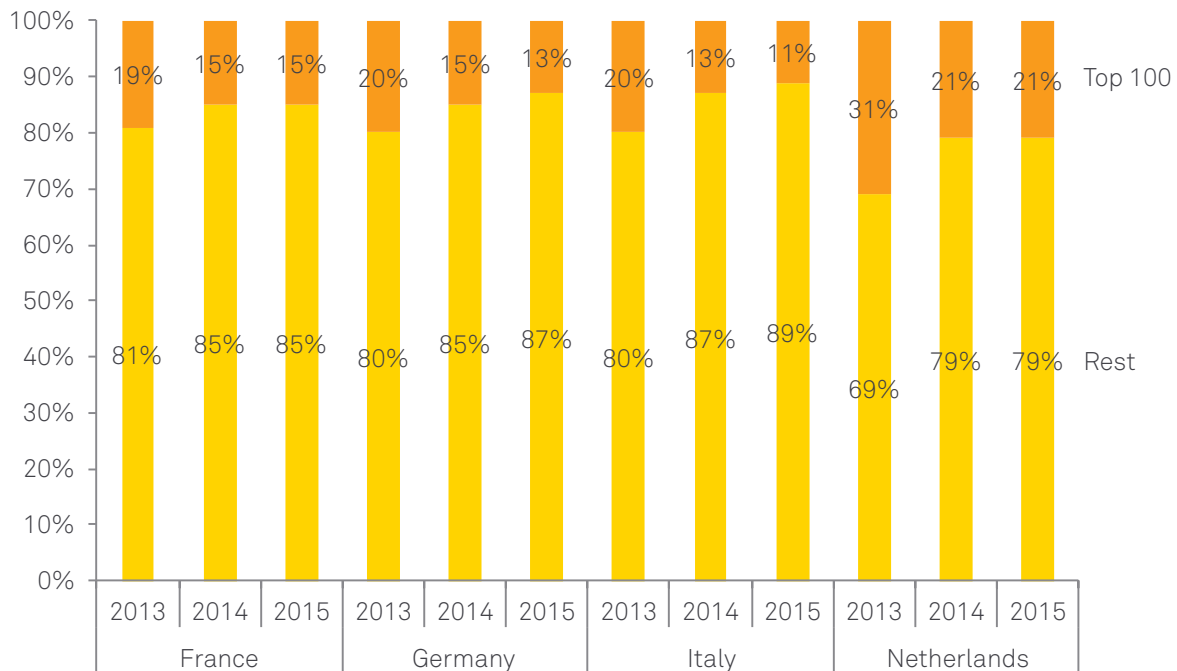
Figure 6.7 shows that between 2013 and 2015, the percentage eBook market share of titles not in the ‘top 100’ increased in France, Germany, Italy and Netherlands. This suggests that consumers are increasingly choosing less well-known titles in eBook form, branching out and accessing a greater variety of titles.

82 Statista, *Digital Media: ePublishing*, 2016

83 <https://www.smashwords.com/>

84 https://www.amazon.co.uk/gp/prime/pipeline/landing?ie=UTF8&*Version*=1&*entries*=0

Figure 6.7: Market share of eBooks by title popularity, selected markets, 2013 to 2015



Source: Rüdiger Wischenbart, *Global eBook report 2016*, Oliver & Ohlbaum analysis

6.2.3.2 New experiences based around literature are emerging

As well as offering new ways to access books the internet has led to the emergence of new experiences around literature. These range from online communities to discuss books and share recommendations to fully interactive multimedia experiences which transform classic literature for the digital age. Recommendation sites are perhaps the least exciting of these new experiences on offer, but they have changed the way people discover new books – as well as eBook retailers' recommendation algorithms, readers can participate in online communities and book clubs such as GoodReads, Novellic and Litsy. These sites help users to discover new content and enable discussion, which enriches the reading experience.

Some online platforms facilitate an even greater level of interactivity for fans, whether by adding to the depth of the reading experience or blurring the lines between author and reader. Fanfiction sites such as Kindle Worlds and Fairbooks in Italy are great examples of platforms which have enabled a new level of fan interaction. These platforms support fanfiction, whereby fans use the characters and worlds from established novels and write their own stories – often expanding on areas not covered in detail by the original author. Not only do these sites provide a creative outlet and potential starting point for aspiring authors, many are widely read by other fans.

Perhaps the most recent development has been for products which transform books into multimedia experiences. Indeed many traditional publishers are now experimenting with ways in which they can offer more fan interaction and more immersive experiences on tablets and smartphones – no doubt to compete more effectively with the wide range of entertainment products which are now at almost every consumer's finger tips. One example of this from a traditional publisher, is Julian Fellowes's *Belgravia*, published by Orion. *Belgravia* was released in weekly instalments in 2016, and could be read on a mobile or tablet by downloading an app. The digital version is a combination of book, audio, and additional experiences such as annotations and photographs, and won the 2016 Futurebook Adult Digital Book of the Year award. Similarly, Spanish company iClassics has combined classic literature with digital technology and animation to create interactive reading experiences. Their literature of choice is English and American nineteenth-century gothic, and the apps are available in English, French, Portuguese and Spanish.

CASE STUDY: Fairbooks

Fairbooks is an Italian online service which enables writers of fanfiction to publish their work. Stories uploaded to Fairbooks are usually 10-15 minutes in length, and tend to be welcomed by the original authors since they serve as a complement to their work, helping to sustain reader interest and loyalty. To provide a sense of the appetite for these stories amongst fans and amateur authors alike, there are an estimated one million Harry Potter stories on the internet that have been written by fans.

Fairbooks approaches the creator of the original work to get explicit authorisation, and permission to publish. This can involve a competition in which parameters are set, such as the number of characters that can be used, or a particular theme. The Fairbooks community then judges the stories, which helps surface the best fan authors for wider publication. The IP holders receive royalties, and advertising on the Fairbooks app is used to promote merchandise relating to the world in which the story is set.

The community-based approach, which allows reviews and feedback on stories means that Fairbooks is an interesting platform for traditional publishers. Not only do they monitor it (and similar services) to help them identify new writing talent, but publishers can also release new titles on the Fairbooks platform, and their performance/popularity can be tested in real time through instant reading metrics, such as pinpointing where people stopped reading. Fairbooks hopes that these features will help it develop into a self-sustaining online community supported by a strong external network of physical book publishers.

6.3 Outlook to 2020

Digital has had a profound impact on the book publishing industry, providing readers with more options to access and engage with literature. eBooks have grown in popularity along with uptake of connected devices, and are now an established format. But as the last couple of years have demonstrated, the popularity of print is likely to endure, and booklovers will always value the experience of browsing in a bookshop and owning a physical copy. It appears that a balance is close to being struck between print and eBooks, and while continued growth in smart device penetration may continue to push readers towards eBooks, this transition is likely to slow.

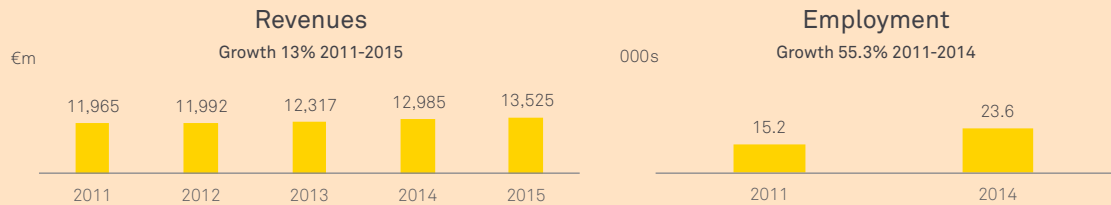
Continued efforts by publishers to play to the strength of the physical format is likely to help print books retain their share of spending and support book publishing revenues overall. We expect to see a continuation in trends towards high-quality print books, promoting the aesthetics of the book as object. eBooks and audiobooks are likely to continue to see growth in revenue due to their convenience, flexibility and the emergence of new business models, such as subscription services – particularly for audiobooks which have seen rapid growth in popularity in recent years.

We expect to see some further development of entirely new formats, including those incorporating AR and VR into literature. Hachette's acquisition of Neon Play in 2016 demonstrates willingness in this area to combine books with other story-telling media, and the arrival of mixed media literary experiences on connected devices provide a flavour of what is to come.

The video games market has grown steadily, supported by increased output and growing demand on connected devices

7 Video games

Overview of trends in revenue and employment



Note: Revenues includes Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK, employment includes Finland, France, Germany, Italy, Poland, Sweden and UK, employment data is for 2013/2014 for Italy, and 2010/2014 for UK
 Source: Revenue – PwC ‘Global Entertainment and Media Outlook 2016-2020’
 Employment – Eurostat LFS, SBS, Analysys Mason and Oliver & Ohlbaum analysis

Characteristics of digital production and distribution

Reduced production and distribution costs, and access to a global market for producers of all sizes

- Marginal costs are reduced by cost savings on production and distribution of physical copies, while physical distributors and resellers have also had their margins squeezed
- Steam is thought to take around 30 per cent of sales revenue for distribution, whilst the publisher keeps around 70 per cent

Increased supply of games as lower costs allow more companies to enter the market

- Steam carried seven games in 2004, compared to over 10,000 in 2016; 40 per cent of all games on the platforms were published in 2016
- Short development times for mobile games, enable significant increases in supply: 19 per cent of apps (over 450,000) and 40 per cent of downloads from Google Play were games in 2016

Increased competition has led to new business models

The lower costs associated with digital distribution have challenged traditional intermediaries, benefitting smaller developers

- Developers no longer rely on publishers and distributors to finance, market, and sell their games: in France in 2015, around 75 per cent did this themselves via online platforms
- Where previously publishers could command up to 40 per cent of revenues, developers can now secure more favourable deals with both publishers and distributors and can, in some cases, command revenue shares of up to 70 per cent

Smaller developers have benefited from new funding models as well as access to a global market

- New funding models such as Early Access and crowdfunding have improved developers’ business cases
- 700 games entered Early Access on Steam between 2013 and 2015, purchased by more than 15 million individual players

Mobile games have grown particularly strongly and cater to a non-traditional audience

- The number of EU citizens playing games on smartphones rose to 49 million in 2016 (from 37 million in 2013) and to 30 million on tablets (from 17 million in 2013)
- This new audience contributed to an EU total of \$4.5 billion (€4.1 billion) of mobile gaming revenue generated in 2015

There are benefits to consumers and content creators

Consumers have more choice of games across more platforms and formats

- Digital distribution platforms offer thousands of PC games (around 10,000 on Steam)
- The internet has led to new types of games: 524 MMOGs and 882 VR games are available on Steam, some of which are free

Competition amongst developers has increased quality, but made it harder to achieve sufficient visibility

- Developers in France reportedly reduced output in 2015 to focus on producing higher quality games
- Strong marketing campaigns are important to bring games to players' attention, ensuring the role of publishers remain important for some developers

Increased demand for games, including from non-traditional gamers, has led to revenue growth – with creators retaining a greater share

- In France 69 per cent of video game revenue came from digital sales in 2014 compared to 27 per cent in 2008
- Developers' revenues grew 375 per cent from 2008 to 2015 with growth in revenue share from 6 per cent to 16 per cent
- Despite taking a smaller share, publishers' revenues increased 72 per cent between 2008 and 2015
- Retailers and distributors also saw increasing aggregate revenues (though physical distributors suffered a decline)
- New revenue streams including micro-transaction, eSports, and VR/AR are likely to help the industry expand further
- Global eSports revenues increased by 68 per cent in 2015, with an estimated audience of 256 million in 2016, 25 per cent of which was from Europe

The internet and digitalization have led to substantial changes in the value chain resulting from games being distributed digitally rather than just in physical formats for console and PC platforms. At the same time new video games platforms have arisen, beginning with browser-based games, but now more focused on games for mobile devices. This has opened video games up to new customers and has paved the way for new developers to enter the market. In this part we analyse recent trends and explore the impact of the internet and digitalization on the industry.

7.1 The structure of the industry and its evolution

The internet has changed the shape of the value chain for video games by allowing for digital distribution and self-publishing. Meanwhile revenues in the industry from both new and existing revenue streams have grown, as has employment. In this section we explore these changes.

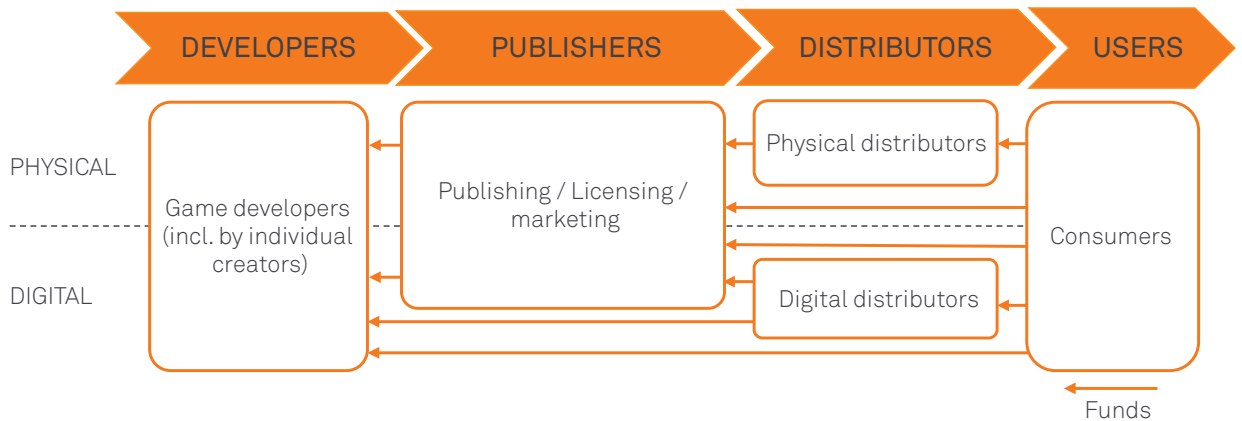
7.1.1 Digital distribution and self-publishing have fundamentally altered the value chain

The production of a video game typically involves a publisher commissioning a game from a team of creators (a developer), providing them with financial support. Upon completion of the game, the publisher arranged distribution, physical (DVDs or cartridges), or digital through a platform such as Steam. The game was typically advertised to the end user by both the publisher and the distributor, in some cases jointly with console manufacturers. The retailer and distributor would usually retain a share of sales revenue, with publishers retaining the rest, including any revenues from in-game advertising or micro-transactions. They would also pay a development

fee to the game developers that may or may not include a variable performance related component. Both publishers and developers might also incur licensing costs if the game incorporates a pre-existing character or storyline.

Digitalization has contributed to the emergence of two new trends, which have brought significant changes to the video games industry. First, the transition from physical to digital distribution of games over the two traditional platforms of PCs and consoles has led to cost efficiencies in both production and distribution. Second, developers are now able to self-publish their games, leading to more focus on the development of games and less on their publication and distribution. This changing value chain is illustrated in **Figure 7.1** below.

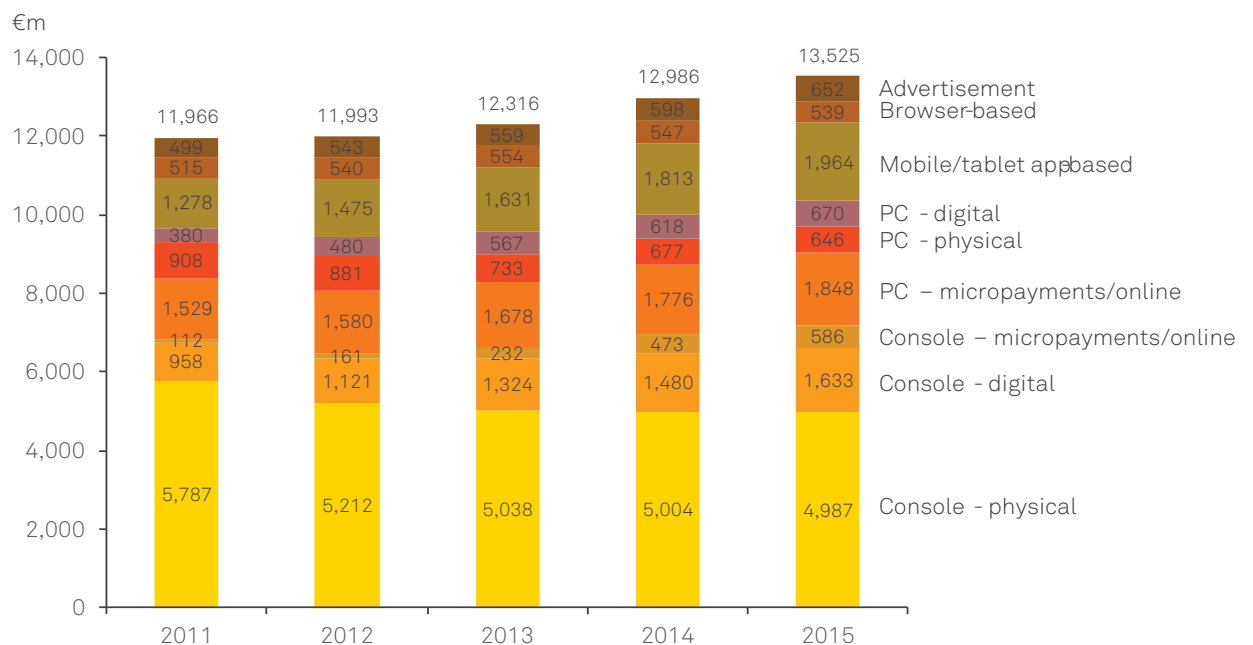
Figure 7.1: Evolving video games industry value chain



7.1.2 Video game revenue has increased steadily

The video games industry in Europe has been growing steadily in recent years. This growth has been led by the development of new digital platforms, initially browser-based games but more recently focused on mobile applications. This growth has been supported by micro-transaction and advertising revenues, which represent digital success stories across all platforms. Revenue growth is illustrated for our nine focus markets collectively in **Figure 7.2** below.

Figure 7.2: Total video games revenue split by segment, nine European markets, 2011 to 2015



Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
 Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

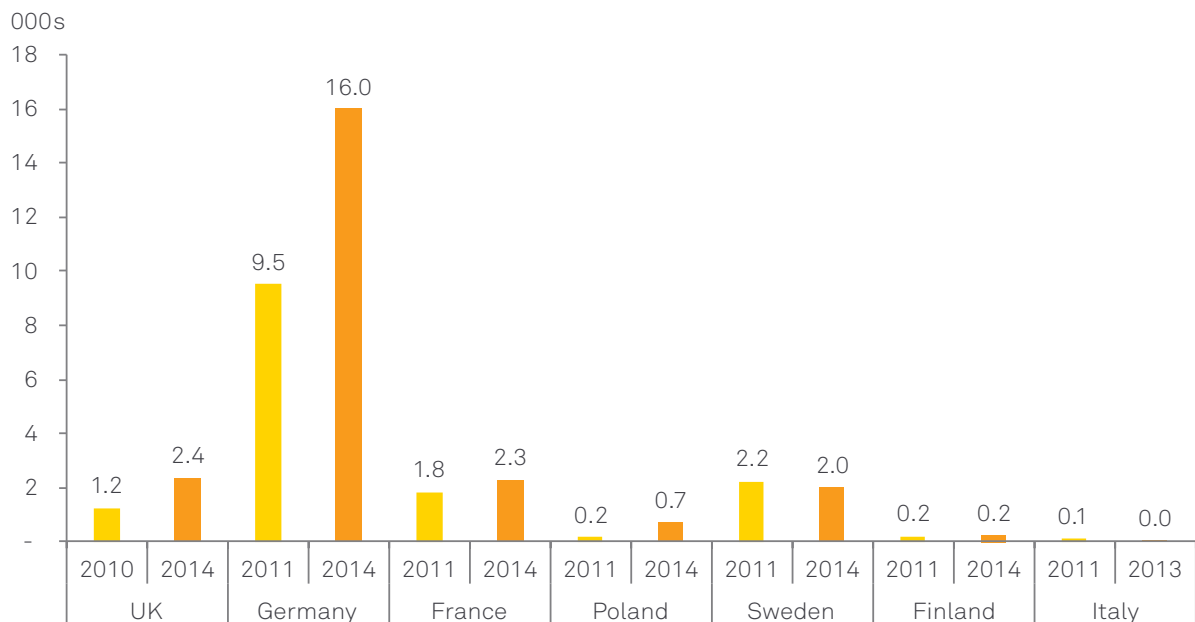
European video games companies have, in aggregate, reported positive revenue growth for the past decade. We have analysed the financial reports of different European video games companies, including CD Projekt (Poland), Supercell (Finland), and Zinkia Entertainment (Spain), as well as some of the largest publishers like Ubisoft (France) and King (Sweden). In all cases the long-term trend is one of growing revenues, although we note that short-term revenues for smaller companies tend to be driven by the release of a discrete number of new game titles. Profitability is also improving, with EBITDA margins for well-established companies such as Ubisoft and CD Projekt over 50 per cent, more than double what they were a decade ago. This growth is in large part a consequence of digitalization in the video games industry, as we discuss further below.

7.1.3 Employment in the video games industry has increased significantly

Based on the Nesta definition of the creative sector, video games industry employment in the EU has increased significantly in the past few years: from around 229,000 in 2011 to 356,000 in 2015, as described in Part 2. However, we note that various assumptions are needed to fit the data available to us to this definition. In particular, the granularity of the data does not allow us to distinguish between employment in game publishing and employment in other software publishing-related activities⁸⁵. As such, the above figures relate to all software publishing activities and are consequently likely to be over-estimates.

Figure 7.3 shows alternative estimates that we have been able to derive by using more granular SBS data from Eurostat to estimate the proportion of the above employment figures relating only to games publishing. This dataset is unfortunately incomplete but has allowed us to derive estimates for most of our focus markets in some years, noting that the data relates only to games publishing (i.e. not including development and distribution)⁸⁶. It should therefore be treated as indicative of trends in employment in video games rather than as estimates of the total employment in the industry.

Figure 7.3: Employment in the games publishing industry, selected European markets, 2011 vs 2014



Note: We compared data in 2011 with data from 2014. No data for 2015 was available and for Italy we also lacked data for 2014 so have instead considered 2013. In the UK data for 2011 was not available and so we have used 2010 data

Source: *Analysys Mason estimates based on Eurostat LFS and SBS data, 2016*

⁸⁵ Games publishing may only make up a proportion of the total numbers shown above of between 2 per cent and 30 per cent across our different focus markets, although conversely other jobs within the gaming industry outside of publishing are either not included within the Nesta definition or not able to be separated out from wider employment categories due to the lack of granularity of the data.

⁸⁶ Note that no data is available from this source for the entire EU.

Based on this data there appears to have been an overall increase in employment in game publishing across Europe in recent years. However, the definition based around games publishing, whilst likely a closer match to our definition of the video games industry than the higher level numbers set out above, does still exclude many other creative jobs within the video games industry, including those related to game development. More complete sets of employment figures from the UK and France show significant growth. In the UK, the total number of FTEs in the video games industry has grown from 8,360 in 2004 to 12,100 in 2013 (45 per cent growth)⁸⁷. Meanwhile, the number of companies has more than doubled within ten years, from 920 in 2004 to 1902 in 2014. Similarly, the number of people employed in the video games industry in France rose from 6,349 in 2011⁸⁸ to approximately 25,000 in 2014⁸⁹, and the number of companies increased from 199 to 300. The Agence Francaise pour le Jeu Video (AFJV, the French video game trade association) has reported that the video games industry in France has been growing on average by 5 per cent each year from 2014 to 2016.

The disruption in the value chain has resulted in pressure in some areas (in particular physical distribution), but has also led to a material increase in the proportion of people employed in creative roles (in particular in development). In Italy, for example, the number of people employed in development has grown from 500 in 2012 to 700 in 2014⁹⁰. In Poland, 93 per cent of game development companies reported an increase in employment between 2014 and 2015, reaching approximately 2,000 people employed⁹¹. Finland and Sweden have also registered an absolute growth in the number of people employed in development, which has more than doubled over recent years: from 1,147 in 2008 to 2,500 in 2014, and from 1,200 in 2010 to 3,000 in 2015 respectively⁹².

7.2 The impact of the internet on the industry

The digitalization of distribution has caused major changes in the video games industry over the last ten to twenty years, which has led to the disruption of the traditional value chain described above. In this section, we explore briefly the key developments of the video games industry in the European market:

- Digital distribution has allowed some game developers and publishers to reach a larger number of consumers at lower cost. For example, in France 69 per cent of video game revenue came from digital sales in 2014 versus 26.8 per cent in 2008, according to IDATE⁹³. These lower costs have led to a significant increase in the supply of games
- Disintermediation allowing the self-publication of games, along with new sources for funding, has given greater power to developers to reach and communicate directly with consumers, leading to greater focus on the development of games and less on their publication and distribution
- New business models have arisen with development of many new types of games, including mobile games, browser games, online console games and massive multiplayer online games (MMOGs). Other new revenue streams such as eSports and VR have also begun to develop but not at the expense of existing revenue streams such as in-game micro-transactions and advertising
- These changes have led to greater choice for consumers whilst also incentivising developers to focus on the quality of the games they produce. Creators have also seen significant benefit from increased demand driving revenue growth, particularly in relation to mobile games

87 BFI, *Economic Impact of the UK Screen Industries*, 2005; BFI, *Economic Contribution of the UK's Film, High-End TV, Video Game, and Animation Programming Sectors*, 2015

88 SNJV, *La dynamique économique du secteur du jeu vidéo français : La chaîne de valeur du jeu vidéo en France*, 2014

89 SNJV, *Le Syndicat National du Jeu Vidéo (SNJV) et l'IDATE publient la 2e édition du baromètre annuel du Jeu Vidéo en France*, 2015

90 Italia Creativa, *Videogiochi. Grandi potenzialità per il future*, 2016

91 Krakow Technology Park, *The State of Polish Video Games Sector*, 2015

92 Neogames, *The Gaming Industry of Finland, Report 2014*, 2015; Dataspelebranschen, *[Swedish games industry] Game Developer Index*, 2015

93 IDATE, *Video Games in the Cloud*, 2015

7.2.1 Digital distribution has led to cost reductions and increased supply

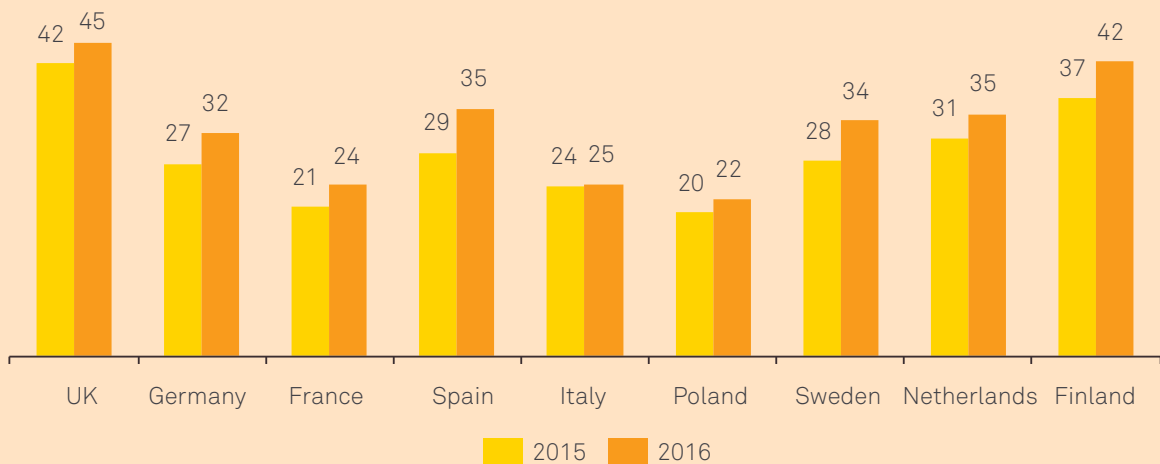
The trends described in Part 3 (i.e. network capacity and speed, DRM) have enabled a fundamental shift in distribution, away from physical games and towards digital downloads, particularly on PC but also for new areas like mobile gaming apps. Whilst piracy was initially of concern in relation to digital distribution, the advances in DRM described in Part 3 and Appendix 3 mean that video games can now be distributed digitally in a very secure manner. As such, piracy is no longer such a concern and is in any case not tied to digital distribution as physically distributed games are also digital in nature and subject to some risk of piracy.

This shift to digital distribution has been closely intertwined with the success of digital distribution channels, such as Steam.

CASE STUDY: Steam

Valve is a video game developer and distribution company, founded in 1996 in the US. In 2003 Valve released an online distribution platform for PC games called Steam. By 2016 Steam had nearly 200 million users worldwide⁹⁴, making it the most popular PC video game distribution platform in the world, with many of its largest markets being in Europe⁹⁵. The average number of games per user has increased between 2015 and 2016 in all focus markets, demonstrating the rising demand for digitally distributed games, in parallel with a strong increase in the total number of games available (from 7 in 2004 to over 10,000 on 2016).

Figure 7.4: Average number of games per user on Steam, by country



Source: Steam Spy, 2016

This has changed the economics of distribution for developers and publishers. Steam is thought to take around 30 per cent of sales revenue for distribution, whilst the publisher keeps around 70 per cent. Steam has also enabled developers to self-publish much more easily, and therefore keep the share of revenue that would normally have gone to the publisher (around 40 per cent of the sales revenue)⁹⁶. Currently, Steam operates the 'Greenlight' system of game selection, whereby indie developers can upload their games to Steam if they win enough audience support. Recently however, Valve has announced that there will be a change to the system for accepting games produced by indies. When 'Steam Direct' is introduced, developers will be able to get their games onto Steam by paying a fee (of between \$100 and \$5,000), rather than having to get enough audience support. Valve believe that this will deter developers

⁹⁴ Steam spy, *Steam Stats, Active users total, 2016*

⁹⁵ Germany represents the fourth largest market for Steam with 9.8 million users (5 per cent of total) as of 2016. Users from the UK (7.3 million), France (7.2 million), Poland (5.7 million) and Sweden (3.1 million) also represent a substantial share of the global market for Steam, *Steam Spy, 2016*

⁹⁶ P.Tassi (*Forbes*) *The Numbers Behind Steam's Success, 2012*

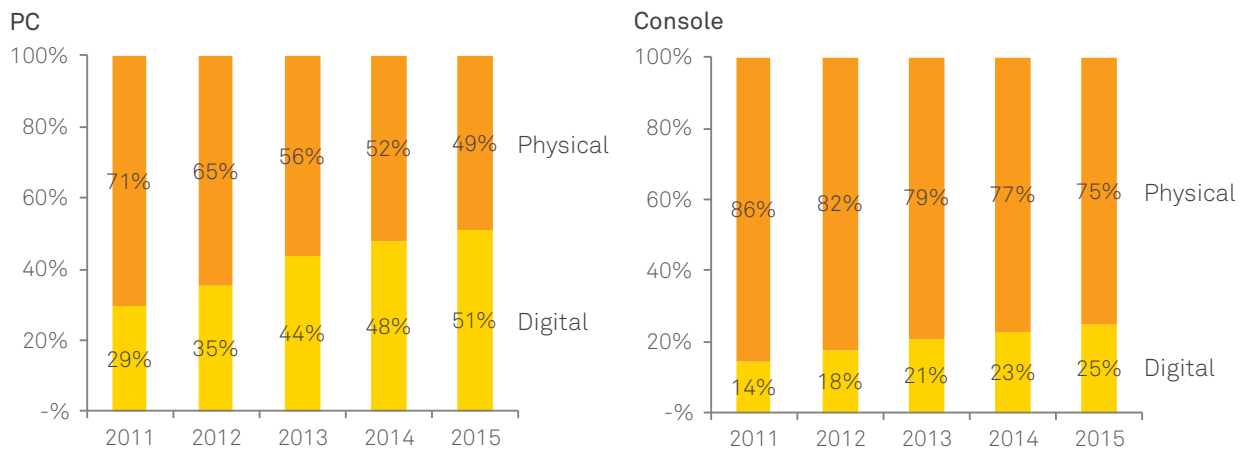
from submitting poor quality games, although some critics believe that the new payment system will not stop the submission of poor quality games⁹⁷.

Steam has also introduced limited period promotional discounts, which it predicts increase the average income from a game significantly (by 245 per cent for a 25 per cent promotional discount⁹⁸) due to stimulating additional sales.

Steam also provides standardised interfaces through Steamworks APIs, including networking⁹⁹, matchmaking¹⁰⁰, achievements¹⁰¹, micro-transactions¹⁰² and support for user-generated content, reducing costs for developers whilst improving the revenue potential of games.

While the PC games market has seen a significant shift from physical to digital, the transition has been slower for console games, as shown in **Figure 7.5**. This can be explained in large part by the importance of the resale market for console games: in the UK, sales of pre-owned games have grown from £79 million in 2013¹⁰³ to £123 million in 2015¹⁰⁴.

Figure 7.5: PC and Console revenue, by type, for nine European markets, 2011 to 2015



Note: Markets include Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
Excludes micro transactions

Source: PwC 'Global Entertainment and Media Outlook 2016 -2020'

Digital distribution of games is now preferred by developers due to lower production and distribution costs, as exemplified by the lower charges levied on developers by Steam, compared to those levied by physical distributors (see case study above). Italian PC and console game developer 34 Big Things described to us how cost savings realised by distributors are being passed on to publishers and developers, which increases the incentives for developers and published to use digital distribution platforms. For example, in France all developers sell digital games, whilst only a small share also sell the physical format, whilst in Finland 85 per cent of developers focus on mobile platforms, which are purely digital¹⁰⁵. The fact that developers are embracing digital distribution again emphasises that piracy of content is not seen as being any more of a problem through digital distribution than through physical distribution.

97 BBC, *Valve to Let Developers Pay to Get Games on Steam*, 2017, <http://www.bbc.co.uk/news/technology-38956417>

98 J. Martin (Bitgamer) *Valve: Steam is Making us Rich*, 2009

99 Steamworks website, *API overview*, 2016

100 L. Auriemma (ReVuln Ltd) *Exploiting Steam Lobbies and Matchmaking*, 2014

101 M. Rose (Gamasutra) *What's the Point of Steam Achievements Anyway?*, 2010

102 Steamworks brochure, 2010

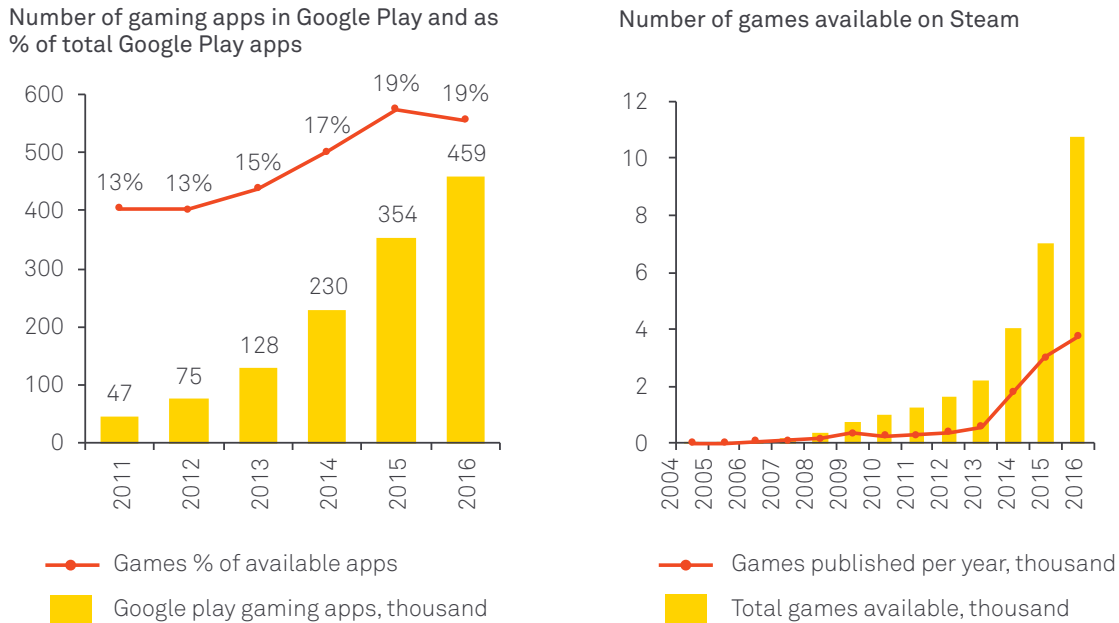
103 C. Dring (MCV) *UK Pre-Owned Games Market Made More than £79m in 2013, 2014*

104 S. Densham (UKIE) *UK Games Market Soars Past GBP4.1 billion*, 2016

105 Index report about gaming industry in Finland, 2014

Lower costs of production and distribution have been a major contributing factor to a significant increase in the supply of games, including on new platforms such as mobile app-based games, which benefits consumers: the number of PC games available on Steam has grown significantly in recent years as shown in **Figure 7.6**. In fact, nearly 40 per cent of all games available on Steam were released in 2016¹⁰⁶.

Figure 7.6: Evolution of mobile and PC games



Source: *Analysys Mason based on data from steamspy.com, appbrain.com, and Appannie, 2016*

7.2.2 Smaller developers have benefited from digitalization in several ways

As mentioned above, the value chain has been disrupted by the ability of independent developers to publish games themselves. This has challenged traditional platform owners and enabled developers to secure more favourable deals and command higher revenue shares. Developers, especially smaller ones, have also benefited from new funding methods and aggregation of demand across individual geographies.

7.2.2.1 Developers benefit from new funding and distribution methods brought about by the internet

The internet has enabled the creation of new funding methods like early access and crowdfunding, which give developers the opportunity to pre-sell to end customers ahead of the finalisation of the game and receive funding directly from them, reducing their dependence on publishers to fund the development of games and hence provide them with greater bargaining power. 'Early Access' on Steam means developers publish unfinished games and generate revenues much earlier in the development process, whilst crowdfunding platforms such as Kickstarter allow them to raise finance from the eventual users of their games. Both are very popular: 700 games entered Early Access¹⁰⁷ between 2013 and 2015¹⁰⁸, purchased by more than 15 million Steam players (many of them in Germany and the UK)¹⁰⁹, and three out of the twenty most successful Kickstarter campaigns in terms of funds raised were video games¹¹⁰. There are also of course less positive examples, where sufficient funding was not achieved or where the finished product did not meet the expectations raised during fundraising.

¹⁰⁶ <http://kotaku.com/nearly-40-of-all-steam-games-were-released-in-2016-1789535450>

¹⁰⁷ Steamspy.com

¹⁰⁸ S. Galyonkin (Steam Spy) *On Early Access Games*, 2015

¹⁰⁹ Steamspy.com

¹¹⁰ 'Shenmue 3' raised \$6.3 million (€5.7 million), 'Bloodstained: ritual of the night' raised \$5.5 million (€5 million), and 'Torment: Tides of Numenera' raised \$4.2 million (€3.8 million).

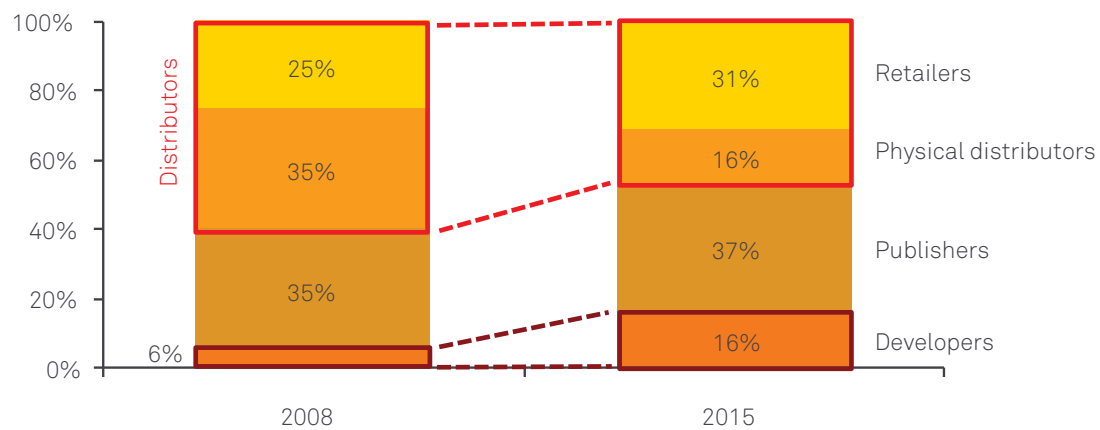
Online distribution platforms have enabled developers to self-publish and distribute at much lower cost than in the physical market: platforms such as Steam, GOG and Humble Bundle give control over price and promotions to developers¹¹¹, who also do not have to compete for space in retail stores with large publishers with much greater marketing spend.

Smaller developers are able to guarantee that their games are available to a global audience, which also means that developers no longer require a minimum scale of demand in individual geographies, thanks to the global reach of digital platforms.

7.2.2.2 Despite challenges arising from this opening up of competition the revenues of traditional distributors mostly continue to increase

Physical distribution has been squeezed by competition from online retail websites (e.g. Amazon and eBay, for physical games) and digital retailers such as app stores (for digitally distributed games). In addition, the ability for publishers (or even developers) to reach retailers directly via digital channels is reducing demand for physical distribution even further. This has led to the share of revenues taken by developers and publishers increasing relative to those taken by distributors, as shown in **Figure 7.7**.

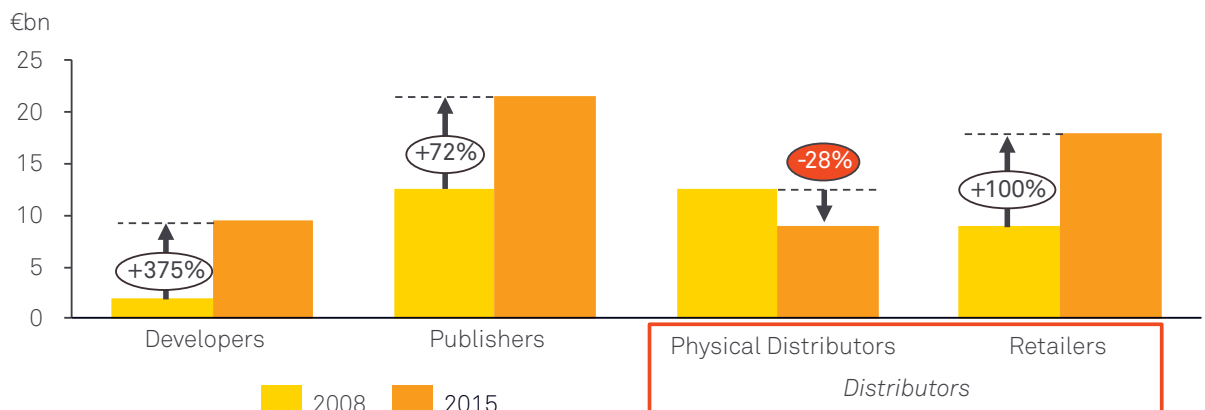
Figure 7.7: Share of total revenues by value chain players globally, 2008 and 2015



Source: Analysys Mason analysis based on data from iDATE, 2016

Nonetheless, it is important to note that despite their share decreasing, there have been overall revenue increases for physical distributors and retailers in aggregate, as shown in **Figure 7.8**.

Figure 7.8: Revenues within the video games industry value chain globally, 2008 and 2015



Source: iDATE, 2016

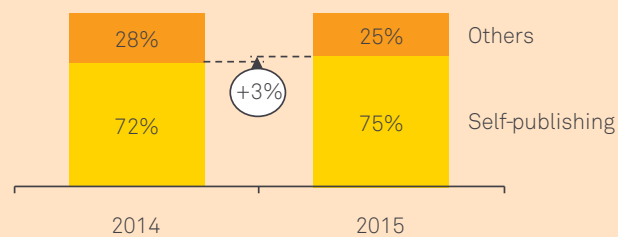
111 M. Handrahan (gameindustry.biz) *Developers Can Now Set their own Steam Sales*, 2014

CASE STUDY: Disintermediation and value chain disruption in the French market

The Syndicat National du Jeu Vidéo (the French agency of the video games industry), conducts annual surveys of video games companies to examine the state of the video games industry. The latest 2015 study has highlighted two major trends which have been observed.

Higher level of disintermediation in the value chain: more game development studios choose to self-publish their games, completely bypassing the publishers. Thus, the share of self-publishing studios grew by 3 per cent in 2015.

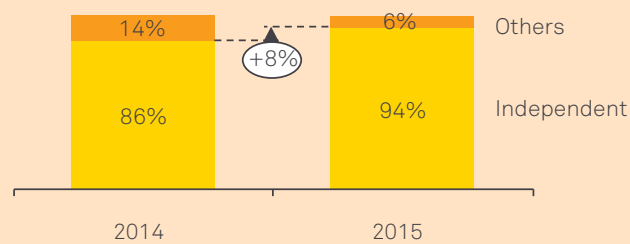
Figure 7.9: Share of self-publishing development studios in France



Source: SNJV, 2015

Fewer vertically-integrated players are present in the value chain: based on the same survey, there is an increasing share of independent developer studios. These studios are not a part of big vertically-integrated video games companies, and produce games which are not commissioned by publishers.

Figure 7.10: Share of independent development studios in France



Source: SNJV, 2015

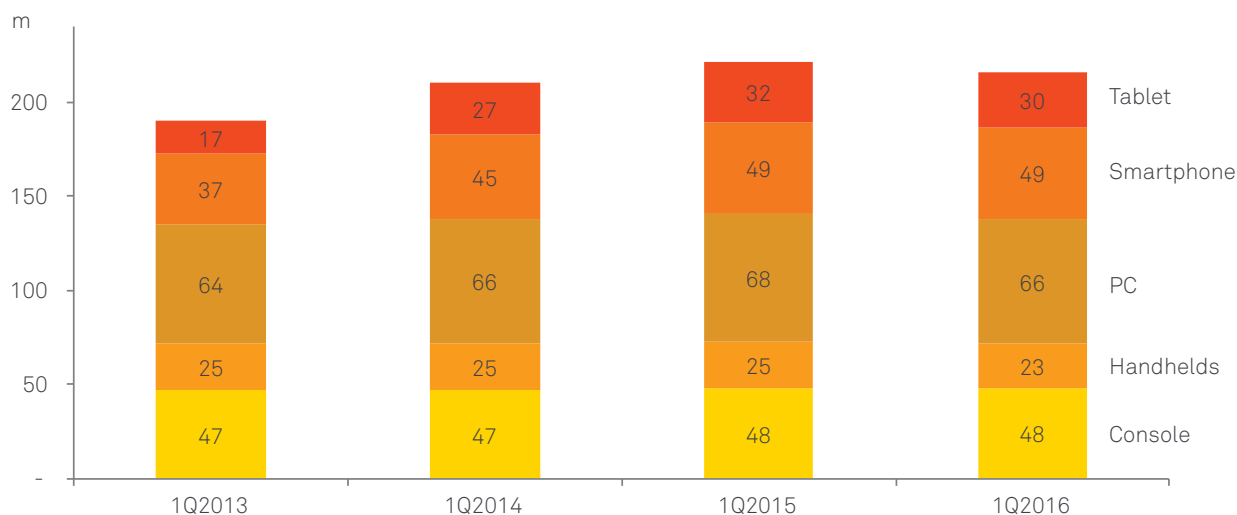
7.2.3 Increased competition has led to a rise in demand and the emergence of new business models

Digitalization has led to mass market uptake of smartphones, which support mobile games, enabling games developers to reach new audience segments who would not have purchased traditional games. Whilst growth in mobile games has been particularly strong, a number of other new revenue streams have also emerged, including eSports and VR/AR games. Whilst new entrants embracing these new business models have been successful, traditional revenue streams such as advertising and in-game micro-transactions have also grown strongly. We discuss these points in detail in the remainder of this section.

7.2.3.1 Disintermediation and smartphone penetration have been key factors in the rapid growth of mobile games

There has been growth in demand for video games in recent years, underpinned by growth in the number of gamers using smartphones and tablets, as shown in **Figure 7.11**¹¹². Mobile games have opened up a much wider video games customer base than previously existed with many non-traditional gamers attracted to mobile games. In this respect, mobile has been mostly complementary to other gaming platforms.

Figure 7.11: Number of people playing games by device in four large EU markets, Q1 2013 to Q1 2016



Note: Markets include UK, France, Germany and Spain
Source: ISFE, 2016

Thanks to the ubiquity of smartphones in the EU (see Part 3), mobile video games now represent a large share of the video games market in terms of consumer spending, often through a 'freemium' monetisation model whereby games are free to download but include in-app purchasing mechanisms¹¹³. In 2015, video game apps generated \$4.5 billion (€4.1 billion) of revenue within the EU, replacing and superseding older browser-based games¹¹⁴.

Games represented 40 per cent of total app downloads on Google play in 2015, but accounted for 82 per cent of the total revenue. Newzoo predicts that by 2020 mobile app global revenues will almost double¹¹⁵, with mobile becoming the largest video games platform in terms of consumer spending¹¹⁶. This explains why mobile platforms have quickly gained popularity among developers in Europe. In France, a survey by SNJV suggested that most

¹¹² ISFE, *GameTrack Quarterly Digest*, 2012-2016

¹¹³ The freemium model is discussed in a report by DotEcon and Analysys Mason, *The Commercial Use of Consumer Data. A Research Report for the CMA*, 2015

¹¹⁴ Newzoo *Global Mobile Market Report*, 2016

¹¹⁵ Newzoo, *Free 2016 Global Mobile Market Report*, 2016

¹¹⁶ Newzoo *Global Games Market Report*, 2016; mobile was forecast to generate 37 per cent of global video games revenue in 2016

developers prefer mobile platforms for their games (78 per cent)¹¹⁷. Beyond the size of demand, mobile is also attractive because of lower concentration in the publishing stage and the relative ease with which mobile games can be developed by small independent developers. Disintermediation has allowed anyone with adequate programming skills to try out mobile game development due to being able to self-publish games in app stores, as described further in the case studies which follow.

Traditional video games companies are starting to recognise the opportunities offered by mobile video games. For example, Nintendo released the legendary Super Mario game for the iOS (called 'Super Mario Run') on 15 December 2016 despite never previously showing much interest in releasing games on hardware that it did not control¹¹⁸. It is predicted by some that the game will enjoy over one billion downloads¹¹⁹, even with an initial price of \$9.99 (€9). If the game proves successful we may see more traditional console or PC development companies entering mobile video games space in the near future. Indeed, Sony is already planning to enter the mobile video games market having reported the ongoing development of at least five smartphone games based on existing PlayStation titles, which are expected to be released in 2018¹²⁰.

As the case studies below note, there are some difficulties facing mobile game developers, most notably in ensuring appropriate visibility of their products, a challenge that is also present for PC and console game developers. Disintermediation and the emergence of new sources of funding have allowed developers to produce and publish their games independently from specialist publishers. However, this has led to a rise in the competition faced from other developers and so support from publishers is still often necessary for marketing and effective distribution of their games¹²¹.

Recognising this need, Sony has launched the Pub Fund to support independent developers in marketing their game titles for the PlayStation platform. Developers taking part in the scheme receive royalties upon the release of the game in exchange for making the game exclusively available on the PlayStation platform for a limited time. Sony also offers co-marketing opportunities¹²². For example, Sony's Pub Fund has promoted the fighting game 'Divekick', which was developed and published independently by Iron Galaxy Studios and became popular amongst the PlayStation gamers community¹²³.

Similarly, Xbox Live has, since 2010, supported indie developers by promoting selected titles available on the Xbox platform through Indie Games Uprising online events. For PC games, Steam Greenlight lists indie games and offers players the opportunity to watch short promotional videos of these games, whilst companies like GamePix act as intermediaries between developers and publishers, helping to ensure visibility of games, as the case study below describes.

CASE STUDIES: Ola & Olo and GamePix

In 2014, inspired by his daughter, Polish game developer Pawel Kozak-Raszkowski started creating tablet games for children on Android. After placing his first app on Google Play and making it available for public access there were over 100,000 downloads within two weeks. In the two following years of operation, Kozak-Raszkowski's studio **Ola & Olo**, has created around 50 games, using different monetisation strategies (pay to play, freemium and ad-funded).

Ola & Olo benefited from all aspects of the Google Play platform: it was able to self-publish, monetize through in-app advertising without needing to approach advertisers directly or work with a dedicated media agency, gain global exposure due to the worldwide presence of the Google Play platform and collect rapid feedback from users. The games have proved popular worldwide, with the Polish market representing only 3.35 per cent of the 58.8 million game sessions globally¹²⁴.

117 Syndicat National du Jeu Video, *Annual Survey of the French Video Game Industry*, 2015

118 The Economist Espresso, *Runaway Hit? Mario Goes Mobile*, 2016

119 Kantan Games, Inc., CEO Blog By Dr. Serkan Toto, *Consulting and Advisory on Japan's Mobile Gaming Industry*, 2016

120 K.Stuart (The Guardian) *Sony Develops PlayStation Games for Smartphone in 2018*, 2016

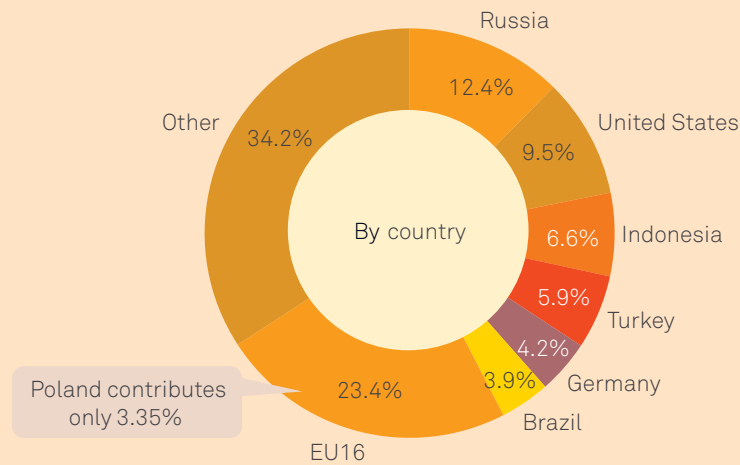
121 This idea was highlighted during our interview with 34 Big Things.

122 PlayStation, *Why Develop on the PlayStation® Platforms?*, 2016

123 J. Brightman (Gamesindustry.biz) *PlayStation Pub Fund Devs: "We're living and dying by our own sword"*, 2013

124 Session represents a single period of user interaction with the app.

Figure 7.12: Share of total games sessions by country



New platforms such as Google Play have also brought new challenges for developers, with the rapidly increasing number of games being published making it more difficult for mobile developers to ensure sufficient visibility of their games. Ola & Olo have invested into game promotion by displaying the ads for upcoming games inside existing ones. However, whilst this has been successful for Ola & Olo, the same approach has not worked for many other developers in 2016. A critical mass of players is needed before this approach is likely to work, and achieving that critical mass is becoming increasingly challenging in Ola & Olo's view.

GamePix was originally founded in 2013 in Italy, and started to operate in the browser games distribution space in 2015. Within about a year the company had grown consistently and is planning to increase the number of full-time employees from 12 to 25 within the next 3 months. GamePix does not develop or design games, but helps developers convert their games to HTML5, and distribute them through the internet and through telecoms carriers. GamePix has over 100 million users playing the games it distributes worldwide.

Internet-based games differ from mobile apps in a number of ways: they have a lower retention rate than games distributed via app stores, but user acquisition costs are typically lower. Internet-based games can be played on multiple devices without the need to recompile or recompile them, and because there is a smaller number of browser-based than mobile games available, they are more easily promoted to end-users through standard online marketing. Browser-based games also seem more attractive to users with low data allowances.

This points to a common challenge for most developers: with the rapidly increasing number of games being published, it has become more and more difficult for mobile developers to ensure sufficient visibility of their games. Ola & Olo have invested into game promotion by displaying the ads for upcoming games inside existing ones, but many other distributors are finding it more difficult. As supply increases further, discoverability and curation of large catalogues will become an even more important role for online platforms.

7.2.3.2 New opportunities and potential revenue streams are emerging

The widespread adoption of fast internet access has made possible new revenue streams related to video games, including eSports and VR, as well as an increased level of games interactivity¹²⁵.

eSports have been growing rapidly: global revenues increased by 67.4 per cent in 2015 compared to 2014 with an estimated audience of 256 million¹²⁶ globally in 2016, 25 per cent of which is from EU countries. eSports have in part emerged as a promotional tool for publishers to promote and monetise their games, and have attracted the attention of large broadcasters, such as ESPN, Fox and the BBC. Global games streaming platforms, such as Twitch and YouTube Gaming, generated an estimated \$218 million (€196 million) in advertising revenues in 2015, 67 per cent of total eSports revenues (the remainder being ticket sales, with events organised in Europe contributing 47 per cent to the global ticket revenues or \$21 million (€19 million)). Newzoo expects eSports to generate up to \$1.07 billion (€964 million) in revenues globally by 2019¹²⁷.

As well as driving revenue in their own right, eSports create an environment that increases players' engagement in games. When asked about the reason for attending eSports events, 82 per cent of gamers said they wanted to be a part of the gaming community, and 61 per cent wanted to connect with the friends that they met while playing the game online. Moreover, the level of engagement with the game increases after visiting an eSports event: after going to an eSports event 74 per cent of gamers said they play the game more frequently, and 47 per cent of gamers said they purchased new content related to the game¹²⁸.

VR and AR technologies have contributed to the revenue growth across each existing video games platform. Following Oculus Rift and Samsung Gear, Sony has released its VR head-mounted display and a new version of PS4 with improved technology to support VR games. There were 60 PlayStation VR games available on the release day in October 2016¹²⁹. Steam currently has 882 games available in VR¹³⁰. In July 2016, Niantic released AR-enabled mobile game *PokemonGo*, which generated \$470 million (€423.5 million) in revenue in the first 80 days using a freemium model. The title has attracted around 20 million new mobile gamers across the US, UK, Germany and France alone and continues to generate approximately \$2 million (€1.8 million) in daily revenues as of 21 September 2016¹³¹.

7.2.3.3 Some existing revenue streams have also grown

Digitalization has also helped developers and publishers increase revenues from existing streams, such as micro-transactions, generating revenue from the sale of virtual in-game items and subscriptions, which have all seen significant increase driven by social and community features within games.

Multiplayer online games have expanded their audience, monetizing through both pay-to-play (P2P) and free-to-play (F2P) models¹³². *League of Legends*, a multiplayer game with over 100 million monthly active players, generates monthly revenue of \$123 million (€111 million) through its free-to-play monetisation model^{133,134}. More generally, multiplayer online games have driven revenue growth on both PC and consoles through large volumes of micro-transactions. This part of the video games market is expanding with 524 MMOG games now available over Steam^{135,136}.

125 Newzoo *Global Games Market Report*, 2016

126 Individual consumers who have watched eSports including those that watch it less than once per month.

127 Newzoo *Global e-Sports Market Report*, 2016

128 P.Tassi (Forbes) *New Report Details How eSports Is An Effective Engagement And Marketing Tool*, 2015

129 Playstation Blog, 2016

130 Steam online store, 2016

131 Newzoo *Global Mobile Market Report*, 2016

132 F2P games aiming to generate revenue through such micro-transactions are often referred to as employing a 'freemium' business model. P2P games can also adopt micro-transactions within the game, but for these games the revenue stream is usually only complementary to the revenue derived from purchases of or subscriptions to the game, since the volume of players is typically much lower.

133 P.Volk (RiftHerald) *League of Legends Now Boasts Over 100 Million Monthly Active Players Worldwide*, 2016

134 J. Grubb (VentureBeat) *Data 2 Makes USD18 Million per Month for Valve – but League of Legends Makes that Much Every 5 Days*, 2016

135 SteamSpy, *Games Released in Previous Months*, 2016

136 Steam Online Store, 2016

The availability of new user-friendly digital design and programming tools have also enabled players to generate their own content. This has provided a new opportunity for monetisation for digital distribution platforms. Currently Steam Workshop Team Fortress allows players to design and upload online game elements to be sold within the games and earn a 25 per cent revenue share from each sale, leaving Steam with a 75 per cent share for intermediation of such sales¹³⁷. Micro-transactions now represent more than half of the revenues generated in the PC game sector, with the proportion continuing to grow.

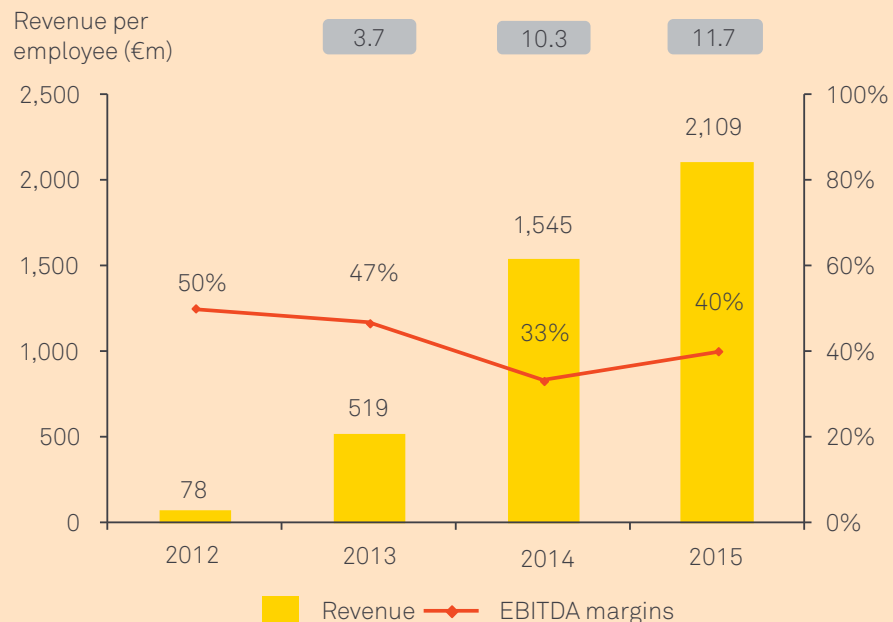
Mobile developers have fully embraced the low-price high-volume model that allows them to generate substantial revenues through in-game micro-transactions. In fact, in 2015 the top 10 mobile games by global revenues were all freemium games, which generated a total of \$6.2 billion (€5.6 billion)¹³⁸. For successful mobile games, such as *Candy Crush Saga*, developed by King, around 30 per cent of players have spent money in the game, whilst *PokemonGo* developer Niantic has reported 33 per cent of paying players. Finnish game developer Supercell, which uses a freemium model for all its games, provides a great success story in this area and one which we discuss in the case study below.

CASE STUDY: Supercell

Supercell is a mobile game development company founded in 2010 in Helsinki, Finland, which started producing games in 2011. The first productions, the browser game *Gunshine.net* and the mobile app *Battle Buddies* were not commercially successful¹³⁹. Since 2012, its online multiplayer games such as *Hay Day* and, particularly, *Clash of Clans* have been very successful, topping the charts for daily downloads and revenue generation. Supercell’s four titles — *Clash of Clans*, *Boom Beach*, *Hay Day* and *Clash Royale* — have reached over 100 million cumulative players each day¹⁴⁰.

These games are multiplayer (which drives engagement) and freemium: players are continuously encouraged, but not obliged, to buy in-game currency and content. *Clash of Clans* in-app purchases generate nearly €500,000 in revenues every day¹⁴¹.

Figure 7.13: Supercell revenues, EBITDA margins and revenue per employee



Source: Talouselama, 2016

137 Steam, *Team Fortress 2 Workshop*, 2016

138 T.DiChristopher (CNBC) *Digital Gaming Sales Hit Record \$61 Billion in 2015: Report*, 2016

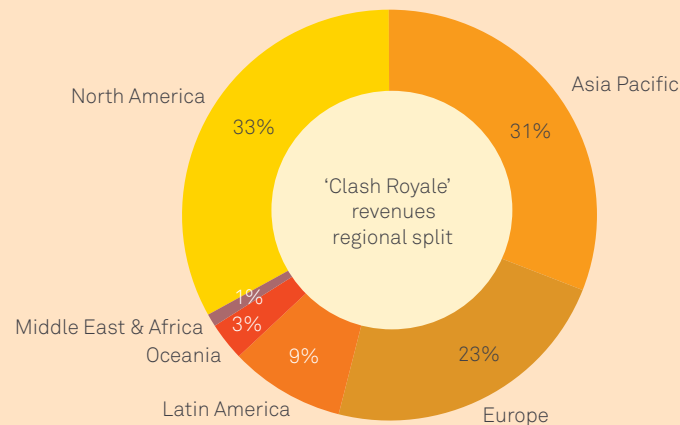
139 K. De Vere (SocialTimes) *A First Look at Supercell's Tablet-Only Combat Title Battle Buddies*, 2012

140 P.Pietarila (Kauppalehti) *Supercelliltä hurjat luvut: liikevaihto harppasi 2,1 miljardiin – työntekijät saivat osansa*, 2016

141 Supercell Forum, *Clash of Clans*, 2016. Given exchange rate from 30/11/2016 of EUR1 = US\$1.063

In 2015, Supercell's total revenue increased by 36 per cent and its EBITDA increased by 64 per cent compared to 2014. Supercell generates most of its revenues outside of Europe. For example, *Clash Royale*, released in January 2016, has made 77 per cent of its revenues outside of Europe with North America and Asia being the largest markets. By March 2016 the game generated \$80 million (€72.1 million)¹⁴². This may well have prompted the Chinese internet company Tencent to purchase 84.3 per cent of Supercell's shares for \$8.6 billion (€7.7 billion) in 2016¹⁴³.

Figure 7.14: iOS revenues of Clash Royale



Source: Newzoo, 2016

7.2.4 There have been significant benefits to consumers and content creators

Previous sections have focused on how the supply side of the industry has changed. This has clear benefits for developers and publishers: revenues are growing, in part through increased demand for games and a broadening of the base of gamers, including through mobile devices. Core revenue streams associated with PC and console games have not declined, with in-game micro-transactions and advertising both growing, whilst new revenue streams continue to emerge (e.g. eSports and VR/AR). Another effect of digitalization has been that those creating the content (i.e. the developers) now retain a greater share of overall revenues.

Cost reductions in production and distribution have led to a significant increase in development activity, and consequently in the supply of video games. For example 40 per cent of all games available on Steam were published in 2016, implying a rapid rate of production. As a result, consumers now have a greater choice of games across more platforms than ever before, including mobile. Recent technological innovations and increased broadband speeds have also led to new types of games, such as multiplayer games, browser-based games and VR games, some of which consumers can play for free.

Consumers are in a better position than ever before to assess quality, thanks to digital platforms' crowdsourced ratings (e.g. Steam lists games based on the players' rating of the game) and the emergence of trial-and-refund mechanisms, which only used to be available for physical games¹⁴⁴. According to Syndicat National du Jeu Video, developers in France have in fact reduced their output in order to focus on producing higher quality games¹⁴⁵.

¹⁴² J. Grubb (Venturebeat) *Supercell's Clash Royale on Pace for \$1B Year After \$110M Debut Last Month*, 2016

¹⁴³ J. Osawa (Wall Street Journal) *Tencent Seals Deal to Buy 'Clash of Clans' Developer Supercell for \$8.6 Billion*, 2016

¹⁴⁴ Steam store website, *Steam Refunds*, 2016

¹⁴⁵ Syndicat National du Jeu Video, *Annual Survey of the French Video Game Industry*, 2015

7.3 Outlook to 2020

The trends identified in this part are forecast to continue to 2020. Revenue growth will remain strong, thanks to increasing demand for games from consumers and an increasing supply of high quality games from developers. Contributions from newer platforms (mobile apps) and micro-transactions are likely to become more prevalent on PCs and consoles. Although this may put some pressure on traditional distribution, physical sales are not expected to fall significantly in the next five years.

Gaming platforms will become more convergent: more games will continue to be published on both consoles and PCs, particularly with the convergence of the Xbox ecosystems onto the PC platform. Cross-platform gaming for multiplayer games may open up more competition to the traditional console ecosystems, but it may also drive micro-transactions for console-based games, which have not seen as much take-up as on PC or mobile platforms.

Digital distribution can enable business model innovation, for example as already seen on PC and mobile with micro-transactions and bundling. It is likely to continue growing on consoles, although more progressively and slowly than on PC, due to the importance of the second-hand market in the console space, which relies on physical copies.

VR/AR is poised to become mainstream, thanks to ongoing improvements, refreshes and reduction in the price of VR/AR gaming hardware. Forecasts suggest that mobile will be the main platform for the technology, as it is particularly well-suited for AR.

The cross-over between video games and other creative industries is already significant (e.g. original musical scores, video game-focused publishing). eSports has already emerged as a popular form of AV entertainment online, and we expect its appeal and prominence to continue growing. Already, major TV players such as ESPN are purchasing broadcasting rights and showcasing the most high-profile competitions, and online platforms such as Twitch and YouTube gaming are bringing gamers in front of hundreds of millions of viewers¹⁴⁶. eSports have been officially recognised as a sport in France in 2016¹⁴⁷, with many viewers substituting traditional sports TV for eSports¹⁴⁸.

Further convergence is likely. eSports, video streaming platforms and new streaming features (e.g. in mobile devices) will further support the growth of online gaming-related video. Furthermore, eSports events are now being shown in VR (e.g. Dota 2 from Valve)¹⁴⁹. A new VR live streaming platform of eSports events, Boom.TV, has raised €3.15 million (\$3.5 million) in funding in 2016¹⁵⁰.

The outlook for the gaming industry is therefore very positive. NewZoo has estimated that gaming revenues in the EU reached €16.2 billion (\$18 billion) in 2016, and project an annual growth of 6.6 per cent per annum until 2019¹⁵¹. More conservatively, PwC's *Global Entertainment and Media Outlook* forecasts about 3 per cent annual growth per annum over this period. This should positively impact the employment in creative roles in the gaming industry in Europe and its economic contribution, whilst also leading to increased benefits for consumers.

146 S. Needleman (Wall Street Journal) *Twitch's Viewers Reach 100 Million a Month*, 2015

147 AFJV, *Le e-sport officiellement reconnu dans le cadre du projet de loi pour une République numérique*, 2016

148 J. Brightman (Newzoo. Games Industry Biz) *eSports Taking Viewership Away from Real Sports*, 2016

149 B. Kuchera (Polygon) *Spectating Dota 2 in VR is Amazing, Watch it in Action*, 2016

150 R.Cowley (Pocketgamer.biz) *VR eSports Streaming Platform Boom.tv Raises \$3.5 million in Seed Funding*, 2016

151 Newzoo, *Global Games Market Report*, 2016

Cultural institutions
have digitalized
their collections and
performances to
remove traditional
barriers to cultural
engagement

8 Cultural and heritage institutions

Overview of trends in revenue and employment



Note: Includes Finland, France, Germany, Italy, Netherlands, Poland, Spain, Sweden and UK
Source: Eurostat LFS, Oliver & Ohlbaum analysis

Characteristics of digital engagement

Two existing obligations of cultural institutions are driving digital uptake

- New digital technologies represent the logical evolution of museums' existing responsibilities towards preservation
- Institutions can also use digital to better deliver their responsibility to provide access to content
- In 2015, 84 per cent of cultural institutions had a digital collection, or were involved in digitalization activities

Cultural institutions are benefiting from increased collaboration

- Digitalization has enabled collaboration between institutions, digital providers, academics and the public
- Google Arts & Culture, Europeana and crowdsourced funding are examples of such collaborations

Benefits to consumers and cultural institutions

Digitalization of collections provides a means to protect and preserve them

- As of January 2016, institutions in Europe had produced digital collections containing more than 53 million objects
- These digital images can stand in for delicate objects at exhibitions, or when being accessed by researchers

Digital display has helped institutions overcome the restrictions of their physical display space

- Digitalization of cultural objects allows institutions to make a larger proportion of their collections accessible to the public
- While only 1 per cent of the British Museum's 8 million objects are on display, the public has access to around 1 million images

Digitalization removes barriers to collections and performances, helping to democratise access to cultural content

- The Google Arts & Culture app provides the public with remote access to over 1,000 museums via virtual tours
- The Royal Opera House and the Berlin Philharmonic Orchestra (BPO) use video streaming to offer remote access, extending geographical reach and democratising access. The BPO has achieved more than 55 million views on YouTube

There are benefits to consumers and content creators

New art forms have emerged as a result of digitalization

- In the case of ballet or opera, streamed airings offer a new and different experience to their live theatre-based equivalents
- Digitalization allows institutions to create original additional content to complement the physical exhibits on display

Researchers have greater access to new cultural exhibits as well as new resources, including crowd sourced research

- Volunteers can work collaboratively, via crowdsourced research platforms such as Vele Handen and MicroPasts, allowing experts to focus on subject-specific tasks
- Researchers can remotely access material such as 2D and 3D photographs of objects and digital copies of manuscripts

Institutions and creative individuals are finding new revenue channels

- Museums use online shops for tickets and merchandise, and some use crowdfunding to fund exhibitions
- The BPO can pass on digital income streams to its performers

Cultural and heritage institutions were not considered by the previous PwC/Booz reports. We consider them here, as some of the most creative activities take place within these institutions. The potentially sprawling scope of culture and heritage and the not-for-profit nature of many cultural institutions means that it is difficult to consider the impact of the internet on the industry in the same way as we can for other creative industries. Revenue generation, for example, is not an important metric and since many cultural experiences offer broad societal benefits, the impact of the internet is much harder to define and measure¹⁵².

Nevertheless, digitalization has brought significant changes to cultural and heritage institutions by enabling them to open cultural access to a wider audience, with far-reaching societal benefits. Here, we use an inclusive definition of 'cultural institution', which covers: museums and galleries, libraries and archives, monuments and architecture, and live performances such as ballet and opera. All these areas are mainly focused on the production and consumption of creative material, and so to exclude any of them from this report would be to ignore a significant contributor to creative employment and social benefit.

This part will consider how digitalization has impacted on cultural institutions in four ways:

- pan-European cultural enrichment and the preservation of European cultural heritage
- access to collections
- creative engagement
- economic benefits to institutions

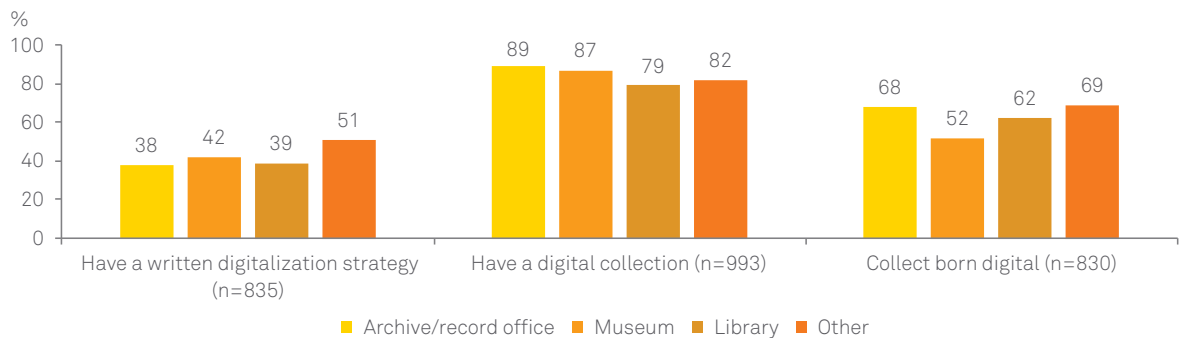
Due to the nature of its topic, this Section follows a slightly different structure from the previous sections, with less focus on the value chain (which cannot be captured succinctly for all types of institution) and revenue generation, and more reliance on case studies.

¹⁵² Borowiecki and Navarrete give a market value of the cultural and research content of European memory institutions of €27 billion: Karol J. Borowiecki and Trilce Navarrete, 'Digitization of Heritage Collections as Indicator of Innovation', *Economics of Innovation and New Technology*, 2017

8.1 The evolution of the sector

A large proportion of cultural institutions in Europe are embracing the opportunities presented by the internet. **Figure 8.1** is based on an Enumerate survey of around 10,000 European cultural institutions, and shows that almost all of them have used digital in some way. The majority have a digital collection, and over half collect 'born digital' material, i.e. materials which originate in the digital world. This is understandably higher in the case of libraries, archives and records offices, as increasingly texts which would have been produced in print form are now produced eFirst (digital first).

Figure 8.1: Percentage of institutions engaging in digital activities, 2015

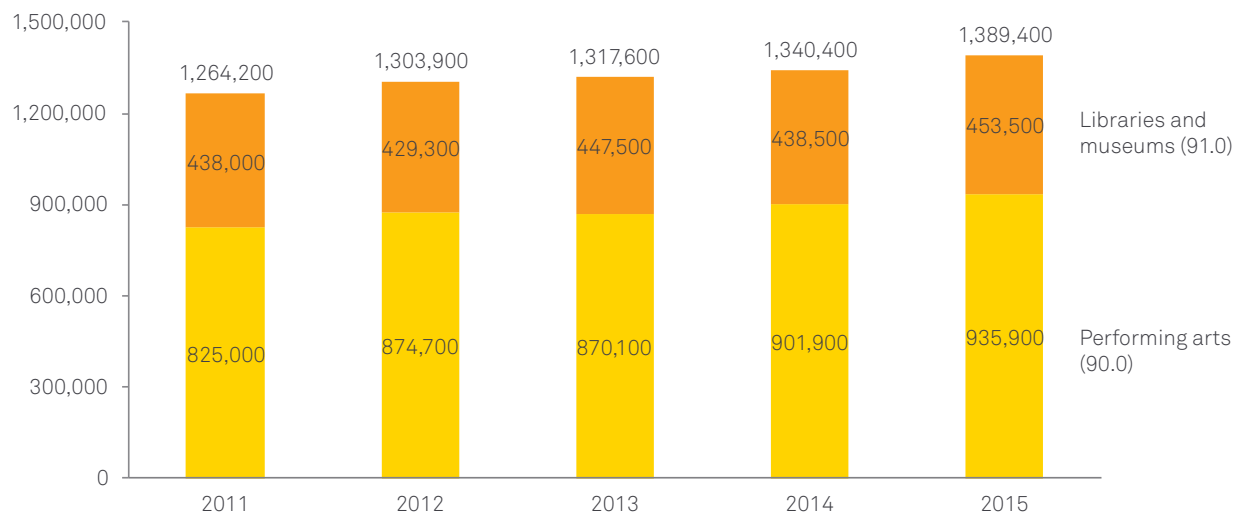


Note: Based on a survey of c.1,000 European institutions

Source: Enumerate, 'Survey report on digitisation in European cultural heritage institutions 2015' (June 2015), Oliver & Ohlbaum analysis

We saw in Section 2.2.2 that employment in cultural and heritage occupations increased between 2011 and 2015. It is possible to break down this employment data into two three-digit NACE codes for libraries and museums (91.0) and performing arts (90.0). **Figure 8.2** shows that employment in both of these sectors increased considerably between 2011 and 2015, at an annual rate of 0.9 per cent and 3.2 per cent respectively.

Figure 8.2: Employment in cultural institutions, selected European markets, 2011 to 2015



Source: Eurostat LFS, Oliver & Ohlbaum analysis

These employment trends cannot easily be attributed to the impact of the internet, as it is not possible to distinguish between traditional roles and those associated with the internet, nor can we easily ascertain the impact of new digital activities on traditional roles. However, as cultural institutions are embracing the opportunities presented by the internet, it is highly likely that these new activities are having a positive impact on employment. In the next sections, we examine the positive effects the internet and digitalization have had on culture and heritage, including benefits to consumers and society as well as the institutions themselves.

8.2 New options to preserve collections

Throughout their history, cultural institutions have sought to preserve their collections using the best method available, be that textual description in catalogues, watercolours and sketches, or photography. Modern digitalization techniques however, have enabled this process to take place to an unprecedented degree of accuracy. Records can be made of fragile objects using high-resolution photography, ensuring that their details are preserved for public interest and academic research. Digitalization can also increase awareness of important objects by making them available across international and cultural boundaries. The EU has taken particular interest in this and, for almost two decades, the European Commission (EC) has implemented strategies to preserve collections, and aggregate content so that it can be widely accessed. *Europeana* is the European aggregator of digital collections.

At a national level, the methods by which images and metadata are collected differ, but there is a shared perception of the importance of digitalization, or efforts to digitalize. In Germany, for example, where there is no digitalization strategy, the government believes that the best method is to make decisions about digitalization priorities is at an institutional level. The *Deutsche Digitale Bibliothek*, is the German national aggregator of digital information on cultural heritage, and provides the public with access to over 18 million pieces of metadata relating to cultural artefacts. In Italy, institutions set their own qualitative targets, and submit metadata to the national aggregators, *Internet Culturale* and *CulturalItalia*; Italy is one of Europe's forerunners in heritage digitalization.

EU member states are required to submit reports to the EC every two years on the progress of their digitalization plans, and the extent of their engagement with *Europeana*. This information is collected via the Enumerate survey, which enables the EC to produce a summary report on the types of digital activity that institutions are undertaking across Europe. As of January 2016, *Europeana* contained over 53 million objects and this count continues to grow. Site visitors can access the most recently added material in the 'What's new?' section of the *Europeana* website¹⁵³, which is itself being constantly updated and improved¹⁵⁴.

The drive to digitalize heritage has also thrown up new challenges, such as questions about copyright and OCR technologies – i.e. how to make collections accessible (and readable) to everyone within the terms of copyright. This is particularly challenging since copyright agreements may not be drafted with digital in mind. Such projects include IMPACT (2008-2012) on OCR technology and Succeed (2013-2014) on interoperable platforms, as well as the orphan works directive, which seeks to find copyright holders, and if this is not possible, to make those items accessible.

8.3 More exhibits and greater access

Perhaps the most significant consumer impact of digitalization in the cultural sector is to provide more exhibits and greater access. Visitors not only have access to artefacts that were previously not on display, they can now access collections and performances from remote locations, providing increased opportunities to enjoy cultural experiences which would previously have been out of reach.

8.3.1 Digitalization removes the constraints of physical display space

Space is a significant limiting factor for many museums and galleries, which can be overcome by the internet. These institutions often rotate their collections to provide the public with the opportunity to see a larger proportion of what they have. But for many it is simply not practical to display everything, even over a long timeline (both due to space and costs), and so many cultural artefacts remain in storage. In some cases, exhibits are also withheld from public display because they are deemed to be too fragile and need to be preserved. In both cases, digitalization means that objects not previously available to the public can be catalogued online and images made available and searchable. If desired, institutions can even offer viewers 360 degree access, a perspective which often is not even available in a museum. One example of digital enhancing the physical cultural experience is when the Tate created apps to accompany their Georgia O'Keefe exhibition in the summer of 2016. These

¹⁵³ <http://www.europeana.eu/portal/en/explore/newcontent.html>

¹⁵⁴ <http://www.europeana.eu/portal/en/roadmap.html>

apps could be bought through the Apple store, and served to accompany a visit to the gallery, thereby providing an alternative to audio guides.

CASE STUDY: The British Museum

The British Museum holds eight million objects, but only 1 per cent of these can be put on display at any one time. Several thousand objects are lent to other institutions, but this is still a negligible percentage of the total collection¹⁵⁵. It is therefore extremely significant that people can have access to millions of images online: as of November 2016, the museum held 2,300,579 digital records of over 3,500,000 objects, of which 976,430 had accompanying images¹⁵⁶.

Digital collections can sometimes be made available at the institutions themselves, or they can be accessed remotely. The former enriches the experience of a visit, while the latter vastly increases potential reach. In the early days of digitalization, concerns were raised that making collections available online could have a detrimental effect on the number of visitors to cultural institutions. However, there is little evidence that this is the case and most cultural institutions have found digitalization to have an entirely positive impact. The reality is that viewing a collection online is not a close substitute for seeing it in the flesh, and most people treat these things as two separate and complementary experiences. Indeed, some organisations have found that digital exhibits are an important means of raising awareness and actually increase footfall, since there are more exhibits to attract visitors. These digital exhibits can also be worked into interactive experiences on site, which cannot easily be replicated in people's homes. Remote access to digital collections is therefore attractive to researchers, those not able to visit the site, and people interested in finding out more information following their visit.

8.3.2 More people can access collections and performances

Enabling increased access to exhibits applies largely to museums and galleries, and this has also led to wider access to their collections, as we saw in the previous section. But digitalization has increased access to culture across the full spectrum of activities, from cultural artefacts to performing arts. In this section we consider the ways in which people are able to engage with institutions remotely and how this has resulted in entirely new forms of interaction with culture.

8.3.2.1 Virtual tours offer remote access to cultural institutions

While not a direct substitute for a visit, virtual tours provide a new approach to engaging with groups who would not otherwise be able to visit an institution. For world-renowned and lesser-known institutions alike, their geographical location is a significant limiting factor for their potential audience. Unlike the other creative industries, where remote access is a fundamental feature, those wishing to experience cultural works have traditionally needed to be on site. The internet has given these institutions a global (remote) audience and virtual tours are one means of helping these people to engage with cultural material and connect with cultures other than their own.

Many institutions of varying sizes have had positive experiences with virtual tours. These tours can range in scope, from online access to collections, to VR tours enabling users to move around virtual replicas of the museums and galleries themselves. The Google Arts & Culture app gives users over two and a half thousand views of cultural institutions around the world. Virtual tours have even crossed the border into television. The BBC's *Italy's Invisible Cities* (2017) created 3D historical maps of Venice, Naples and Florence, which can be viewed on VR headsets. This represents a meeting point of traditional media, heritage, and new technology, leading to a multi-dimensional experience for the user.

155 https://www.britishmuseum.org/pdf/fact_sheet_bm_collection.pdf

156 https://www.britishmuseum.org/research/collection_online/search.aspx

CASE STUDY: Google Arts & Culture

Google Arts & Culture (GA&C) is a mobile app and website dedicated to art and culture. It was created to promote culture online and support cultural institutions in making the most of technological opportunities. GA&C partners with cultural institutions to increase access to important cultural material and build tools that allow the cultural sector to share more of its diverse heritage online. It originally started as the Google Art Project, with the aim of providing an online platform through which technology could enhance the experience of art. Over time, the focus shifted to include all culture from around the world. GA&C gives institutions the opportunity to put some of their collections online, and to enhance the digital experience within their museum, thereby providing new ways to access content and opening their doors to a wider audience.

Examples of GA&C's work include its collaboration with the Natural History Museum in London, where a 360-degree tour using Google Cardboard was created, and brought the extinct rhomaleosaurus to life. Another example is the Museum View; just as Google Street View enables users to view and navigate along a street, Museum View allows users to move through a digital reproduction of galleries in museums from around the world. These examples demonstrate how digitalization has brought about both new experiences and extended the reach of museums and galleries.

GA&C has also helped to provide exciting new experiences in relation to the performing arts: it created VR videos, and collaborated with dancers who used the Google Tilt Brush to paint as they danced, generating what could be viewed as a completely new art form. For paintings, GA&C has used a gigapixel camera to produce extremely high-resolution images of work by artists including Marc Chagall and Pieter Bruegel, to reveal aspects of their paintings which are invisible to the naked eye. This represents another form of engagement with culture which was not previously possible.

All of these experiences are available via the GA&C app, so consumers can access them when and where they want. The app gives users access to over 1,000 partner institutions across 70 countries, including museums, archives, libraries, and heritage sites. Available digital artefacts include more than 6 million photos, videos, manuscripts and other documents relating to art, culture and history, along with over 4,000 digital exhibitions.

These types of experiences are valuable to both consumers and institutions, which can offer more to a greater number of consumers as a result. Google suggests projects to institutions and collaborates with them; the institutions retain all related copyrights and are not charged for input from the GA&C.

8.3.2.2 Remote access to experiential goods increases reach and provides an entirely new art form

Experiential goods include live theatre, ballet and opera performances, which have no permanent physical presence; rather, their value lies in the act of experiencing or witnessing them. Like galleries and museums, such performances have traditionally faced geographical limitations on their audience due to the requirement that audiences are present to witness them. However, they are perfectly suited for broadcast, and many institutions now offer live streaming of events and a back catalogue of performances. Doing so has created a new form of art in its own right. On the one hand, enthusiasts would argue that recordings cannot replicate the liveness of a performance, and therefore would not consider broadcast and live attendance to be substitutes. On the other hand, with directorial intervention – for example in different shots and camera angles – the live broadcast is a new creative product.

CASE STUDY: The Royal Opera House

The Royal Opera House (ROH), London, is home to the Royal Opera and the Royal Ballet. In recent years the ROH has been a keen adopter of digital technologies, not just as a side-line to live performance, but also to offer new forms of creative output. The internet has, of course, become an integral part of the ROH's marketing and audience engagement strategies, but perhaps most interestingly, digital content has broadened the experiences on offer and allowed the ROH to reach audiences in new geographies, and attract new demographics to both opera and ballet.

Opera and ballet are both immersive forms of storytelling, which have traditionally appealed to relatively niche and up-market audience. Nevertheless, the pre-eminence of the ROH means that a recurring problem is one of too much demand. Digitalization and the internet has meant that the ROH is no longer constrained by auditorium space; around twelve performances a year are streamed live to cinemas worldwide, and 'BP Big Screen' events offer free access to live performances, via outdoor screens across the UK. These types of events do not replicate the live audience experience exactly, but rather offer an entirely new experience – and provide access to a much wider audience. They appeal to those whose location means they cannot make it to the ROH, and to those who prefer to watch in a cinema.

As well as increasing the reach of live performances, digitalization has provided opportunities to increase engagement with consumers in other ways. Virtual tours allow serious opera and ballet fans to see behind the scenes, and access interviews with the director and performers backstage. In some instances, historic performance footage has also been made available online, though legacy rights agreements often make this difficult. Technology has also enabled international collaboration: during World Ballet Day, a collaboration involving The Australian Ballet, Bolshoi Ballet, The Royal Ballet, The National Ballet of Canada, and San Francisco Ballet, 24 hours in the life of a ballet are streamed live. For five years, the event was streamed on YouTube, and in 2016 it moved to Facebook, where it received 6.7 million views. Incredibly, 77 per cent of this was streamed without sound indicating that consumers are engaging with this content on mobile devices.

Digital technologies are also having an impact back stage. The ROH is working to develop a VR version of its stage so that lighting designers can test lighting from the rehearsal room as though they were on-stage. This frees up the actual stage, which is in high demand for rehearsals, smoothing the creative process. Digital also provides opportunities for completely new approaches to creativity; for example, VR and AR are developing rapidly and could change the way choreographers work.

While digitalization has been overwhelmingly positive for the ROH, with new revenue streams and increased engagement with consumers, there have been some drawbacks. For example, the decline in Blu-ray and DVD sales has not been offset by digital downloads, though this is a small part of the ROH's revenue. Other, artistic challenges have arisen due to the breaking of the fourth wall; some believe that the fact that audiences can see backstage spoils the overall experience. The main challenge however, has been the lack of funding and legal resources to disentangle the complex legacy rights deals and enable more of the back catalogue to be made available online; the key will be ensuring that future rights agreements are set up to account for digital opportunities.

Such opportunities for audiences beyond the theatre walls to witness these cultural performances were simply not available prior to digitalization. Of course, broadcast was possible, but the costs of traditional broadcast were prohibitive given the relatively small national audiences – instead, broadcasting of opera or ballet was reserved for more niche channels, such as BBC4 in the UK. Digitalization has both reduced production costs and provided a means of broadcasting over the internet to a niche, but potentially global audience at much lower cost.

There are several approaches currently being used by institutions offering broadcast or streaming services: live and/or archive events, and at home and/or in cinema. Live cinema and outdoor events are perhaps the best example of how these digital approaches can create new art forms. They offer a very different experience to seeing the performance in person but, nevertheless, are a cultural event in their own right. These events can provide additional income streams to help support the arts and can be replicated across the country or, indeed, the world, providing access to a much larger audience. This increased accessibility can also lead to increased interest, tempting more people to attend live performance in the theatre.

Indeed, research suggests that these experiences are a complement to box office revenue – encouraging people to attend the theatre or broadening the audience – rather than cannibalising ticket sales. In the UK the National Theatre broadcast its first NT Live screening in June 2009, and to date claims to have reached over 5.5 million people worldwide¹⁵⁷. There are some claims that live broadcast makes people less likely to see smaller companies, and makes larger companies less likely to tour the regions¹⁵⁸. However, there is substantial research which refutes this. Nesta conducted detailed research on the NT Live pilot's impact on theatre attendance, and found that the contribution of live streaming is overwhelmingly positive¹⁵⁹. They found that, of the cinema viewers of NT Live's *Phèdre* (NT's first broadcast), 89.1 per cent were more likely to see another broadcast, 33.9 per cent were more likely to attend a live NT performance in the future, and 29.6 per cent were more likely to attend a play at another theatre in the future¹⁶⁰. Furthermore, Nesta found that lower earners were more likely to attend the cinema screenings than they were the theatre, and that theatre attendance increased in geographical areas in which there were higher concentrations of NT Live screenings¹⁶¹.

The other main broadcast option is a streaming service targeting people on their own devices, whether at home or on the move. This can be full live events or archive footage in either clip or long form. Different institutions use them differently: some might see them primarily as marketing materials, to pull people in to the live events in person, while other institutions use them very much as an extension of the theatrical performance. Access to a live orchestra, opera or ballet, for example, may be available free of charge or via subscription service – depending on the institution – and for some it is an important revenue stream, making up for reduce carriage on traditional television channels in recent years. These experiences can make the viewer feel like they are being reached out to personally, or that they have privileged access. One hybrid example, part-museum tour, part-experiential product, is the British Museum's use of the Periscope app to stream Dan Snow's after-hours tour of the exhibition, 'Defining Beauty: The Body in Ancient Greek Art' in 2015. The tour was filmed on a smartphone, and viewers could submit questions via Periscope or Twitter to the exhibition curator¹⁶².

Overall the impact of remote access to experiential culture is positive in several ways. When broadcast in a cinema, this hybridization of form brings theatre and film together to create a brand-new experience. It reaches people who otherwise may not have attended the theatre due to geographical or financial restrictions, or simply because they did not perceive themselves as consumers of high culture. In another sense, live broadcasting and streaming impacts traditional creative output. Creativity is required at new levels: theatre directors have to collaborate with camera operators and video directors; costume and make-up may need to adapt to suit a large-screen audience. Finally, as the case study of the BPO demonstrates, digitalization has provided a new way to monetize creative output, thereby reducing the decline in performance revenue.

CASE STUDY: Berlin Philharmonic Digital Concert Hall

The Berlin Philharmonic Orchestra (BPO) was established in 1882 and moved into its current home, the Berliner Philharmonie concert hall in 1963. It is widely considered to be one of the best orchestras in the world, and was one of the first of its type to move into the digital age. The Berlin Philharmonic Digital Concert Hall (DCH) was launched in 2008 in response to declining demand for classical music broadcasts in traditional TV slots. The Orchestra had found that classical music was increasingly being pushed towards niche channels, reducing its reach and putting pressure on musicians' fees.

The DCH responded to this changing demand from traditional TV channels with a new approach to distribution. Online streaming of both live and archived concerts allows the DCH to reach a global audience of internet-enabled TV, tablet, computer and smartphone users. It also gives the Orchestra full control

157 <http://ntlive.nationaltheatre.org.uk/about-us>

158 For example Elizabeth Freestone (Arts Professional), *The Bitter Taste of Live Screening*, 2012

159 'NT Live Screenings "Do Not Harm Theatres"', (BBC) 25 June 2014; Lyn Gardner (The Guardian), 'Why Digital Poses no Threat to Live Performance', 17 January 2014; *ibid.*, 'To Beam or Not to Beam? How Live Broadcasts are Changing Theatre', 6 May 2015

160 Nesta, 'Beyond Live: Digital Innovation in the Performing Arts', Research briefing, February 2010

161 These results are particularly significant in light of the findings and recommendations of the 2015 Warwick Report on access to culture in the UK, which stressed that a concerted effort must be made to widen access for minorities and those on lower incomes – Warwick Commission, 'Enriching Britain: Culture, Creativity and Growth', 2015 http://www2.warwick.ac.uk/research/warwickcommission/futureculture/finalreport/warwick_commission_report_2015.pdf. Indeed, the Commission cites NT's success.

162 http://www.britishmuseum.org/whats_on/exhibitions/defining_beauty/live_tour_with_dan_snow.aspx

of the value chain and direct contact with the end users, which helps to build and maintain interest. Every concert is streamed live in HD, and around 450 concerts are currently archived – all of which are available to ticket holders and subscribers. In addition, the Orchestra's YouTube channel offers a taste of their work, with several clips uploaded each week – it currently has more than 150,000 subscribers and almost 55 million views.

The success of the DCH has made it an important part of the Orchestra's business, benefiting both the musicians, who are now better off financially, and consumers. The DCH has allowed the Orchestra to reach people in new geographies, and from groups who may never have considered themselves classical music fans. The Orchestra found that the DCH has had a positive effect on footfall; people who hear the Philharmonic digitally often want to see them live, and there has been no decline in live audiences or in tour requests from regional venues. Only around 2 per cent of the DCH streaming volume comes from Berlin, so it has not cannibalized the Berlin audience. The fact that so many streamers are located outside Berlin demonstrates the breadth of demand for classical music, which can now be satisfied.

In 2015, the BPO partnered with Google Arts & Culture for the Performing Arts Exhibition, a collaboration between Google Arts & Culture and 60 of the world's leading institutions in the performing arts. The online exhibition includes a 360-degree video of Beethoven's Symphony No. 9 and indoor street view images allowing users to tour the concert halls.

8.4 Creative engagement

As well as enabling greater engagement with culture through increased access and new art forms, the internet has brought new opportunities to support creative endeavour or produce tangible creative material. While this may not be the most important impact on the cultural sector, it has supported digitalization of some cultural artefacts and further research into others.

8.4.1 Crowdsourcing offers a new approach to cultural research

There are some research tasks in the humanities and culture and in the sciences which, despite rapid technical innovation, still have to be carried out by humans¹⁶³. In some instances it is possible to split cultural research projects in such a way that the research effort can be shared between online participants, allowing large and often repetitive or monotonous tasks to be completed more quickly. Crowdsourced research techniques are perhaps better known in the sciences where, through platforms such as Zooniverse volunteers can, amongst other things, count penguins, and identify galaxies. The discrete packets of information submitted by each participant are checked for errors, and combined into a much larger data set from which scientists can draw conclusions. Increasingly, researchers in the humanities are beginning to realize the benefits of using crowdsourcing platforms to assign tasks such as manuscript transcription.

The advantages of crowdsourcing research are two-fold: researchers are freed-up by the delegation of data processing, giving them time for more research, and members of the public who take part in these projects receive intellectual fulfilment and can make a real contribution to research. Research suggests that those who volunteer for these projects 'do not have a single motivation' for doing so, but that if there is one common justification, it is that the individual has a particular interest in the area of study they are choosing to help¹⁶⁴. A study of the outcomes of the 'Transcribing Bentham' project, a project run by University College London to transcribe manuscripts for a new scholarly edition of the work of Jeremy Bentham, concludes that the enthusiasm of the volunteers is very important. While crowdsourcing is not necessarily cheaper (there are

163 The University of Cambridge Digital Humanities Network gives as examples 'pattern recognition [and] reading handwriting', 'Crowdsourcing: participatory digital research methods' <http://www.digitalhumanities.cam.ac.uk/Methods/pastworkshops/Crowdsourcing>

164 Stuart Dunn and Mark Hedges, 'Crowd-Sourcing Scoping Study: Engaging the Crowd with Humanities Research', *A project of the AHRC Connected Communities Theme*, 2013, <http://crowds.cerch.kcl.ac.uk/wp-content/uploads/2012/12/Crowdsourcing-connected-communities.pdf>

set-up costs involved such as setting up the interface, and training people in how to use it), there are significant public benefits which justify the use of this method¹⁶⁵. As the case study below demonstrates, crowdsourced research is being deployed across the full scope of the humanities, and in particular, niche local history topics are piquing volunteers' interest.

CASE STUDY: Crowdsourced Research Platforms

Vele Handen (Netherlands)

Vele Handen is a crowdsourcing research platform founded by digital heritage company Picturae. Cultural institutions can upload content and create a project, to which volunteers are invited to contribute. Manuscripts are read by two users, and checked by a third. In its first project, the transcription of Militia records (launched October 2011), Vele Handen volunteers indexed over 300,000 scans in 18 months. Current project examples include 'Causes of Death, Amsterdam 1854-1940' from Radboud University, in which volunteers aim to index the causes of death of over 700,000 people, and 'Text Posters: Mirror of Everyday Life During the First World War' from Ghent Municipal Archive, which asks volunteers to extract information such as street names from posters displayed in occupied Belgium. An incentive for users is Vele Handen's points system: points collected per transcription (more for a usable text) can be exchanged for books, archive tours, or participation in project meetings, depending on the project.

MicroPasts (UK)

MicroPasts is a collaboration between the UCL Institute of Archaeology and the British Museum, and is supported by the Arts and Humanities Research Council (AHRC). It enables archaeologists and historians (both professional and volunteer), to create crowdsourced projects which involve such tasks as transcription, cataloguing, and photo-masking. One of MicroPast's aims is 'to improve how people traditionally distinguished as "academics", "professionals" and "volunteers" cooperate with one another'¹⁶⁶. The project also aims to make the data produced open-licensed, so that it can be accessed by any member of the public. These guiding principles illustrate how crowdsourced research can be used to bridge the gap between academic practices and the cultural knowledge of the public. By bringing the two together on a level field, the interests of both are enhanced.

Operation War Diary (UK)

Operation War Diary is a citizen history project run by the crowdsourcing platform Zooniverse, the Imperial War Museum and the National Archives. It asks volunteers to tag key information in the unit diaries of the British and Indian cavalry and infantry divisions on the Western Front. This includes: names, military activity, weather, non-combat life, and casualties. From this it aims to provide researchers with a fuller understanding of day-to-day life on the Western Front for these divisions.

165 Tim Causer and Valerie Wallace, 'Building a Volunteer Community: Results and Findings from *Transcribe Bentham*', *Digital Humanities Quarterly*, Vol. 6, 2012, online version <http://www.digitalhumanities.org/dhq/vol/6/2/000125/000125.html>

166 <http://micropasts.org/about/>

8.5 Economic benefits to institutions

While not the main driver of digitalization activities, the internet has had a positive effect on cultural institutions' ability to generate revenue. As we have seen digital has helped to increase footfall and/or opened up new approaches to monetization through broadcast or streaming, and these new revenue streams ultimately help to support the activities of these institutions. But these are not the only economic benefits: the internet has enabled institutions to sell tickets online, making it easier for visitors to plan their trips, and has allowed institutions to sell merchandise to a global audience, via online shops. Online advertising and links to smaller institutions from larger institutions' websites are also an important means of increasing awareness and targeting audiences who are interested in cultural experiences. Finally, crowdfunding has emerged as a potential means of supporting cultural projects – several institutions have succeeded in this area, though as shown below, results have been mixed.

Between 2013 and 2015 Nesta and Arts Council England, together known as the Digital R&D Fund, conducted three surveys on cultural institutions in England to investigate the extent to which institutions engage with the internet and whether this had had a positive financial impact. It found that the use of online crowdfunding could indeed be beneficial, but also that after an initial surge in engagement, many institutions became more cautious. In 2014, 21 percent of institutions said that they intended to use crowdfunding platforms to raise money for projects in the following 12 months, but the actual percentage of institutions which actually did so was 1 percent¹⁶⁷. This could be because crowdfunding projects that were already underway returned disappointing results. It could also be that the institutions found that crowdfunding required more resources and skills than they had anticipated.

8.6 Outlook to 2020

The impact of digitalization on the culture and heritage industry has been extremely positive, and the benefits will be enjoyed by more and more consumers as institutions continue to commit to digital projects and establish new means of incorporating technology into their collections and performances. Initial concerns that digitalization of collections could impact on footfall appear to have been unfounded and, instead, more people have more access to culture – and can experience it in new and exciting ways. The future of all aspects of heritage will be fundamentally affected by digital, and in order to maximize its potential, institutions must continue working towards standardization of methods, and continue to push the boundaries of what is possible with digital technology.

167 Digital R&D, 'Digital Culture 2015: How Arts and Cultural Organisations in England Use Technology'

Appendices:

1. Literature Review
2. Defining and measuring the creative sector
3. The internet as an enabler of the creative sector
4. Variation of availability and take-up of access technologies across our focus markets
5. Creative sector revenue data by market
6. Interviewees

1 Literature Review

O&O and Analysys Mason have reviewed existing research on the impact of the internet and digitalization both generally and with specific emphasis on the creative sector. We have aggregated existing findings, and identified strengths and weaknesses in terms of the availability of data. We have consulted a wide variety of sources, including pan-European reports, academic articles, and industry-specific publications. The existing literature can be placed in the following categories:

- Impact of the internet and digitalization generally
- The creative sector: how it is defined and measured
- Impact of the internet and digitalization on the creative sector as a whole
- Industry-specific research

We found that there is an absence of studies covering specific industries across multiple markets. We will therefore construct a more complete picture of specific industries using data from a variety of sources, for different markets, while remaining attuned to the nuances of smaller markets and developments within industries. In part, we have therefore allowed the availability of data to shape our focus.

This short literature review summarises existing work under the headings stated above, going into more detail for the key reports.

1.1 Impact of the internet and digitalization generally

ComScore estimated that by the start of 2013 over 408 million people in Europe went online via PC or laptop and that the average European spends 27 hours online per week¹⁶⁸. Whilst these numbers are likely to have grown significantly since, what remains clear is that the internet has a tremendous impact on our society, economy, healthcare and education. It is very hard to capture all of its impact; however, it is important to identify some of the most important changes to have occurred due the existence of the internet.

1.1.1 A significant GDP contribution

BCG¹⁶⁹ reported that the Internet contributed 5.7 per cent to the GDP of the EU27 countries, generating a total of \$1,133 billion (€1,021 billion) in value. The largest of these contributions have come from the UK, Germany and France with the UK alone contributing 30 per cent of this value. Online retail activities in the EU27 in 2016 generated \$650 billion (€586 billion), 10.8 per cent of total retail revenues, up from 5.7 per cent in 2010. Havas Research¹⁷⁰ observed that technology products and personal electronics was the category of consumer goods with greatest online spending, with clothing, books, travel, movies, music and video games all very significant.

The internet has led to real growth in traditional industries, with over 75 per cent of value added in 2012 arising due to the internet according to McKinsey¹⁷¹. McKinsey Global Institute (MGI) research¹⁷² has also documented how the internet has impacted global goods and services in the following main ways: (1) creation of digital goods and services, (2) providing a digital 'wrapper' enhancing the value of physical flow, and (3) creating digital platforms allowing for cross-country exchange. These changes were supported by the 18-fold increase in global online traffic across borders from 2005 to 2012.

¹⁶⁸ ComScore, *Europe Digital Future in Focus*, 2013

¹⁶⁹ BCG, *Internet Economy in the G20*, 2012

¹⁷⁰ Havas Worldwide, *Digital and the New Consumer: Emerging Paths to Purchase*, 2013

¹⁷¹ McKinsey, *Internet Matters: Essays in Digital Transformation*, 2012

¹⁷² McKinsey, *Global Flows in a Digital Age*, 2014

1.1.2 Generates employment

The notion of employment is changing with the internet. By 2012 McKinsey estimated that the internet had removed the need for 500,000 jobs in France but over the preceding 15 year period had created 1.2 million others (2.4 new jobs for every one lost)¹⁷³. The internet has provided opportunities for the unemployed to generate income through engagement in online selling activities, according to Tooley Street Research¹⁷⁴. Meanwhile, job markets have been positively disrupted by online platforms which connect employers with job seekers, providing job across long distances¹⁷⁵.

1.1.3 Changes business models

The Internet leads to dematerialisation: the appearance of new communication and distribution channels, which ultimately lead to decreases in marginal production costs and transaction costs¹⁷⁶. New trends and business models are emerging, with online and mobile banking leading to P2P (peer-to-peer) lending, the development of the 'sharing' economy and crowdsourcing of both ideas and funds¹⁷⁷. Mollick's¹⁷⁸ research suggested that every dollar invested on the Kickstarter crowdfunding platform resulted in a mean \$2.46 in additional revenue being generated outside of the platform. Projects that were funded via the platform created over five thousand ongoing full-time jobs and over 160,000 part-time positions. Microfinance gives entrepreneurs an opportunity to raise money globally in very small amounts¹⁷⁹.

Businesses also tend to use cloud computing and engage in e-commerce activities and online trading as a result of the internet. Havas reported that in 2012 global consumer spending online reached \$1 trillion (€901 billion), with mobile technologies and social media having contributed significantly to reaching this figure¹⁸⁰.

1.1.4 Generates Consumer Surplus

In 2010 consumer benefit attributed to the Internet in the US and Europe was €130 billion, as measured by McKinsey¹⁸¹. In 2013 this benefit grew to €250 billion, reflecting greater choice for consumers and lower costs of production. This resulted, through increased competition, in lower prices and greater access to purchase-related information for consumers (for example in relation to quality of products and services, including the trustworthiness of those selling them). In fact the value of this trust in web brands was itself estimated to be worth €50 billion in 2013.

Of the total consumer surplus the amount which is mobile-generated rose from €15 billion in 2010 to €105 billion in 2013. As noted in research by IAB Europe¹⁸², these values are also complemented by significant producer surplus. The associated consumer costs, advertising and personal information sharing rose from €30 billion in 2010 to €80 billion in 2013, while net surplus remained positive. A new concept enabled by the internet - Big Data - contributes to the creation of even higher consumer surplus through possibilities for product and service customisation¹⁸³.

173 McKinsey, *Internet Matters: Essays in Digital Transformation*, 2012

174 Tooley Street Research, *The Effect of the Internet on the Economically Vulnerable*, 2014

175 The World Bank, *World Development Report 2016: Digital Dividends*, 2016

176 Rapport Lemoine, *Transformation numérique de l'économie*, 2014

177 OECD, *Digital Economy Outlook*

178 Ethan Mollick, *Containing Multitudes: The Many Impacts of Kickstarter Funding*, 2016

179 McKinsey, *Global Flows in a Digital Age*, 2014

180 Havas Worldwide, *Digital and the New Consumer: Emerging Paths to Purchase*, 2013

181 McKinsey, *The Mobile Internet's Consumer Dividend*, 2014

182 IAB Europe, *Consumers Driving the Digital Uptake: The Economic Value of Online Advertising-Based Services for Consumers*, 2010

183 McKinsey, *Internet Matters: Essays in Digital Transformation*, 2012

1.1.5 Improves productivity

The internet leads to automatisisation, which improves productivity at work, productivity of capital and productivity of energy and primary materials¹⁸⁴. MGI have suggested that companies can increase the productivity of the interaction of their workers by 20-25 per cent by using social media technologies, since workers spent nearly half their time sorting emails and looking for internal information, at the time of publication in 2012¹⁸⁵.

1.1.6 Creates wider benefits to society

Deloitte¹⁸⁶ highlights how the internet also improves healthcare by providing easy access to safety and disease-related information. Deloitte estimates that increasing internet penetration will give 640 million children worldwide access to educational sources.

1.1.7 Contributes to globalisation

In 2013 developing economies accounted for 38 per cent of all global flows of goods, services and finance, up by a factor of around three since 1990. The Internet has enabled “micromultinational” companies: small companies with few employees being able to conduct business globally, whether based in developing or developed countries¹⁸⁷.

1.2 Defining and measuring the creative sector

This section provides an overview of the methods currently used to measure the creative sector, and the trends that have been identified using these methods. It is important to note that variation occurs between studies in part due to a lack of consensus, between countries, on the definition of the creative sector. While one report might, for example, consider the manufacture of bookbinding machinery to constitute part of the publishing industry, another might restrict its definition to roles more directly related to the creative process, such as writers and editors.

1.2.1 Market-specific reports

In 1998 the UK DCMS defined the creative industries as *‘those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property’*.

In its 2013 report, ‘A Dynamic Mapping of the UK’s Creative Industries’, Nesta argued that this definition of the creative industries lacked a rigorous method and so excluded some industries with high creative activity. It proposed a ‘creative intensity’ metric to determine which industries should be considered creative¹⁸⁸. Using this new classification, Nesta estimates that in 2010 1.3 million people worked in the UK’s creative industries, and in total 2.5 million people were employed in the creative economy (creative industries plus creative proportions of non-creative industries). Nesta’s ‘Manifesto for the Creative Economy’¹⁸⁹, also published in 2013, sets out and explains strategic proposals to boost the UK’s creative sector under changing economic conditions. It proposes that the creative industries would be strengthened by incentivising creative organisations to experiment with digital technologies, and by promoting opportunities to learn digital skills.

184 Rapport Lemoine, *Transformation numérique de l’économie*, 2014

185 McKinsey, *The Social Economy: Unlocking Value and Productivity Through Social Technologies*, 2012

186 Deloitte, *Value of Connectivity: Economic and Social Benefits of Expanding Internet Access*, 2014

187 McKinsey, *Global Flows in a Digital Age*, 2014

188 Bakhshi et al, *A Dynamic Mapping of the UK’s Creative Industries*, 2013

189 Bakhshi et al, *A Manifesto for the Creative Economy*, 2013

The Creative Industries Economic Estimates is an annual set of official statistics, released by the UK DCMS, and is used to measure the direct economic contribution of the creative industries to the UK economy. The ‘creative intensity’, or Dynamic Mapping, model proposed by Nesta in 2013, was adopted by the DCMS in the Economic Estimates from 2014. Their latest report calculated that the GVA of the UK creative industries in 2014 was £84.1 billion and accounted for 5.2 per cent of the UK economy. The GVA of the creative industries grew faster than the total UK GVA from 2011 to 2014. Its 2014 estimate that in 2014 employment in the UK creative industries stood at 1.8 million jobs, differs from the Technology Strategy Board’s estimate of 1.4 million as of 2013¹⁹⁰.

The German Federal Ministry for Economic Affairs and Energy uses the ‘commercial character’ of creative enterprises to define the creative industries. Companies not financed by the market (i.e., those which receive mostly public financing or non-profit funds) are not included in the study. In a report of 2012 the Ministry estimates that in Germany there were 247,000 companies in the cultural and creative industries with a collective turnover of €143 billion. From the results of a survey commissioned by the Ministry into digitalization and the creative sector, it concludes that 46.1 per cent of companies heavily use the internet as a channel of distribution¹⁹¹.

The French Ministry of Culture and Communication in 2015 suggested that cultural industries represent 2.2 per cent of total employment in France. Its estimates are lower than those of the TERA report (2014, above); this difference is most likely caused by separate definitions of the creative industries.

1.2.2 Pan-European reports

Nesta extends its methodology to other European countries in a 2015 report, ‘Creative Economy Employment in the EU and UK’, in order to create a consistent and comparable dataset for employment in the creative industries in European countries. To do this, it “parse[d]” the UK creative sector four-digit Standard Industrial Classification (SIC) codes identified by DCMS, to produce a smaller number of best-fit three-digit codes that can be used across EU countries¹⁹². It then produced national employment estimates for the creative sector using the EU Labour Force Survey and the UK Annual Population Survey.

TERA Consultants also set out a clear but slightly different definition of the creative sector from that of Nesta. TERA split the creative sector into two groups: core and non-core. The former ‘produce and distribute creative products aimed at mass reproduction, mass dissemination and exports’. The latter are further split into interdependent industries (engaged in the production, manufacture and sale of equipment whose function is to facilitate the creation, production or consumption of cultural products) and non-dedicated support industries (engaged in the broadcast, communication, distribution or sales of the cultural products). TERA’s conclusions are muted: while the economic contribution of the creative sector has remained stable in Europe between 2008 and 2011, some industries performed better than others. Further, ‘the economic contribution of the creative sector in terms of job creation has been weaker than the contribution in terms of GDP’¹⁹³.

In its 2010 European Competitiveness Report, the European Commission reported that the creative sector was one of the fastest growing parts of the EU economy between 2000 and 2007. It also found that strong links across different types of industries make the creative sector an important driver for innovation.

Enders Analysis conclude that ‘Europe’s top creative hubs of Germany, the UK and France, together produced €135 billion of GVA in 2013 from the efforts of 430,000 enterprises’. They also, however, stress the continued importance of the creative sector in ‘fulfilling less tangible goals of society, such as values of tolerance and inclusiveness, freedom of speech and political participation’¹⁹⁴.

190 Technology Strategy Board, *Creative Industries: Strategy 2013-2016*, 2016. The TSB (now called Innovate UK) is an executive non-departmental public body that works with people and companies to ‘find and drive the science and technology innovations that will grow the UK economy’.

191 German Federal Ministry of Economic Affairs and Energy, *Monitoring of Selected Economic Key Data on the Culture and Creative Industries*, 2012

192 Nathan et al, *Creative Economy Employment in the EU and the UK: A Comparative Analysis*, 2015

193 TERA, *The Economic Contribution of the Creative Industries to EU GDP and Employment: Evolution 2008-2011*, 2014

194 Enders Analysis, *Europe’s Creative Hubs*, 2016

1.3 Impact of the internet on the creative sector

As we have shown (1.1), digital developments have had a transformative effect on many aspects of modern life. An estimated 77 per cent of the EU population were using the internet in 2015, a figure which is expected to climb to 90 per cent by 2020¹⁹⁵. It has had a profound effect on the creative sector, both on the ways in which content is created and on how it is consumed. The internet has had a positive effect on revenue and employment in the creative sector. However, as Paul DiMaggio points out, the growth of digital technology has been something of a double-edged sword, as far as the creative sector is concerned. DiMaggio applies the economist Joseph Schumpeter's notion, coined in the first half of the twentieth century, of 'creative destruction', to digital technologies: digital is 'destructive because of its harsh impact on existing firms, but creative because of the economic vitality it unleashed'¹⁹⁶. A relatively substantial corpus exists of pan-European reports which deal with the internet and creative sector, enabling us to confidently draw conclusions about the high-level impact of the internet in Europe.

1.3.1 Pan-European reports

In recent years several reports dedicated to Europe-wide comparisons of the digital impact on creative sector, have emerged. Financed by Google, Booz & Company and PwC's 'The Digital Future of Creative Europe' was published in 2013, and significantly updated and revised in 2015¹⁹⁷. It looks at six markets: France, Germany, Poland, Spain and the UK which, collectively, make up over 70 per cent of European population and GDP. It focuses on the traditional creative industries – books, news, film and TV, music, and gaming – but also includes some analysis of cultural institutions. PwC conclude that '[t]he vast majority of all growth generated in today's creative sector is digital' (p. 7), and that the stability of employment in the creative sectors over the last 10 years has, most likely, been the result of the benefits of digitalization offsetting the decline in traditional non-digital areas. The overall market outlook: film, TV and gaming are growing industries, while music remains stable. Not surprisingly, newspaper publishing is struggling.

O&O focus their 2013 report for Google on the UK, France and Sweden. They conclude that the internet has had a significant impact on the creation, production and distribution of creative products. O&O are, however, concerned to point out that there are limitations in the available data. Data has a short shelf-life when the definition of the creative sector is constantly changing and, while an evolving sector has enabled SMEs to flourish, these smaller businesses are harder to measure. O&O praise Nesta's "creative intensities" measurement, but also point out that this method still struggles to capture smaller businesses, and that it must be constantly updated¹⁹⁸.

Roland Berger's report, requested by the European Grouping of Authors and Composers, focuses on the economic advantages of creative content for technological intermediaries. Their analysis looks at search engines, content aggregators, social media, personal cloud, and public video platforms, and gives detailed case studies of such intermediaries as Spotify, Netflix and Google. Berger conclude that '[n]o matter the profile, or size, or business model of analysed players, they all benefit – beyond revenues – from cultural content in terms of implicit and collateral value creation' (p. 81).

EY's 'Creating Growth: Measuring Cultural and Creative Markets in the EU' (2014), uses data from Eurostat such as the Structural Business Survey and the Labour Force Survey, alongside information from national statistics offices, to paint a Europe-wide picture. Its follow-up report, 'Cultural Times: The First Global Map of Cultural and Creative Industries' (2015) situates European findings within global markets. EY notes that Europe has the second largest CCI (cultural and creative industries) market in the world, generating \$709 billion (€639 billion) in revenues and 7.7m jobs (p. 16). Of the \$65.5 billion (€59 billion) worldwide sales of digital cultural content in 2013, \$15.4 billion (€13.9 billion) sales were in Europe. These two reports consider a wider range of creative industries – 11 in total – than the PwC and O&O reports.

195 Roland Berger, *Cultural Content in the Online Environment: Analyzing the Value Transfer in Europe*, 2015

196 Paul DiMaggio, *The Internet's Influence on the Production and Consumption of Culture: Creative Destruction and New Opportunities*, 2014. The duality of the internet's impact on the creative industries, particularly in relation to copyright and piracy, is also outlined in Oxera's 'Does the Cloud Have a Silver Lining? The Internet's Effect on the Creative Sector', 2012

197 Booz & Company/PwC, *The Digital Future of Creative Europe: The [Economic] Impact of Digitization and the Internet on the Creative Industries in Europe* [2013], rev. 2015. Sources for the study are: PwC Global Entertainment and Media Outlook 2014-2018, Eurostat, IAB Europe's Mediascope Europe, local associations, one-to-one interviews, and a survey of experts (54 participants from 13 countries, resulting in over 700 data points).

198 Oliver & Ohlbaum, *The Internet and the Creative Industries: Measuring Growth Within a Changing Sector Ecology*, 2013

1.3.2 Market-specific reports

Several reports are dedicated to the impact of digitalization on the creative sector in the UK. In 2011 on behalf of the UK Intellectual Property Office, Dr Nicola Searle conducted the study, 'Changing Business Models in the Creative Industries'. After analysing six business model case studies from gaming, music and TV, Searle concludes that, far from there being a serious concern that business models would have to be changed because of piracy threats to IP, '[a] common attitude was that piracy would always occur and should be minimised, but that it was more important to focus on creating new content'¹⁹⁹. Bain and Enders Analysis use their 'Creative UK' report (2014) to consider the importance of using Big Data to increasing a company's success. They conclude that, while undoubtedly Big Data analytics have brought commercial success both to the corporate world and to the creative sector, many businesses in the creative sector do not capitalise on this²⁰⁰. Furthermore, SMEs can use the internet in other ways, such as 'purchas[ing] keywords on search engines to drive clients to their sites' (p. 17). The report then turns to several specific industries, such as newspaper and book publishing.

1.4 The creative sector: industry-specific research

1.4.1 Music

Concerning the construction of digital business models, the music industry acts as a role model for other creative sectors. Despite initial scares that the internet would prove to be the irreversible downfall of the music industry, a willingness to adapt to the digital world has meant that declining physical format revenues have been matched by digital. In 2016, digital revenues overtook physical for the first time²⁰¹. In its 2016 report the IFPI (International Federation of the Phonographic Industry) noted that 45 per cent of global revenues for recorded music are now from digital formats, while physical accounts for 39 per cent. Revenues from live music events have continued to increase over the last decade. While "hype" can be built through social media sites, the internet has made it easier to buy tickets than ever before, through online sales and exchange sites such as ticketswap.com.

The internet has created new and creative ways for fans to discover music content. Becoming a "music critic" today is as easy as opening a Twitter account, while suggested playlists on streaming services use complex algorithms to accurately predict which content people will enjoy. The role of *Shazam*, an app which has made identifying a song almost instantaneous, also cannot be underplayed.

For the UK music industry, the BPI's (British Recorded Music Industry) 'Digital Music Nation' (2013) provides valuable information. On a European and international stage, the IFPI publishes important yearly reports. As discussed above, studies concerning the impact of the internet, for example Searle (2011), often take the music industry as a major area of focus.

1.4.2 TV and film

O&O and Analysys Mason have identified two key sources of information for European data on TV. The first, PwC's Global Entertainment and Media Outlook 2016-2020 breaks down TV revenues into such categories as subscription, physical home video, and electronic home video. The report forecasts continued growth in global TV revenue which is mostly composed of subscription revenue. Likewise, TV advertising is expected to grow. The second source is the European Audiovisual Observatory (EAO), which create a variety of reports analysing the European audiovisual market. The EAO has recently produced several reports on VoD services, as they are growing in importance and present a challenge to regulators²⁰². It finds that European on-demand revenues have grown rapidly at 28 per cent per year over the last five years to £2.5 billion in 2014 (the UK is by far the biggest market, representing 34 per cent of all European on-demand revenues).

199 Dr Nicola Searle (Intellectual Property Office), *Changing Business Models in the Creative Industries: The Cases of Television, Computer Games and Music*, 2011

200 Bain and Enders Analysis, *Creative UK: Overview of the Digital Transformation of the UK Creative Economy*, 2014

201 IFPI, *Global Music Report: Music Consumption Exploding Worldwide*, 2016

202 For example, European Audiovisual Observatory, *Trends in VoD Revenues*, and *Linear and On-Demand AV Media Services*.

Plum Consulting's independent report, 'Benefits of Digital Broadcasting' (2014), provides a good overview of the qualitative benefits provided by the switchover from analogue to digital terrestrial TV (DTT)²⁰³. Broadcasters benefit from increased transmission capacity, improved signal quality, and lower maintenance costs, while consumers have increased choice and better picture quality. The industry benefits from the demand for set-top boxes and HD TVs as well as the increased competition between broadcasters and platform owners.

At national level, Ofcom in the UK provides perhaps the most detailed account of the TV sector in any individual European market. Its annual Communications Market Report indicates that consumers are watching less broadcast TV (especially live), and are moving their viewing habits to a greater variety of media channels. Other European bodies provide similar information, although it may be difficult to match equivalent findings for each country²⁰⁴.

For the film industry, Olsberg SPI's 2012 report looks at the various factors affecting the sustainability of film businesses, including digital innovations²⁰⁵. For the UK, the British Film Institute (BFI) Statistical Yearbook is our main source. The most recent issue reports that the GVA of the UK film industry in 2014 was £4.3 billion, and that employment in the industry has remained reasonably constant over the last five years at a little over 60,000 people. Global trends in the film market are set out in UNESCO's 2013 report on 'Emerging Markets and the Digitalization of the Film Industry'²⁰⁶. Of particular interest here is the sharp rise in the number of digital screens between 2009 and 2011. Digital projection provides a range of benefits including subtitle and audio description facilities, widens the possible range of content on the screen, and enables greater interactivity between the screen and audience.

Of great relevance to the creative sector, and the film industry in particular, is the threat of digital piracy. We have looked at several academic papers which deal with the nature of online film piracy²⁰⁷.

1.4.3 Book publishing

Book publishing is perhaps the creative industry in which digital has had the greatest impact in terms of democratising the creative process. No longer held in check by publishing houses, authors can reach readers directly. "Book clubs" such as GoodReads, Novellic, and Litsy, allow readers to share book recommendations, and join or set up their own reading groups. Amazon's CreateSpace enables publishers to produce physical books, and publishing houses to order small print runs at short notice. Many self-published books are born digital, such as those published through Kindle Direct Publishing and Kobo Writing Life. Subscription reading services such as Kindle Unlimited, Oyster, and Scribd provide a different pay option, but have had limited success (Oyster closed in September 2015).

It appears that eBooks have not had the detrimental impact on physical publishing that many feared. eBooks are convenient in certain situations, such as when travelling, but these advantages do not outweigh those of the physical book. Books carry cultural meaning as objects, beyond their content. They are shared, collected, inherited. At the end of 2015 there were even indications that eBook sales were in decline. The "Big 5" UK publishers registered a collective decline of 2.4 per cent in the number of books sold. However, this may not indicate that the eBook market as a whole is in decline. In the UK it is publishers, rather than retailers, who now set eBook prices, and the general trend is that publishers are increasing those prices. This may be because they envisage a book market in which physical and digital co-exist.

203 Plum, *Benefits of Digital Broadcasting: A Report for the GSMA 2014*

204 For example: Conseil Supérieur de l'Audiovisuel 'Annual Report 2016' (France); Verband Privater Rundfunk und Telemedien, 'VPRT Forecast for Media Market 2016' (Germany); Autorità per le Garanzie nelle Comunicazioni, 'Key Profit Evidence, Equity and Employment in the Media Sector, 2010-2014' (Italy); Comisión Nacional de los Mercados y la Competencia, 'Quarterly Note of the Audiovisual Sector Q 3 2014' (Spain).

205 Olsberg SPI, *Building Sustainable Film Businesses: The Challenge for Industry and Government*, 2012

206 UNESCO Institute for Statistics, *Emerging Markets and the Digitalization of the Film Industry: An Analysis of the 2012 UIS International Survey of Feature Film Statistics*, 2013

207 Brett Danaher et al, *Converting Pirates Without Cannibalizing Purchasers: The Impact of Digital Distribution on Physical Sales and Internet Piracy*, 2010; Danaher and Joel Waldfogel, *Reel Piracy: The Effect of Online Film Piracy on International Box Office Sales*, 2012; Danaher et al, *The Effect of Graduated Response to Anti-Piracy Laws on Music Sales: Evidence from an Event Study in France*, 2012

Self-published authors who offer their titles for a lower price are likely to attract eBook customers, who are more likely to choose a book on price point. It may be this which is detracting from Big Five sales. Our main source for the book market is PwC's Global Outlook.

1.4.4 Video games

The video games industry has experienced major changes in the past decade, leading to disruption of the value chain, as a result of the increase of PC, smartphone and tablet penetration.

- First, dematerialisation resulting from digital distribution has allowed game publishers to reach a greater number of consumers at lower cost. For example in France 69 per cent of video games revenue came from digital sales in 2014 versus 26.8 per cent in 2008²⁰⁸ according to IDATE
- Second, many new types of games have appeared in the last decade, including mobile games, browser games, online console games and massive multiplayer online games (MMOG)
- Third, disintermediation, which has given greater power to developers to directly reach and communicate with consumers has led to higher consumer benefit and higher creativity levels in the industry according to Syndicat National du Jeu Video in France²⁰⁹

The gaming market has been growing rapidly. For example from Q4 2015 to Q1 2016 the number of Unity-enabled games available grew by 10 per cent to 220,000 while installs increased by 30 per cent to 4.2 billion²¹⁰. Some of the most recent global trends that have contributed to the market's growth have been eSports, VR technology and an increased level of games interactivity²¹¹. ESports in particular have been growing rapidly, by 67.4 per cent in 2015 compared to 2014 with an audience of 256 million globally, 25 per cent of which is in EU countries²¹².

Mobile gaming has emerged as a sector in its own right and has taken a large share of the gaming market in terms of consumer spending, introducing one of the most popular monetisation models called "freemium": free to download games with in-app purchasing mechanisms, which is discussed in a 2015 report by DotEcon and Analysys Mason.²¹³ In 2015, the EU generated \$4.5 billion (€4 billion) in gaming apps revenue according to Newzoo²¹⁴.

The video games industry is recognised as contributing significantly to the European economy. In 2014, DCMS reported that 24,000 jobs in the UK computer industry alone generating £426 million in GVA²¹⁵.

208 IDATE, *Video Games in the Cloud*, 2015

209 Syndicat National du Jeu Video, *Annual Survey of the French Video Game Industry*, 2015

210 Unity, *Games by Numbers: Overview of the Mobile Games Landscape*, 2016

211 Newzoo, *Global Games Market Report*, 2016

212 Newzoo, *Free 2016 Global e-Sports Market Report*, 2016

213 Analysys Mason, *The Commercial Use of Consumer Data. A Research Report for the CMA DotEcon with Analysys Mason*, 2015

214 Newzoo, *Global Mobile Market Report*, 2016

215 DCMS, *Creative Industries Economic Estimates*, 2016

1.4.5 Cultural institutions

The internet has had an impact on cultural institutions in two distinct ways. On the one hand, individual institutions are able to benefit economically through ticket sales, websites which attract on-site visitors, online shops, and crowdfunding. Nesta and Arts Council England have conducted three surveys between 2013 and 2015 on the extent to which institutions engage with the internet and whether they feel this has had a positive financial impact²¹⁶.

On the other hand, digitalization of museum, gallery and library collections has had wider benefits for society, preserving images of objects which might otherwise decay. 2D and 3D images can be used for education, academic study, and personal enjoyment. They can act as a proxy for the real thing not only when the viewer cannot access the museum/gallery, but also when the original object is too fragile to put on display. Virtual tours enable “virtual visitors” to explore cultural spaces from anywhere, at any time. Visitors can even interact with objects in ways which are impossible from life: seeing paintings when the gallery is empty and so enjoying an unobstructed view; viewing the inside of an object normally concealed; opportunities to help academic researchers, such as through Zooniverse or Vele Handen (Netherlands), meaning that they can make a valuable contribution to research.

There is comprehensive data available for Europe-wide digitalization projects in cultural institutions. Since 2008, the European Commission’s *Europeana* database has aggregated images from museums in European Member States. In 2011 the EC requested that member states submit progress reports on their digitalization projects every two years; responses are collated by the EC into a Europe-wide progress report. In addition to this, Enumerate has sent questionnaires to around 1,000 institutions across Europe every two years since 2011. Reports of these surveys go into more detail at an individual institutional level than can Member State reports submitted to the EC, and so represent a cross-section of different types and sizes of institutions. Read together, these reports provide a detailed view of heritage digitalization across Europe²¹⁷.

216 Nesta and Arts Council England together constitute the Digital R & D Fund for the Arts, and produce *Digital Culture: How Arts and Cultural Organisations in England Use Technology*, 2013-2015

217 The most recent reports are: European Commission, *Cultural Heritage: Digitisation, Online Accessibility and Digital Preservation. Report on the Implementation of Commission Recommendation 2011/711/EU, Progress Report 2-13-2015*, 2016, and Enumerate, *Survey Report on Digitisation in European Cultural Heritage Institutions 2015*, 2015

2 Defining and measuring the creative sector

2.1 Approaches to defining and measuring the creative industries

The approach to defining and measuring the creative sector varies by market and continues to evolve as governments invest in better understanding the sector. Of course, different approaches in different markets lead to challenges in comparing the performance of the creative industries across Europe and mean that no single market's definition is suitable to facilitate comparison. We have drawn on existing research to provide a suitable approach for pan-European comparison. Findings from the reports we have reviewed are included in Appendix 1²¹⁸.

2.1.1 The UK has a well-developed approach for measuring the creative sector

The UK is generally considered to have the most comprehensive approach to measuring the creative industries. In the 1990s, it was the first country to adopt the term 'creative industries' as a means of encouraging the recognition of the economic contribution made by creativity and culture²¹⁹. The UK was also the first to attempt to properly define the creative industries, in 1998, when the Department for Culture, Media, and Sport (DCMS) released its landmark mapping document²²⁰, establishing a system to classify industries as 'creative'. The definition DCMS established at that time is still used today: *industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property*.

This work by DCMS was followed by a further mapping document in 2001, which finalised DCMS's definition based on Standard Industry Classification (SIC) codes. The definition included SIC codes relating to 13 sub-sectors: Advertising, Antiques, Architecture, Crafts, Design, Fashion, Film, Leisure Software, Music, Performing Arts, Publishing, Software, and TV and radio. In 2011 DCMS updated the definition by removing two SIC codes relating to Software – introducing comparability issues between years. Since then, DCMS has continued to evolve its approach, supported by ground-breaking research by Nesta.

Nesta's key contribution was its 2013²²¹ report identifying areas for improvement in DCMS's approach. Nesta noted the lack of clear rationale for the industries which were considered 'creative', and the resulting inconsistency in the definition. It also noted that while DCMS's definition (set out above) afforded the flexibility to update the industries considered 'creative' in response to the changing economic reality brought about by the internet, it had not done so – and so the industries included in DCMS's definition were still based on the assessment it made in the late 1990s. Nesta proposed a new approach: starting with an assessment of occupations (based on Standard Occupational Classification, or SOC codes) and ultimately determining whether an industry is creative based on the *proportion of its workers in creative occupations*, termed 'creative intensity'²²².

This approach uses a five point assessment of occupations to determine whether or not they are creative, and therefore provides a more objective means of determining how creative an industry is – a threshold of 30 per cent creative occupations is then used to establish which industries should be considered creative. The approach draws on the available SOC and SIC data in the UK, from a combination of the Labour Force Survey (LFS) and the Annual Population Survey (APS). With some minor adjustments, based on public consultation, DCMS has now

218 Although (as we go on to explain) we have adopted Nesta's definition of the creative industries for our pan-European analysis, we looked at several detailed studies including: TERA Consultant's division of the creative industries into 'core' and 'non-core'; 'The economic contribution of the creative industries to EU GDP and employment: evolution 2008-2011', September 2014, p. 6; the European Commission's 2010 European Competitiveness Report; and Enders Analysis's 'Europe's creative hubs', 2016

219 British Council: BOP Consulting, *Mapping the Creative Industries: A Toolkit*, 2010

220 DCMS, *Creative Industries Mapping Document*, 1998 & 2001

221 Nesta, *A Dynamic Mapping of the UK's Creative Industries*, 2013

222 The term 'creative intensity' was first used in Freeman (2004), *London's Creative Sector. 2004 Update*, for the Greater London Authority

adopted Nesta's proposed approach, and produced its latest creative industries estimates in January²²³ and June²²⁴ 2016, on this basis.

2.1.2 The approach to the creative industries varies by market

The UK's original approach to defining and measuring the creative industries has been replicated in many countries across Europe. While individual countries tend to have their own classification system, they are required by European law to collate data in line with the European standard for industrial classification – what are SIC codes in the UK are thus directly comparable to the pan-European NACE code system, which enables comparison across Europe. Of course, while the NACE code system and associated data provide comparability across Europe for a given sector, what sectors and therefore which codes are considered part of the 'creative industries' differ by country.

Given the inherent subjectivity involved, a range of definitions emerged, influenced by cultural differences and the perceived importance of particular activities – some countries are focused on creativity, while others put emphasis on cultural activities. For example, the UK's definition originally omitted all organisations involved in libraries, archives, museums and other cultural activities (Code 91.0), while such organisations were included by France and Sweden, amongst others, as well as by the European System Network on Culture (ESSnet), which was established in 2009 to facilitate cultural statistical cooperation in Europe.

2.1.3 Measurement challenges are exacerbated by the internet

Whichever definition and dataset is used to examine trends in the European creative industries, there are significant challenges when it comes to measurement, and these are being exacerbated by the internet. The changing sector ecology means that comparing current performance metrics such as revenue and employment to their historic equivalents is not always helpful, and can lead to incorrect conclusions on the effect of the internet and digitalization on the sector. Just a few of the issues are set out below.

- **NACE codes have limitations:** they are reliant on the accuracy of self-registrations by companies and the classifications are updated only every ten years. Since an individual country's approach must be in line with NACE, this places limitations on measurement at country level, not just international comparability
- **Some creative endeavour is not captured:** in the UK, the Annual Population Survey (APS) is used to capture all employment activity, including second jobs. But the EU LFS, which is used for the internationally comparable data assembled by Eurostat, is less thorough. While the EU LFS does record second jobs, these are reported in high level classifications, which do not enable creative occupations to be identified and considered in the creative employment figures
- **Value chains have adjusted:** changes to ways of working, enabled by the internet, make it difficult to compare like with like over time. As our report demonstrates, the internet has allowed more people to create and has provided a direct route to consumers – this has squeezed the role of many traditional intermediaries (in non-creative roles). One might therefore expect that the creative intensity of the creative industries has increased following the arrival of the internet and digitalization – though there is little data available to test this

In the UK, other issues, such as the limitations of an organisational rather than activity-based approach, and the inflexibility of traditional definitions, have been addressed by Nesta's 'creative intensity' method. It is based on the level of creative activity within an industry, and is flexible enough to enable the definition to be updated as creative intensity within particular industries evolves. However, despite challenges in assembling comparable revenue and employment data, these are the amongst the easiest impacts to measure – there are a broad range of further impacts on the creative sector which cannot easily be measured. In the industry-specific parts of this report, we therefore use a combination of discussion, data and case studies to support our analysis of the overall impact of the internet.

223 DCMS, *Creative Industries Economic Estimates*, 2016

224 DCMS, *Creative Industries: Focus on Employment*, 2016

2.1.4 Our approach is led by the availability of comparable data

Irrespective of the lack of consensus on what industries should be considered as ‘creative’, our ability to examine the trends in the revenue and employment generated by the European creative industries is limited by the available data. To present a high-level view of the performance of European creative industries, we must therefore focus our attention where comparable data are richest, while applying the most appropriate definition possible, given these restrictions. As such, our definition of the creative industries as a whole varies slightly when looking at pan-European trends in revenue and employment, and when we present more detail for our chosen focus industries.

When considering the total revenue generated by the creative industries in Europe, as well as the breakdown of revenue by types within specific industries, PwC’s Global Entertainment and Media Outlook offers the best source for most of the creative industries. PwC collects publicly available information from trade associations and government agencies in 54 countries, across 13 segments of the entertainment and media sectors. It also conducts interviews with relevant associations to help to construct five-year forecasts. We have supplemented PwC’s data with other sources for some industries, such as IFPI’s Global Music Report. One alternative for data on creative sector revenues, collected on a comparable basis across Europe, is that from the Structural Business Statistics (SBS) database. This covers industry, construction, trade and services, and ‘describe[s] the structure, conduct and performance of businesses across the European Union’²²⁵. However, while this dataset is useful for some industries in some countries, it is patchy. This means that it cannot provide a reliable and consistent pan-European view of creative sector revenues.

The activities included within each of the industry groupings presented in our report are set out in the table below.

Figure 2.1: Industry definitions when considering revenue

Industry	Description
Television and film	Television, video and film covers television subscription, licence fees, home video (digital and physical), broadcast and online television advertising, cinema box office and advertising revenues, and video internet advertising.
Music	Music comprises consumer spending on digital and recorded music (measured at retail level), as well as live revenues. Within recorded music revenues are physical and digital – which itself includes downloads, streaming, and mobile personalisation – along with performance rights and synchronisation. Live music revenues include consumer spend on tickets, and sponsorship.
Book publishing	Books includes consumer, educational, and professional books, in both print and electronic editions. PwC groups physical and audio revenues together, something which risks obfuscating the significant impact that digital has had on the audio book.
Video games	Games includes consumer spending on software, but excludes hardware. Traditional and social/casual gaming are included, as is in-game advertising revenues.

²²⁵ <http://ec.europa.eu/eurostat/web/structural-business-statistics>

Nesta is responsible for the latest thinking in relation to employment in the creative industries of Europe. Nesta's 2015 report²²⁶ aimed to extend its suggested approach for the UK, which by then had been adopted by DCMS, to facilitate comparison of creative employment across Europe. Nesta's approach uses data from the European LFS, which is collected across Europe consistently at 3-digit NACE code level²²⁷. Since Nesta's approach to industry classification in the UK had been based on data at 4-digit SIC code level, which is not available across Europe, a parsing process was required to develop a 'best fit' definition at 3-digit level. Of course, this approach introduces issues, with some 3-digit codes being included despite encompassing activities which may not be considered creative, and other 3-digit codes omitted despite encompassing some 4-digit codes which could be considered creative. Nevertheless, we believe that Nesta's analysis offers the best approach to observing trends in creative sector employment across Europe.

For employment data, the alternative to the LBS data is again to use the SBS dataset but, as for revenue, these data are patchy and do not provide a complete view of European creative sector employment. Data are, however, available to 4digit NACE code granularity and so, where possible, we used this information to provide more detailed estimates for creative industry employment in the industry specific Parts of this report – Parts 4 to 8.

As well as presenting employment data based on Nesta's definition of the creative sector, which includes activities outside of our focus areas, we developed groupings to best fit with our areas of focus – these are explained in the table below.

Figure 2.2: Industry definitions when considering employment

Industry	Description
Television, film and video	At pan-European level, we have included motion picture, video and television programme activities (59.1) and television programming and broadcasting activities (60.2) based on the 3-digit NACE codes included in Nesta's definition. We conducted more detailed analysis in the Television, film and video part of the report, using SBS data at 4-digit level and scaling this for our LFS data. This includes film, video and television production activities, post-production, distribution, and projection, along with television broadcasting at a 3-digit level.
Music	Music includes employment in sound recording and music publishing activities (59.2) and radio broadcasting (60.1), these are based on 3-digit NACE codes, and no further breakdown is possible. Note that radio includes both music and speech radio, which cannot be split – we have included this on the basis that music radio account for the majority of radio broadcasting.
Books and news publishing	At pan-European level, we have included publishing of books, periodicals and other publishing activities (58.1), based on Nesta's definition at 3-digit NACE code level. Using SBS data we have again been able to estimate the 4-digit split for our focus markets, this allows us to differentiate between books and news publishing.
Video games	At pan-European level, we have included software publishing (58.2), based on Nesta's 3-digit NACE code definition. Software publishing is a broad definition and we have therefore used SBS data to estimate employment in the gaming industry at 4-digit level.
Culture and heritage	Culture and heritage includes employment in libraries, archives, museums and other cultural activities (91.0) along with creative arts and entertainment (90.0).

226 Nesta, *Creative Economy Employment in the EU and the UK: A Comparative Analysis*, 2015

227 For a selection of countries, where 4-digit resolution is available, Nesta distinguished between creative and non-creative workers in the creative industries and creative workers operating in non-creative industries – so as to provide an estimate of employment in the creative economy as a whole. For the purposes of this report, we are interested in the employment in the creative industries, whether in creative or non-creative occupations.

3 The Internet as an enabler of the creative sector

The internet has become embedded in the lives of hundreds of millions of people in Europe. It is now a vital tool for individuals and businesses, making daily activities easier, faster and cheaper. In this part, we analyse how the internet has acted as an enabler of the creative sector and how its impact has increased, exploring:

- **Access enablers:** increasing availability, take-up and quality of both fixed and mobile internet access services
- **Technological enablers:** higher data speeds, reduced technical barriers to creating content, improved encryption (protecting content and user details), and development and take-up of high specification connected devices
- **Changing consumption habits** resulting from these enablers

A common theme is increased access to higher-speed internet services – both fixed and mobile. This growth greatly enhances the variety and quality of services which consumers have access to, and how frequently consumers can access those services.

3.1 Increasing availability and take-up of internet access services

In recent years, increasing bandwidth and availability has allowed millions more Europeans to access online services. Here we focus on three means to connect to high-speed internet:

- Fixed broadband
- Superfast fixed broadband
- Mobile broadband

Internet availability is increasing, with operators continuously extending their reach to more remote areas now that densely populated areas are generally well served. Although the investment needed to reach these remaining areas is increasing to the point of becoming uneconomic, policy makers are playing an important role in supporting operators to deploy their network in these areas and ensure more people benefit from broadband. The left-hand chart in **Figure 3.1** shows the coverage of fixed broadband, superfast broadband, 3G and 4G mobile across the EU28 as a whole.

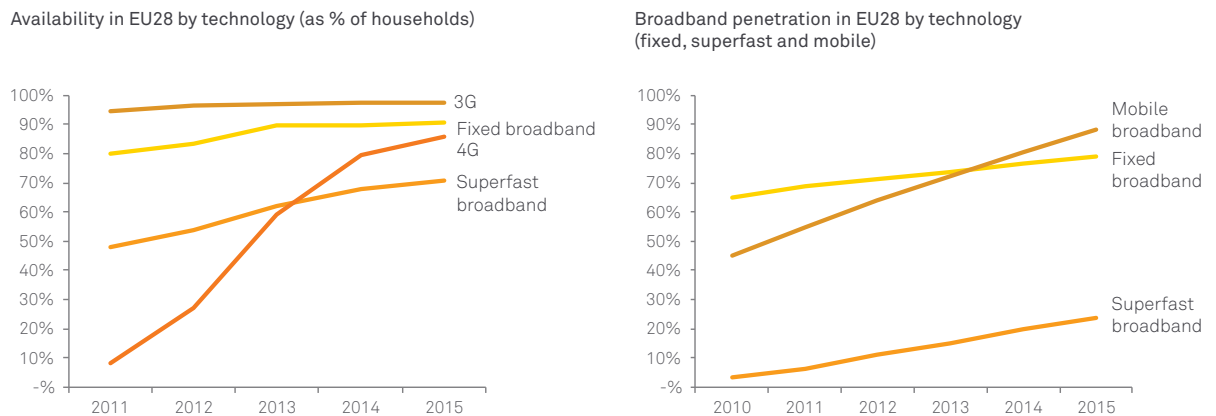
Fixed broadband coverage in the EU increased between 2011 and 2015, growing from 80 per cent to over 90 per cent of households. There is some variation across different markets within the EU due to the different levels of population density in each country which is described in more detail in Appendix 4. In line with the increasing coverage, fixed broadband adoption across EU countries has been increasing steadily over recent years. As of 2015, 79 per cent of households in the EU were connected to the internet via broadband, representing the addition of over 30 million households connected in the five-year time-period²²⁸. The right-hand chart shows fixed, superfast and mobile broadband penetration for the EU28 countries. Again, charts showing the penetration levels of each technology for each of our focus markets are provided in Appendix 4.

The percentage of households that have access to superfast broadband connections with speeds over 30Mbit/s in the EU has increased from 48 per cent in 2011 to 71 per cent in 2015. Competition between different infrastructures such as cable and fibre appears to have spurred the rapid deployment of superfast broadband in some EU countries, such as the Netherlands. In addition, mobile broadband coverage has been booming, particularly through 4G LTE, which covered 86 per cent of EU households by the end of 2015. Furthermore, where 4G coverage is not available, there is typically 3G coverage, which as of 2015 had reached 98 per cent population coverage in the EU. As of 2015 there were twice as many mobile broadband connections as in 2010, corresponding to 88 per cent of the population of the EU, more than 450 million connections²²⁹.

228 ITU, 2016

229 ITU, 2016, GSMA Intelligence, 2016

Figure 3.1: Availability and broadband penetration in EU28 by technology, 2011 to 2015



Source: Analysis Mason based on data from European Commission and ITU, 2016

Increased broadband availability and take-up unlocks economic benefits²³⁰. Although the quantum of benefits is uncertain, there is a consensus among policy-makers and many academics on the positive correlation between greater broadband coverage and economic growth.

Increased penetration of internet access services has enabled more consumers to access creative content online and download larger amounts of data in a shorter amount of time. It supports demand for many creative services from high-quality pay-TV content to the digital distribution of video games. Greater mobile connectivity allows consumers to access creative content at the times when they most want to consume it, stimulating overall demand for creative services.

3.2 Technological developments supporting the growth of the creative sector

It is not just improved internet availability but also increased data speeds arising from improvements in network quality that stimulate take-up of creative services online. Furthermore, technological improvements on the supply side have also supported digitalization, helping companies and consumers to store and share data in digital formats more efficiently and more securely than ever before. Meanwhile demand-side drivers such as the availability of attractive, multi-functional connected devices have stimulated demand for content consumption. In this section we briefly discuss how the following technology trends have supported the growth of the creative sector:

- Network quality and performance are improving
- The storage and processing of digital data is becoming easier and cheaper
- Data encryption has become more reliable, which better protects both creative content and personal data
- Connected devices are becoming more powerful and increasingly multi-functional
- Take-up of these devices is consequently increasing

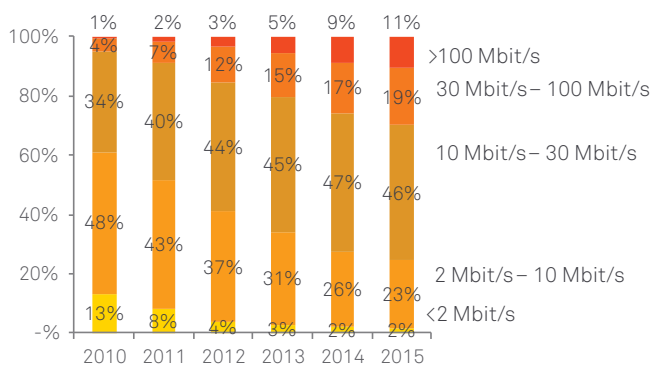
230 A study from 2012 found that in developing markets, a 10 per cent increase in broadband penetration correlates with a 1.35 per cent increase in GDP according to Colin Scott, 'Does Broadband Internet Access Actually Spur Economic Growth?', 2012, <http://people.eecs.berkeley.edu/~rscs/classes/ictd.pdf>

3.2.1 Network quality and performance are improving

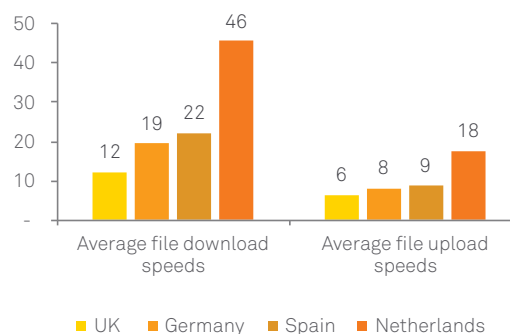
In recent years, internet access speeds have become increasingly fast, allowing reliable communication and the transmission of significant amounts of data across the globe at high speeds and with ever decreasing delays. From the perspective of the creative sector, increased bandwidth has enabled larger files to be distributed online (such as longer, higher quality films, higher resolution images, or even VR content). Greater reliability enables a responsive interactive experience, particularly important for games and VR and helps offer a consistent experience for streamed content, such as music and video. In Europe, broadband networks are being continuously improved to reach higher speeds, as shown in **Figure 3.2**. The proportion of ultrafast connections, above 30Mbit/s or even 100Mbit/s steadily increased between 2010 and 2015.

Figure 3.2: Fixed broadband subscriptions by advertised speed in the EU28 and actual cellular mobile speeds in selected countries

Fixed broadband subscriptions by advertised speed in the EU28 (% of total fixed broadband subscriptions)



Actual mobile data speeds in small cities in 2015 by country, Mbit/s (as an average across all MNOs)



Note: For 2015 fixed broadband subscriptions a mid-year observation is used instead of year end data as this was the most recent data available at the time of writing

Source: Analysys Mason based on data from the European Commission, ITU, and P3 reports, 2015

In 2015 mobile data speeds varied significantly across the focus markets due to differences in 4G coverage and the amount of mobile spectrum licensed to individual mobile network operators (MNOs). The right-hand chart in Figure 3.2 provides an illustration of mobile download and upload speeds (averaged across all MNOs) in four of our focus markets. As part of the network tests on which Figure 3.2 is based (run by independent network testing firm P3), more than 90 per cent of YouTube HD videos²³¹ were played without any interruptions across different geographic locations in the UK, Spain, Germany and Netherlands, demonstrating both high bandwidth and reliability. This enables smartphone users to enjoy a high definition TV experience on their devices in most places and at most times.

Recently, there has also been considerable discussion around the development of 5G technology. Although 5G standards are not fully defined at this stage, 5G is likely to entail significantly faster speeds (of up to 10Gbit/s for very large spectrum bandwidths) and lower latency (i.e. less delay in data transmission). This should provide benefits for many creative services, including video games and VR based services. It is still unclear when and how 5G will be available to European consumers, however, current European Commission policy aims are pushing for 5G to be available for commercial use by 2020²³².

231 The HD test videos were of 720p resolution with a length of 30 seconds and total file size of 11.9MB

232 Analysys Mason, *The Next Generation of Wireless Networks: 5G Opportunities and Challenges*, 2016

3.2.2 The storage and processing of digital data is becoming cheaper and easier

New technologies such as cloud computing²³³ have allowed consumers and businesses to enjoy better data storage solutions with lower computer infrastructure costs²³⁴. Users of connected devices can now store larger amounts of data and easily access them from any device, anytime, anywhere. The implication of this for the creative sector is that the technical infrastructure (from a hardware perspective) is less often a barrier to entry. Nor is it such a significant cost for established creative industry participants, which means that they are more able to focus on actually creating content.

For example, the distribution and storage costs faced by Netflix are substantially lower than those faced by a traditional broadcaster due to its extensive use of Amazon Web Services (AWS) for the provision of its video streaming services²³⁵. This lower cost-base for distribution allows Netflix to invest more in content creation. In 2015 Netflix reported technology and development costs, which are largely but not entirely related to the storage and distribution of its content, of \$650 million (€586 million) whilst its reported cost of revenue, the vast majority of which relates to acquiring or developing content, was \$4.6 billion (€4.14 billion). This means that out of revenues of \$6.8 billion (€6.13 billion), less than 10 per cent was spent on storage and distribution whilst around 68 per cent was spent on content^{236, 237}.

In addition, data compression standards have also improved²³⁸. New data compression technologies allow the compression of 4K quality video down to one sixth of the original size. This technology allows users of connected devices to access greater amounts of online content, such as video, without needing to transfer as much data.

3.2.3 The encryption of data is becoming more reliable

Content providers require a secure connection to customers so that content cannot be illegally intercepted, or reproduced by the end user, and distributed to others. For analogue content this was difficult to achieve reliably and impossible to guarantee or audit, but content could only be distributed physically (e.g. through VHS for video content), which made it costly to pirate content on a large scale. In the digital world, access control techniques have been greatly enhanced, in response to the ease with which large-scale content infringement can be organised.

Traditionally access control has relied largely on dedicated hardware, supported by software more recently for digital content. For example pay-TV content has traditionally been protected using a set-top-box (STB) provided by the pay-TV operator with a viewing card to authorise the box to provide unencrypted access to the content covered within the customer's subscription. However, with the advent of digital rights management (DRM)²³⁹ relying on software that can be run over any general-purpose computer, flexibility over how secure content can be delivered to customers has increased significantly. These developments have been assisted by more powerful devices with always-on connectivity, which have made strong connected DRM a viable option for content creators.

The result is that content can now be distributed digitally in a very secure manner, allowing providers of creative content to appropriately monetise their content and thereby incentivising further development of creative content. OTT pay-TV, digital music and video games are all good examples of this dynamic.

233 Cloud computing provides solutions for on-demand computing resources which are spread across multiple servers, storage facilities or processors, and which can be accessed over the internet.

234 IBM, *What is Cloud Computing*, 2016

235 Netflix uses both Amazon S3 storage services and Amazon EC2 virtual processing

236 Netflix, *2015 Annual Report*, <https://ir.netflix.com/annuals.cfm>

237 In contrast, we would normally expect a higher proportion of revenues to be spent on distribution by traditional pay-TV providers, although specific examples are difficult to identify due to pay-TV services often being bundled with broadband and telephony (fixed and/or mobile) services. Cyfrowy Polsat in Poland, for example, has reported technical and distribution costs reaching 30 per cent of its revenues in 2015 across the various telecoms and content services it offers. See *Cyfrowy Polsat Annual Report 2015* available at: http://www.grupapolsat.pl/sites/default/files/documents/konsolidacja_2015_eng.pdf

238 R.Weerakkody, M.Mrak (BBC) *H.265/HEVC vs H.264/AVC: 50% Bit Rate Savings Verified*, 2016

239 DRM is a term covering various access control technologies that are used to provide software-based copyright protection for digital media.

3.2.4 Connected devices are becoming more powerful and increasingly multi-functional

Consumer devices, which include smartphones, tablets, smart TVs and STBs, are generally connected to the internet. As such, they are capable of streaming and downloading various types of creative content, taking advantage of the advances in content security via DRM (discussed above). Specifically, these advances mean that many general-purpose connected devices are able to access creative content at any time, and in the case of mobile devices, anywhere.

Connected devices have undergone a big transformation in the past decade. TV sets are now smart (i.e. connected) as standard and incorporate a wealth of interesting features including access to App stores, internet browsers and have the Apps of common OTT providers, such as Netflix and Amazon pre-installed. Even the streaming of games is now possible using Sony’s PS Now App. Similarly, STBs such as Sky Q in the UK readily connect to other connected consumer devices with inbuilt features like Apple Airplay to stream music from a smartphone, as well as performing their basic function of receiving encrypted satellite TV signals and OTT-delivered catch-up TV services.

This transformation of connected devices is exemplified by mobile phones, which have taken on the roles previously carried out by many other devices, most notably cameras. **Figure 3.3** compares the three best-selling mobile device models from 2005, 2010, and 2016 to track the evolution of digital technology such as camera facilities, storage capacity, video recording qualities, connectivity to other devices and display quality. The improvement within each time-period has been momentous.

Figure 3.3: Comparison of mobile devices by technical specifications

Technical parameters	Nokia 1110 (2005)	Apple iPhone 4 (2010)	Samsung Galaxy S7 (2016)
Camera	None	Rear 5MP, LED flash, front 0.3MP	Rear 12MP, front 5MP, autofocus, motion panoramas, flash, spotlight feature for studio lights effects, low light performance
Storage capacity (max)	4MB	32GB	64GB, extendable storage capacity up to 200GB
Video recording	None	HD in 720p, at 30 frames per second (fps)	Ultra-HD in 2160p at 30fps or HD in 720p at 240fps
Connectivity and compatibility with other devices	2G GSM (two frequency bands), no Bluetooth	2G GSM (four frequency bands), 3G UMTS (four frequency bands), Bluetooth, WiFi	2G GSM (four frequency bands), 3G UMTS (four frequency bands), 4G LTE (16 frequency bands), Bluetooth, WiFi, Samsung Gear (smartwatch), Samsung Gear VR
Display	Black and white display, 96x68	Colour display, 960x640-pixel, touch screen	16m colour display, 2560x1440-pixel, touch screen

Source: Handsets producers’ official websites: Nokia, Apple, Samsung, 2016

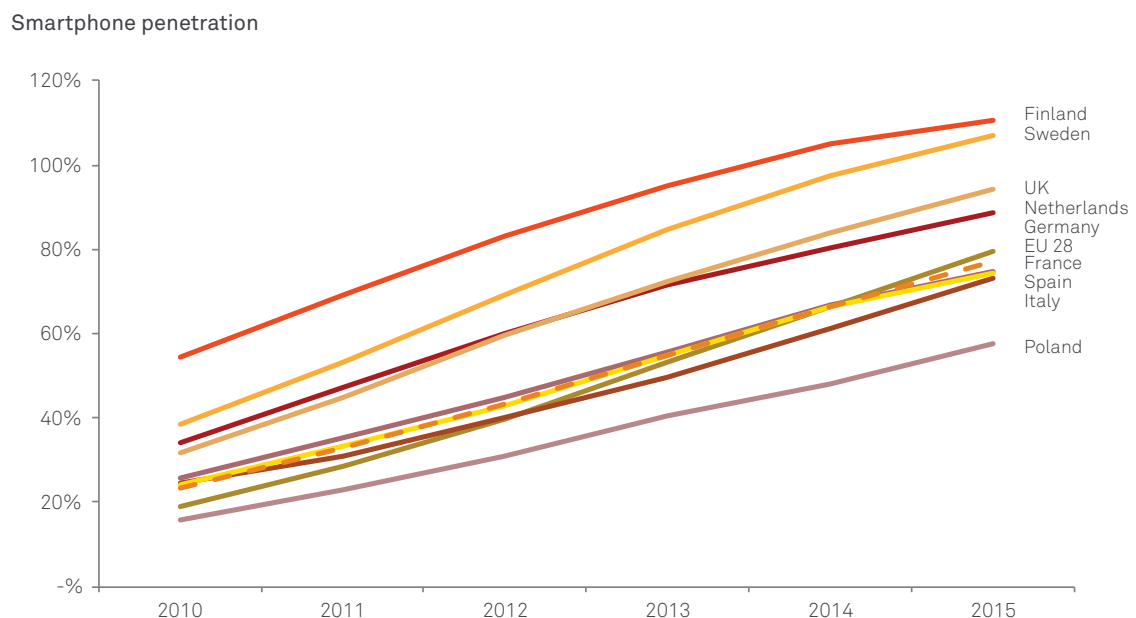
On top of these features, handset vendors (e.g. Samsung with the Galaxy S7) have introduced new features for better video games experiences, including VR headsets, VR video streaming and gameplay recording to share games and videos online. In addition, these devices allow the display of, and even the production of cinema-quality videos. Storage capacity of phones has evolved dramatically, as have cameras, display, and video streaming characteristics. For example, in the UK the device used to take photos by 89 per cent of 16-24 year olds in 2015 was the smartphone, with only 6 per cent preferring to take photos with a digital camera²⁴⁰.

Thus, smartphones are now capable of providing some level of substitute for the experiences offered by TV sets, radio sets, cameras and PCs, offering great flexibility to the users. Furthermore, they provide users with the opportunity to create their own user-generated content.

3.2.5 Take-up of connected devices is increasing

In 2014, the penetration of PCs in the EU28 reached 77 per cent. A year later, smartphone penetration reached the same level and is expected to continue its rapid growth. In Finland and Sweden, for example, smartphone penetration has now exceeded 100 per cent, as shown in **Figure 3.4**.

Figure 3.4: Smartphone penetration by market, 2010 to 2015



Note: The estimates are used for three smallest markets where no data are available, these are: Cyprus, Luxembourg, Malta
 Source: European Audiovisual Observatory 2015, Analysys Mason, 2016

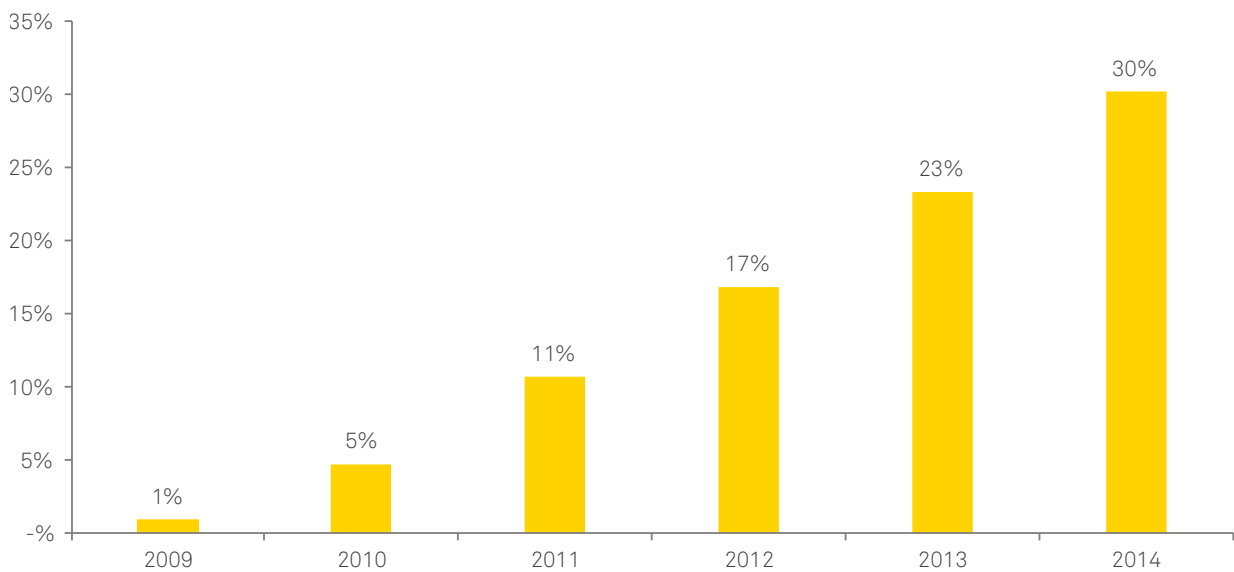
In addition, tablets are used to watch videos, play games, read books and browse the internet, offering a hybrid between the convenience of a smartphone and the increased functionality of a PC. Nearly 4 per cent of the total EU population owned tablets with mobile connections in 2015 (19.2 million devices). In addition, there are a significant number of tablets that are not connected to mobile networks but do allow for connectivity via WiFi networks (e.g. at home, in the office or in a wide range of public areas). In 2015 there were 146.5 million tablet users in our nine focus markets, an 11 per cent increase from 2014.

240 Ofcom, *Media Use and Attitude*, 2015

The emergence of smart TVs has allowed direct connection to the internet via the TV set. This feature has influenced the content that people consume on their TVs and has changed their viewing habits. As Ofcom reported in 2014²⁴¹ smart TVs were used by most owners to watch, amongst other things, catch-up TV²⁴², video-on-demand and internet-streamed films, short video clips (e.g. YouTube) and live TV broadcasts over the internet. Between 2009 and 2014, smart TVs became increasingly popular across the EU with household penetration growing at a CAGR of 100 per cent between 2009 and 2014 to a total of 30 per cent, as shown in **Figure 3.5**.

Figure 3.5: Smart TV penetration of households in EU 28, 2009 to 2014

Smart TV penetration of households in EU28



Note: The estimates are used for three smallest markets where no data are available, these are: Cyprus, Luxembourg, Malta

Tablets and smart TVs both introduce additional opportunities to businesses, providing a new way of capturing consumer attention, providing complementary connectivity to smartphones.²⁴³

241 Ofcom, *International Communication Report, 2014*

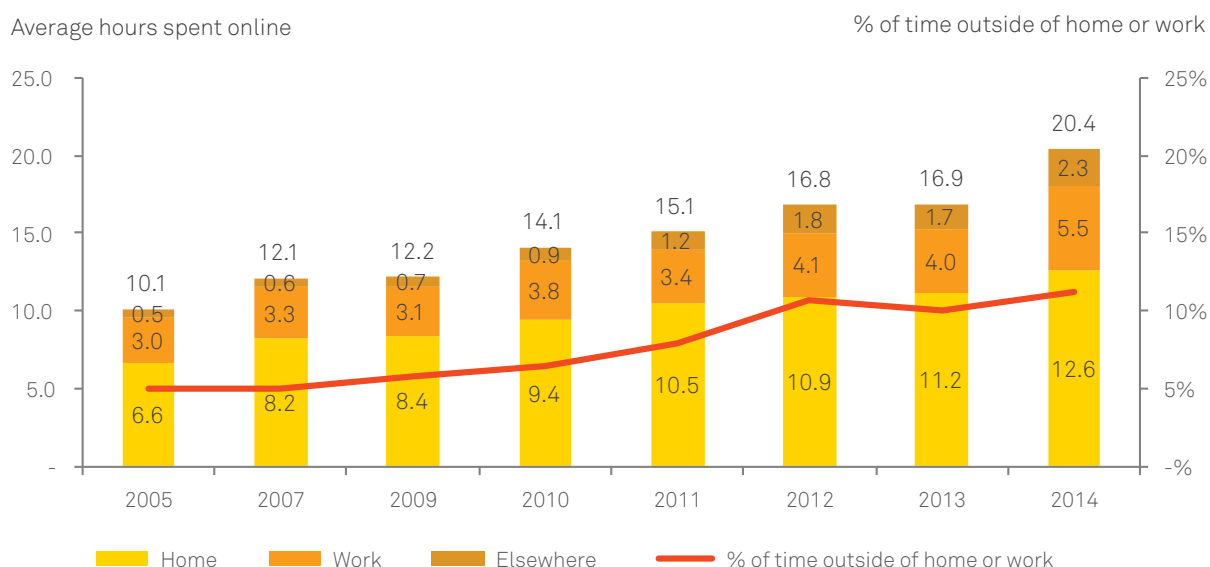
242 Ofcom definition: 'Services that allow consumers to watch or listen to content on a non-linear basis after the initial broadcast'

243 One of the main reasons why take-up of mobile-connected tablets has been slower than that of smartphones, is that often the two devices are used together rather than tablet being a replacement for a smartphone.

3.3 Consumption habits have changed as a result of these enablers

Consumers are spending an increased amount of time online. In the UK, for example, time spent online per user has increased from nearly 10.1 hours per week in 2005 to 20.4 hours per week in 2014. The largest increase of time spent online was observed among younger users (16-24 years old), where usage increased from 10.4 hours in 2005 to 27.6 hours per week in 2014. This increase shows no signs of slowing down: the average UK internet user was spending 3.5 hours longer online each week in 2014 compared to 2013, as shown in **Figure 3.6**²⁴⁴.

Figure 3.6: Hours spent online in a typical week by consumers in the UK, by location, 2005 to 2014



Source: Ofcom, 2015

Figure 3.6 also shows that people are increasingly accessing the internet when they are outside of their homes or places of work. The proportion of time users spend online while not being at home or at work has increased from 5 per cent in 2005 to 11 per cent in 2014. These changes were enabled by increased smartphone penetration, higher 4G coverage and greater availability of Wi-fi.

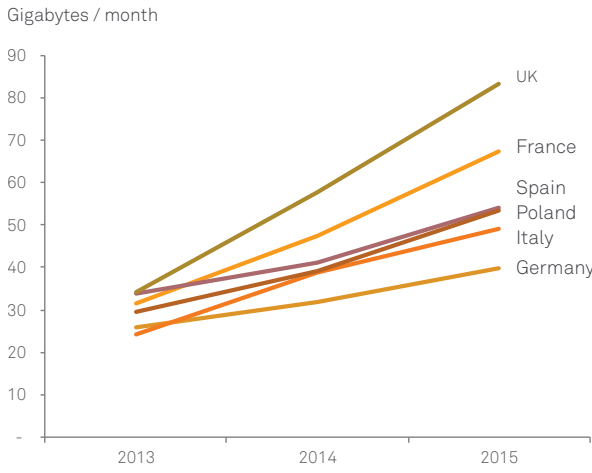
In recent years, there has been a significant growth in data consumption. On the one hand, this trend has been enabled by increased coverage and capacity of next generation technologies, as described above. On the other hand, it has been enabled by richer content being available to consumers, which has in turn increased demand for data to make use of this richer content, which can be observed through the increased time that consumers are spending online.

Fixed data traffic per subscription has grown massively in recent years. In the UK data consumption per subscriber (i.e. households, typically) in 2015 reached 1,000GB per year (84GB per month), which represents a 150 per cent increase within two years, as shown in **Figure 3.7**. Similarly, mobile data traffic has increased dramatically. In Finland and Sweden, countries with the highest smartphone penetration and 4G coverage among our focus markets, mobile data traffic per user has been particularly high. From 2008 to 2015 average monthly mobile data consumption per subscription in 28 EU countries has been growing at a CAGR of 40 per cent. Note that traffic per connection would be expected to be somewhat lower than for fixed networks due to the shared nature of fixed broadband subscriptions between members of a household. Nonetheless, fixed services continue to have considerably higher data traffic per user, largely due to the volume of creative content consumed within the home environment.

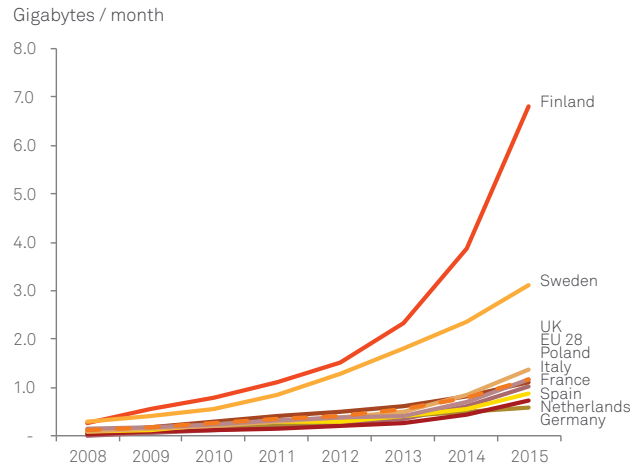
244 Ofcom website, 2015, <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2015/cmr-uk-2015>

Figure 3.7: Fixed broadband and mobile data usage per subscription in selected countries, 2013 to 2015

Fixed broadband data usage per subscription in selected countries



Mobile data usage per connection in selected countries and EU28 average



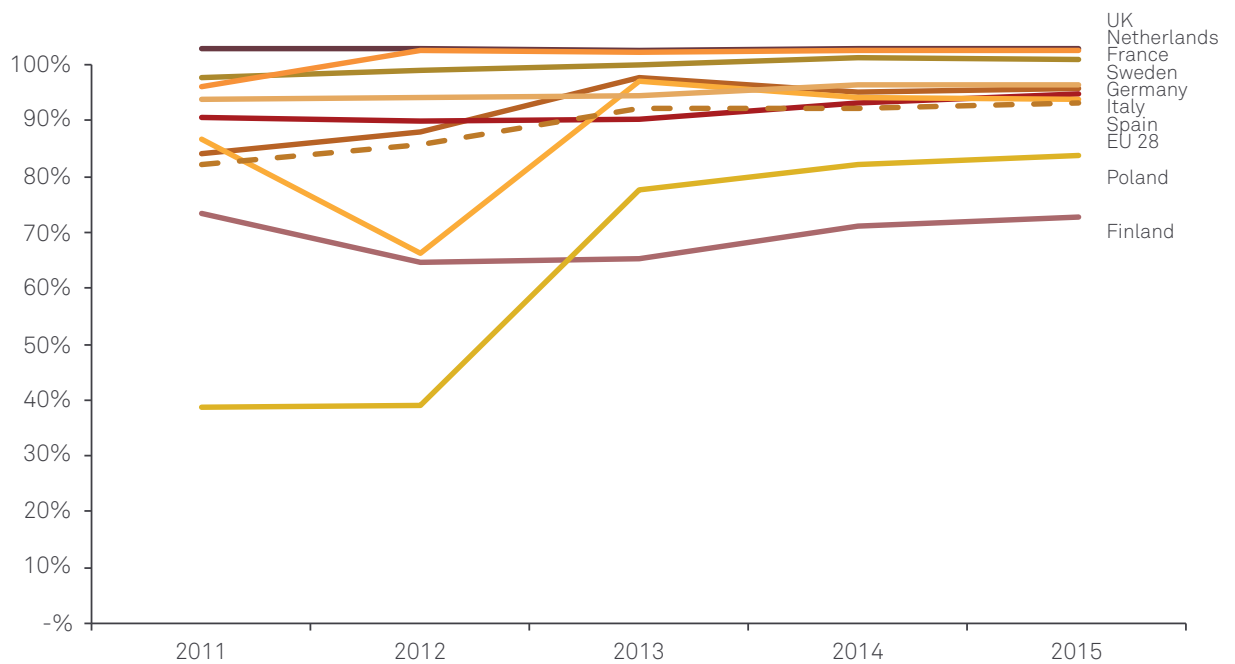
Source: Analysys Mason, 2016

4 Variation in availability and take-up of access technologies across our focus markets

This appendix contains additional information to further support the discussion of the internet as an enabler of the creative sector in Appendix 3.

The left-hand chart in Figure 3.1 shows the availability of fixed broadband services for the EU28 as a whole. However, there is some variation across EU countries in fixed broadband coverage as shown below in Figure 4.1.

Figure 4.1: Fixed broadband coverage (percentage of premises) in focus markets and at EU level



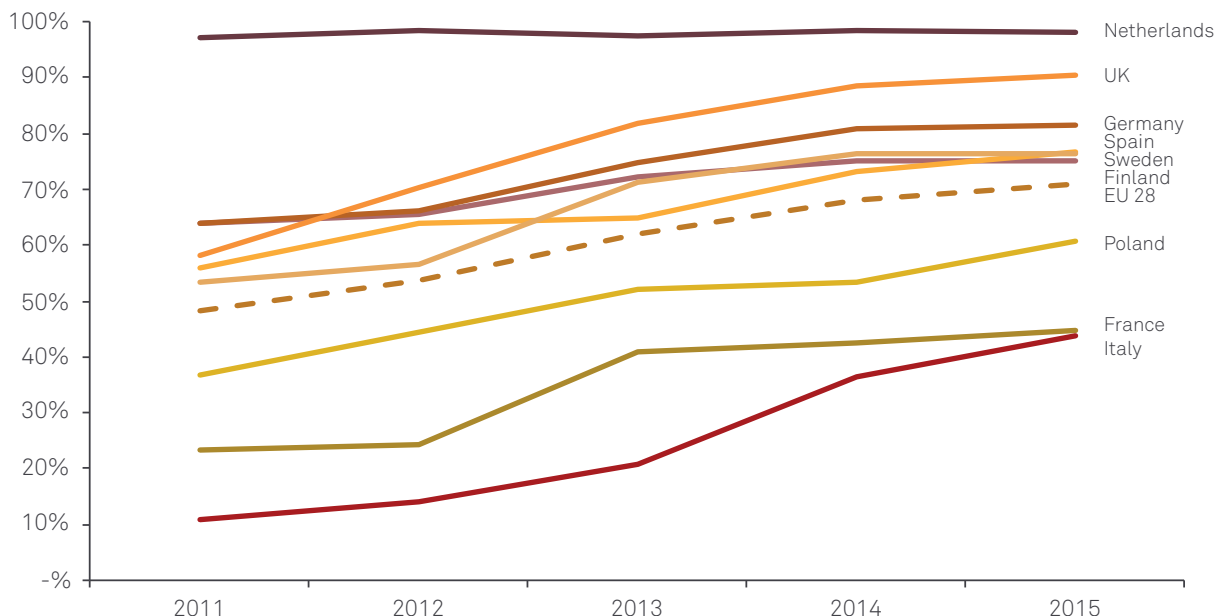
Source: European Commission

In general, countries where population is concentrated in urban areas, such as the UK and France (100 per cent and 98 per cent availability) have much higher coverage than countries where population is less dense, such as Finland (71 per cent availability) where population is amongst the sparsest in Europe²⁴⁵.

High variation in coverage across EU countries is observed for superfast broadband technology as well and shown in Figure 4.2.

245 European Commission, *Digital Scoreboard*, 2016

Figure 4.2: Fixed superfast broadband coverage (percentage of premises) in focus markets and at EU level

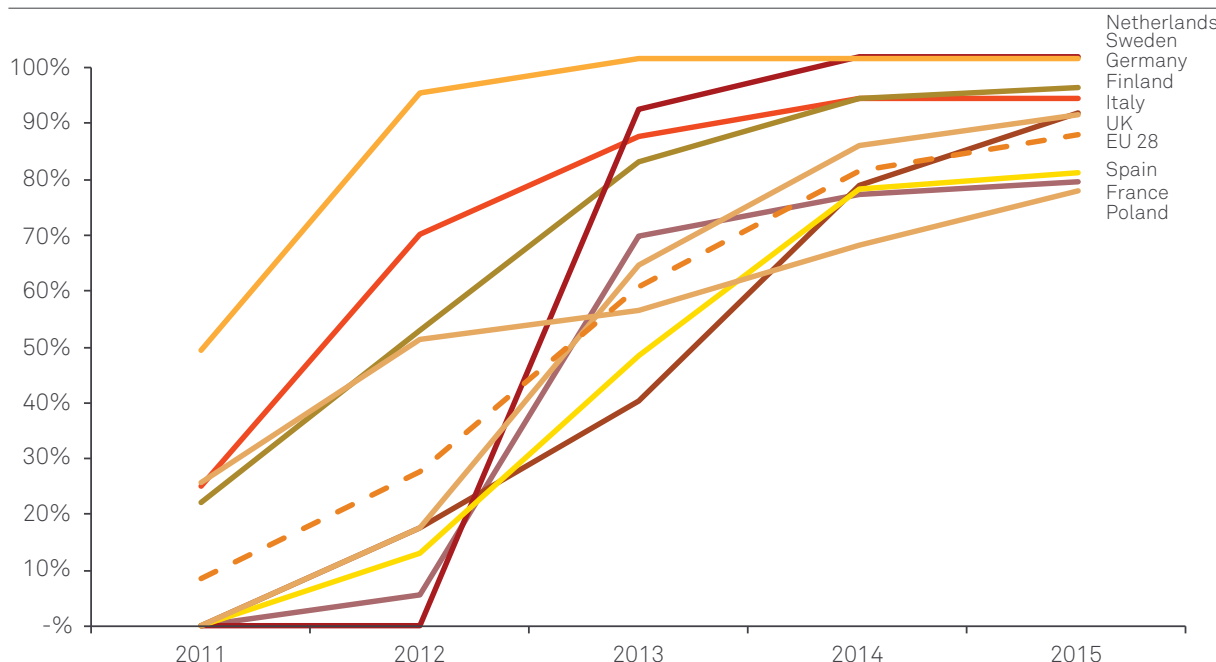


Source: European Commission

Competition across different infrastructures such as cable and fibre has incentivised the deployment of superfast broadband in some EU countries. For example, while the Netherlands had over 85 per cent of premises covered with cable and 24 per cent covered with fibre as of 2011, Italy does not have a cable network at all and the incumbent operator had less incentive to upgrade the legacy copper network to provide the superfast fixed broadband there²⁴⁶.

There is less variation in 4G and 3G coverage across countries. The variation in 4G coverage occurs largely due to different timing of infrastructure deployment across the countries, however, it remains at over 70 per cent in all the focus markets. Figure 4.3 and Figure 4.4 below show 4G and 3G coverage respectively for our nine focus market.

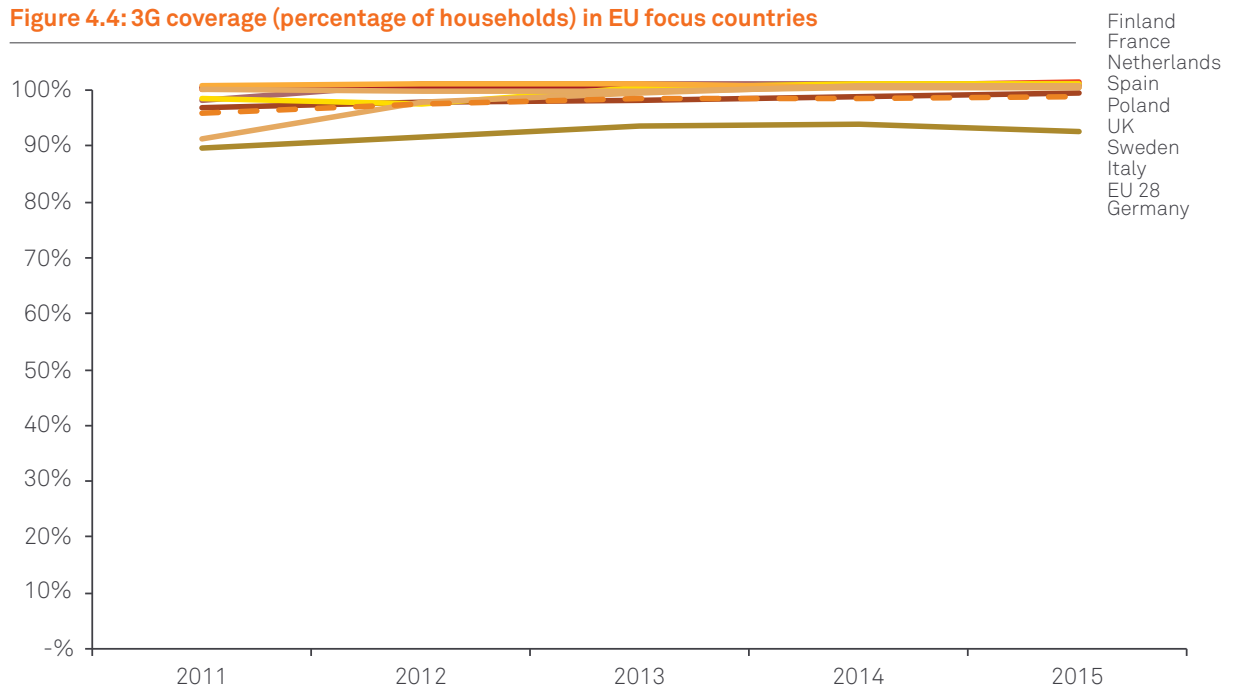
Figure 4.3: 4G coverage (percentage of households) in EU focus countries



Source: European Commission

²⁴⁶ Analysys Mason, *International Broadband Benchmarking Report*, 2013; Analysys Mason, *FTTx Coverage, Conversion and Capex: Worldwide Trends and Forecasts 2015–2020*, 2015

Figure 4.4: 3G coverage (percentage of households) in EU focus countries

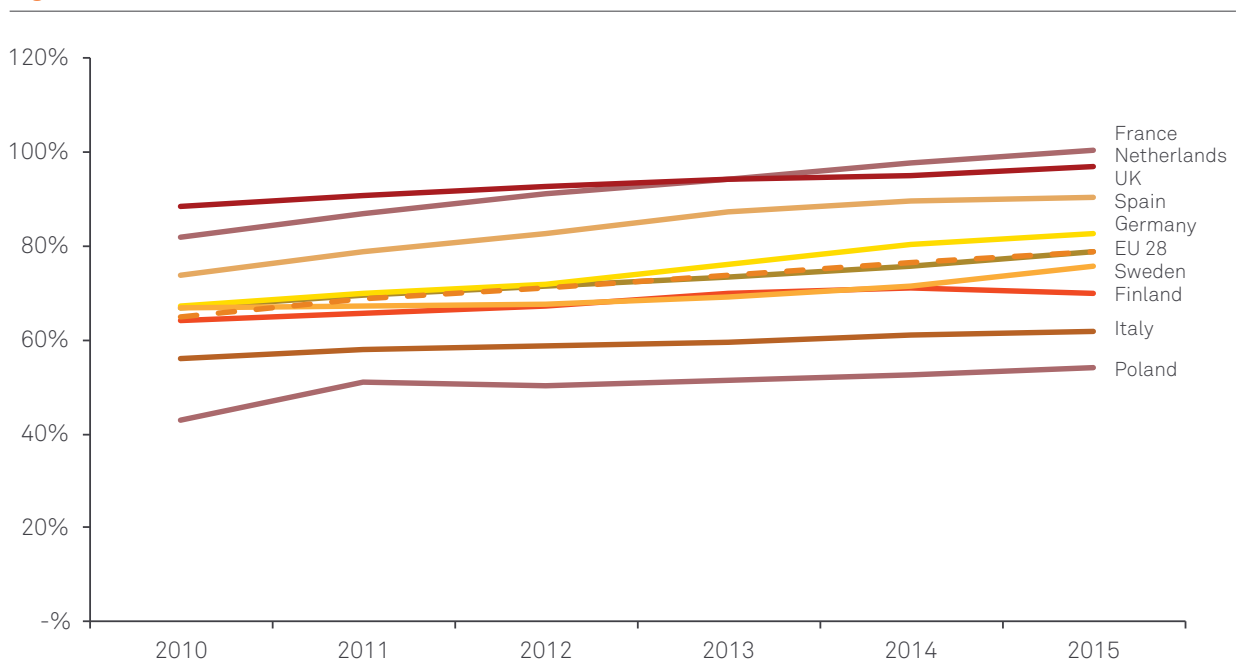


Source: European Commission

The 3G coverage remains above 90 per cent in all the focus markets with the lowest in Germany (92 per cent) and with 100 per cent population coverage in five out of nine focus markets: Finland, France, Netherlands, Spain and Poland. Poland has the lowest 4G coverage among the nine markets, with 76 per cent of population covered, whilst the Netherlands reached 100 per cent 4G coverage in 2014.

The charts below show the penetration levels for each technology (fixed, superfast and mobile broadband) for each of our focus markets.

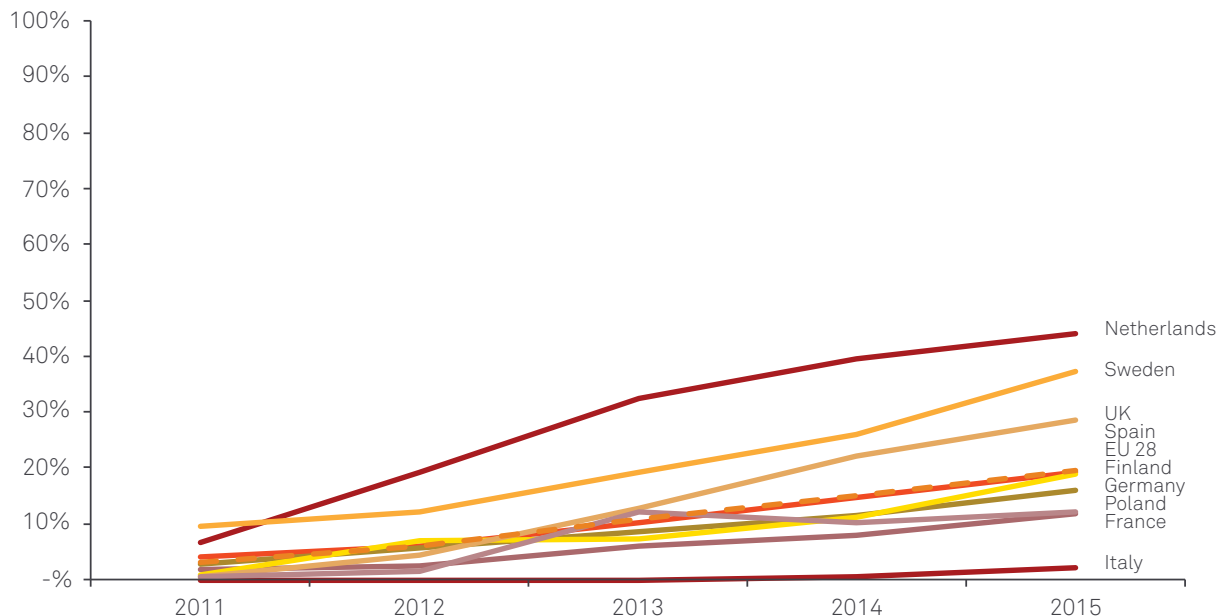
Figure 4.5: Fixed broadband penetration of households in EU focus countries



Source: Analysys Mason based on data from ITU, 2016

Amongst our nine focus markets, France had the highest fixed broadband penetration of almost 100 per cent of the total households in 2015, while Poland had the lowest – 54 per cent of the households had fixed broadband subscriptions.

Figure 4.6: Superfast broadband penetration of households in selected EU focus countries



Source: Analysys Mason based on data from the European Commission and ITU, 2016

The Netherlands had the highest penetration of superfast broadband in 2015 of 60 per cent of households. Meanwhile, in Italy only 3 per cent of the households had superfast broadband subscriptions, largely because of the significantly lower level of coverage in the country.

Figure 4.7: Mobile broadband penetration of population in EU focus countries



Source: Analysys Mason based on GSMA Intelligence and ITU data, 2016

Mobile penetration is the highest among the three technologies due to the ownership of multiple mobile devices. The highest mobile broadband penetration among the nine focus markets is observed in Finland (147 per cent) and Sweden (140 per cent), while the lowest is observed in France (73 per cent) and the second lowest in Spain (76 per cent).

5 Creative sector revenue data by market

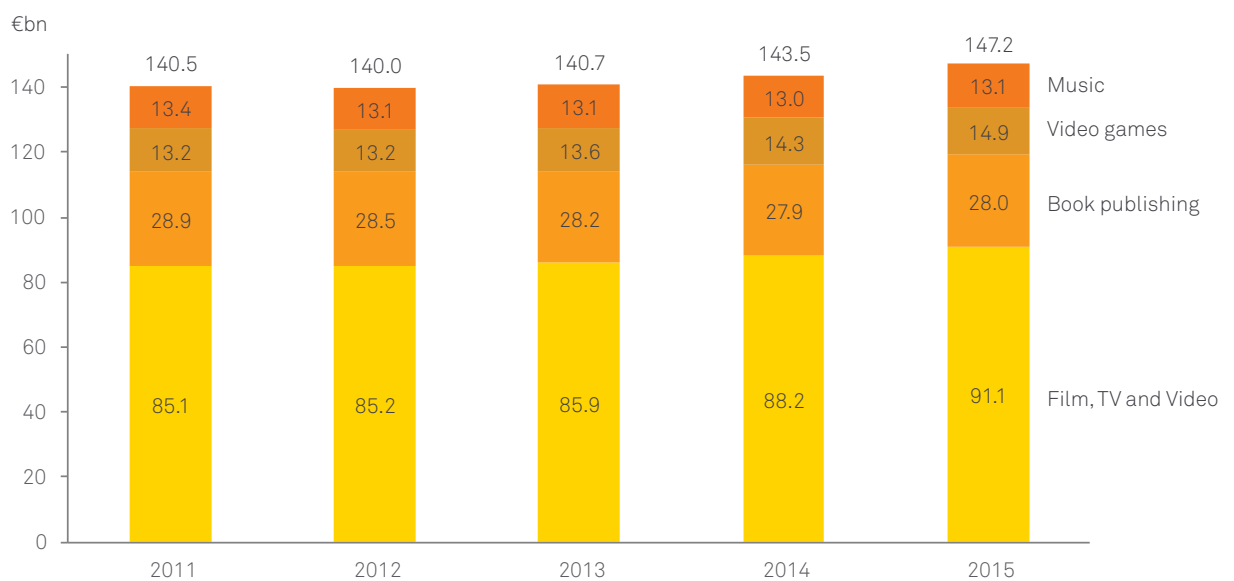
In this appendix we provide PwC’s view of creative sector revenues based on the 18 markets included in its Global Entertainment and Media Outlook 2016-20. We also present a breakdown of revenue data for each creative industry in our individual focus markets. The industry breakdowns are consistent with the data provided at the start of each part of the report discussing the individual creative industries.

5.1 PwC view of creative sector revenues

In presenting revenues for the creative industries, we draw on several sources; Figure 2.2 in the main report sets out the trend in creative sector revenues by creative industry for the EU28, splitting out revenues for film & TV, books, video games, and music. PwC’s Global Entertainment and Media Outlook, 2016-2020 is an important source of the revenue data for 18 of the largest European markets, including our nine focus markets, for which we use PwC revenue data throughout the report.

While the revenue data we present for TV, film and video; books; and video games draw exclusively on PwC’s Global Entertainment and Media Outlook, 2016-2020, our figures for music use a mixture of sources, of which PwC’s Media Outlook is one. In presenting revenue data for the EU28 we have also estimated ten of the smallest markets. This combination of sources and the use of estimation makes it difficult to see the overall PwC view of revenues in these creative industries. For reference, the figure below therefore sets out PwC’s own view on revenues of the four industries we cover.

Figure 5.1: PwC view of creative sector revenues by industry, EU18, 2011 to 2015



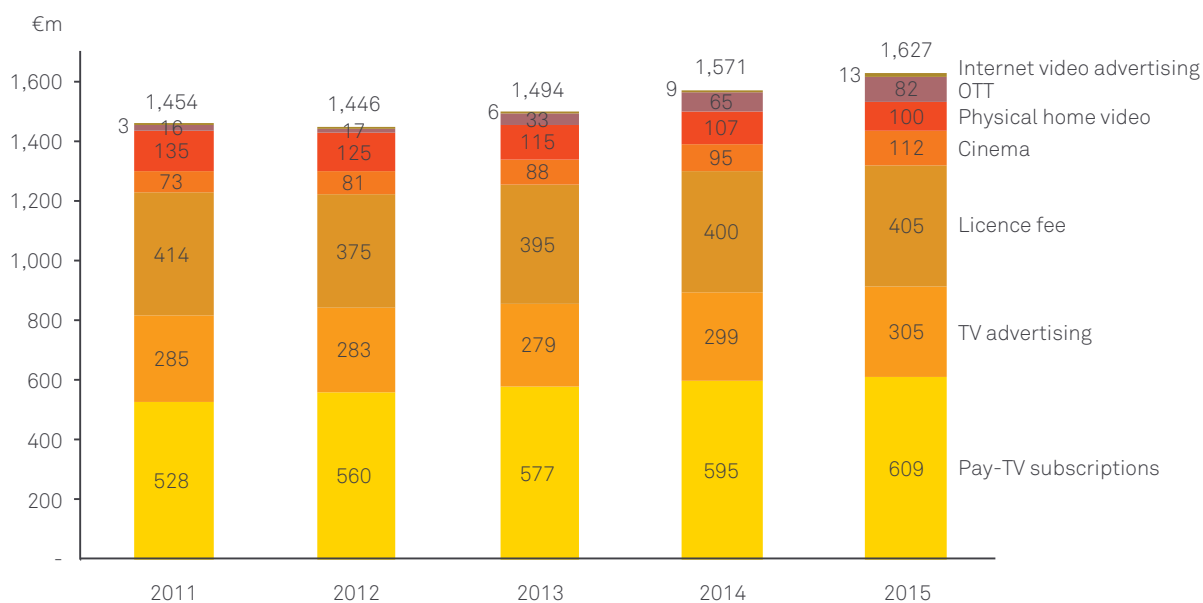
Note: Includes 18 European markets – revenue data presented in our main report are for EU28 or nine focus markets. Film, TV and Video includes revenues from cinema, TV advertising, TV and Video, and internet video advertising. Data for music are not directly comparable to those presented in our main report, since other sources are also used, to provide greater granularity

Source: PwC ‘Global Entertainment and Media Outlook 2016 -2020’

5.2 Revenues in the TV and film industries by country

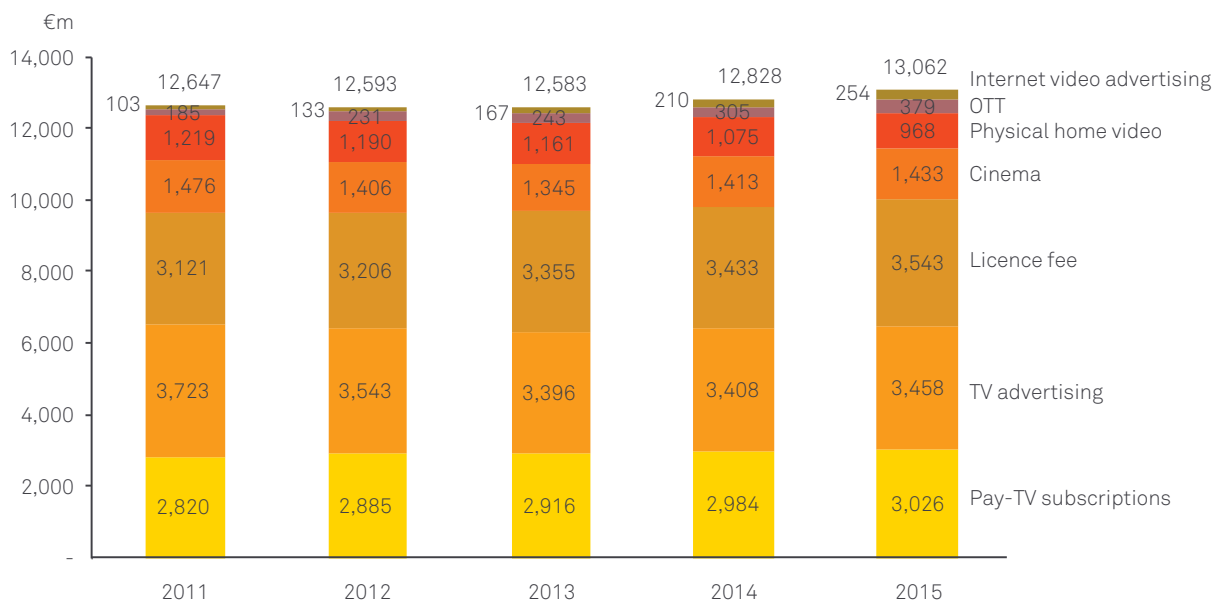
This section breaks out the revenue data for the TV, film, and video industry which we present in Part 4 of our report, by individual market.

Figure 5.2 Total TV and film revenues split by segment in Finland



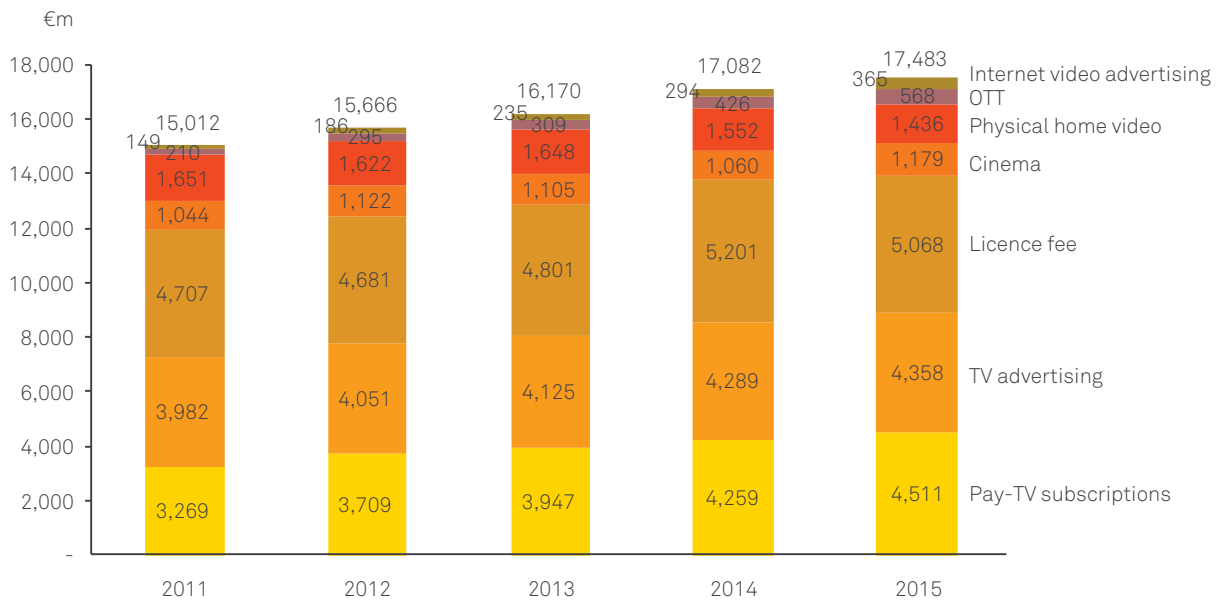
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.3 Total TV and film revenues split by segment in France



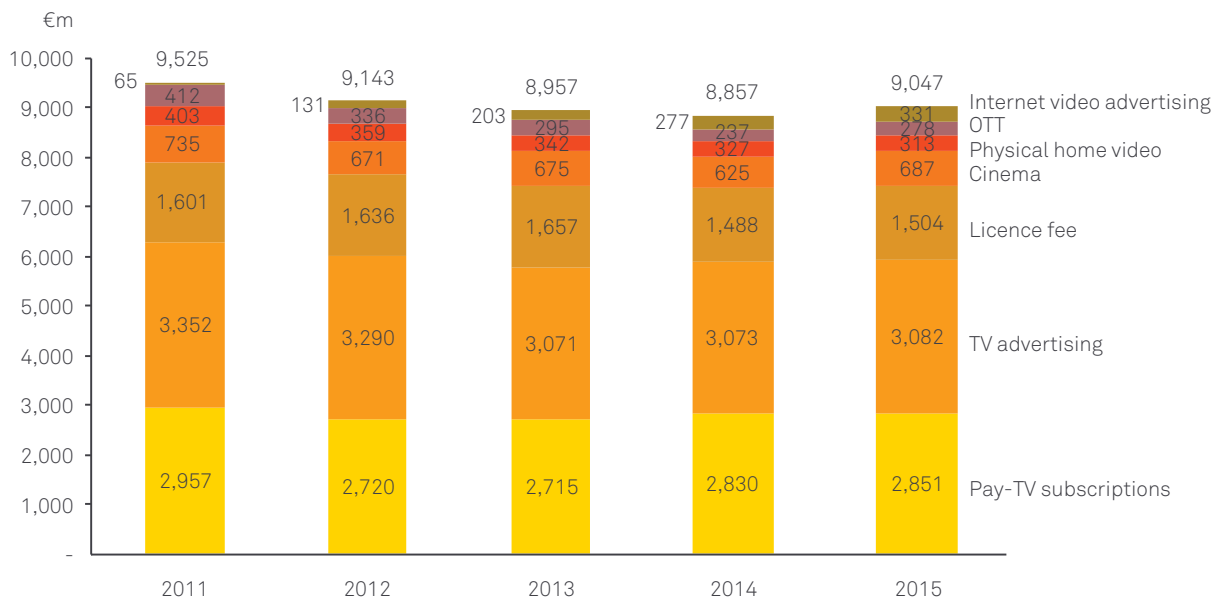
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.4 Total TV and film revenues split by segment in Germany



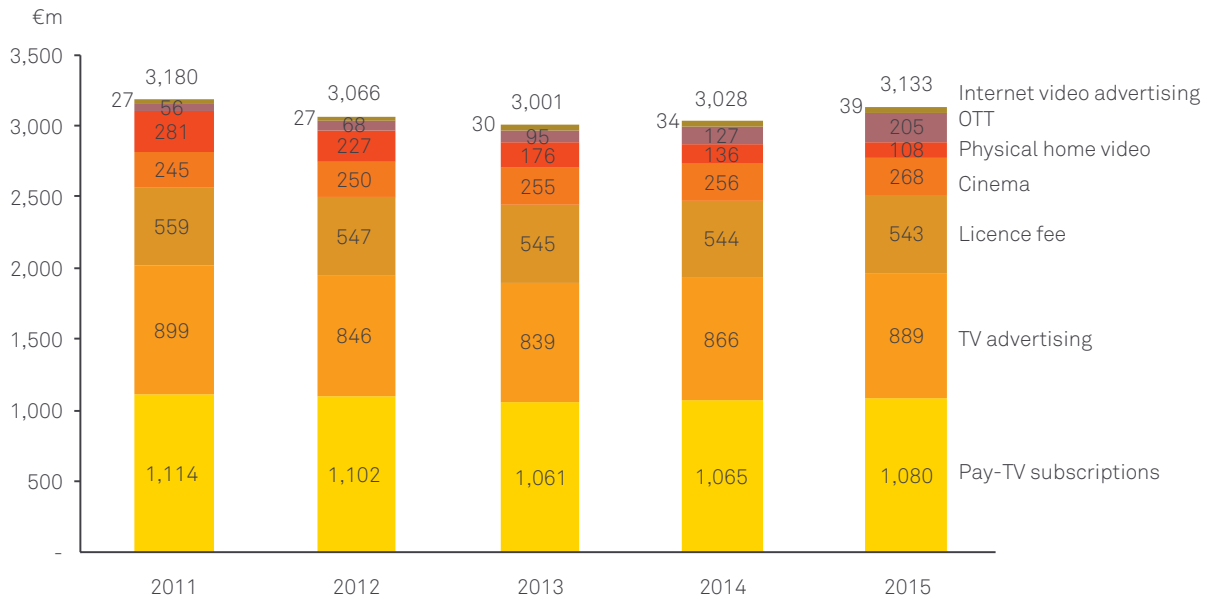
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.5 Total TV and film revenues split by segment in Italy



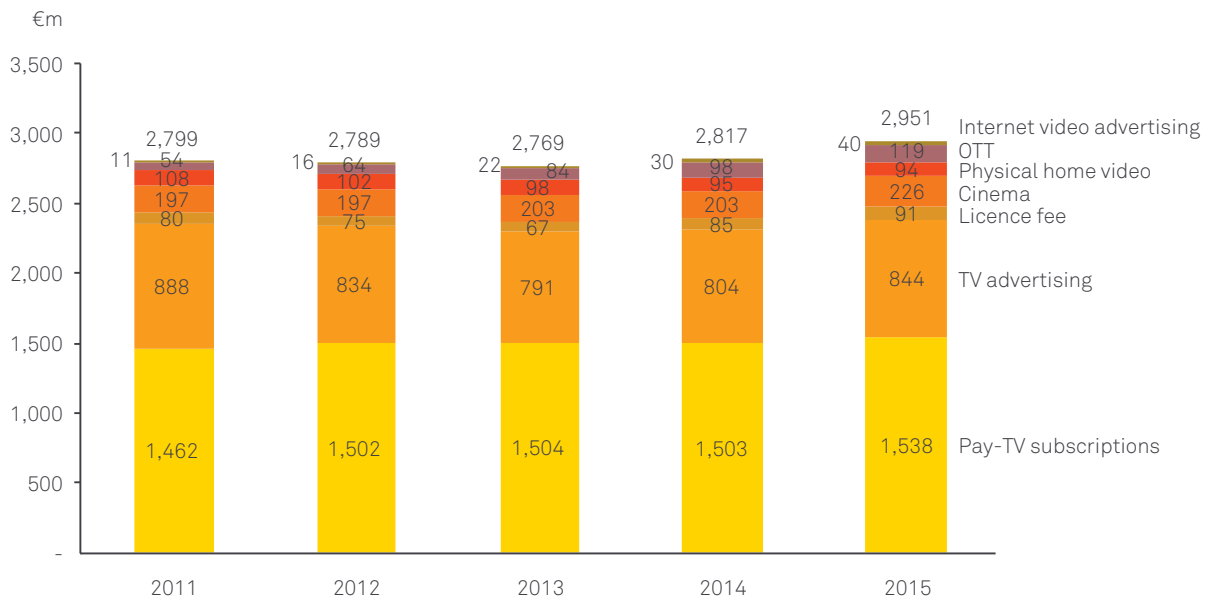
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.6 Total TV and film revenues split by segment in Netherlands



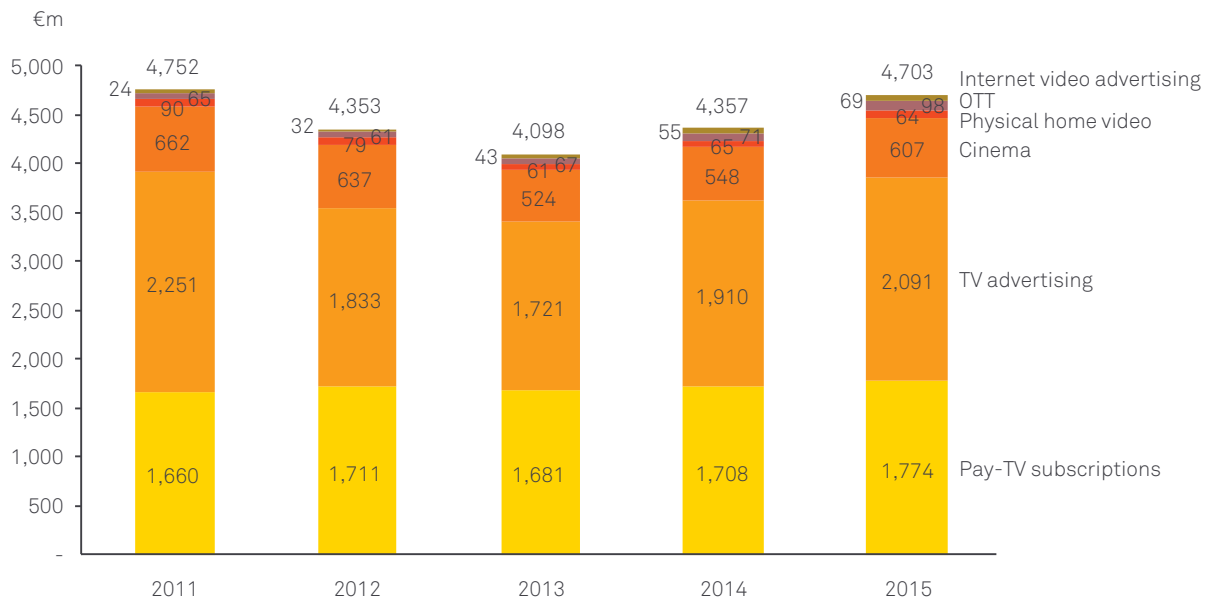
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.7 Total TV and film revenues split by segment in Poland



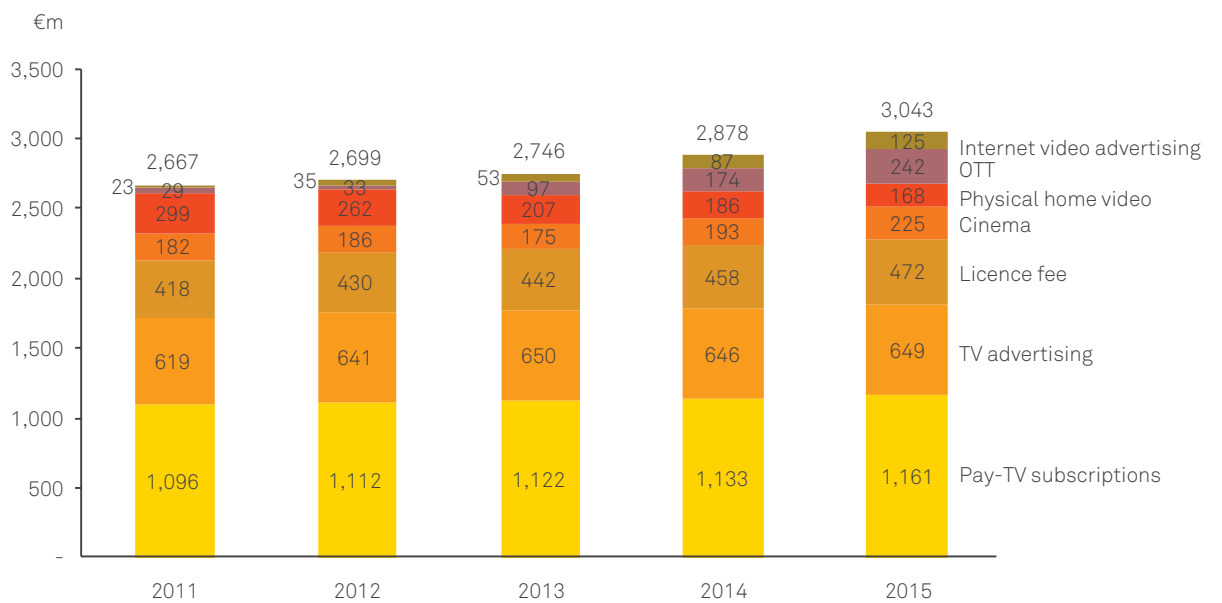
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.8 Total TV and film revenues split by segment in Spain



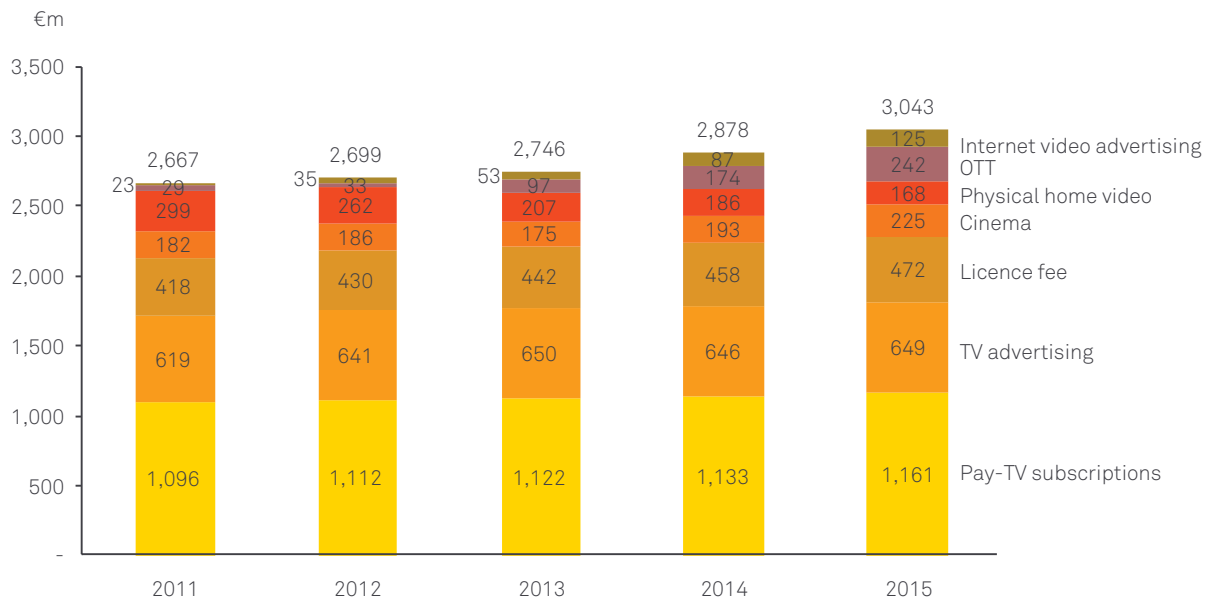
Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.9 Total TV and film revenues split by segment in Sweden



Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

Figure 5.10 Total TV and film revenues split by segment in UK

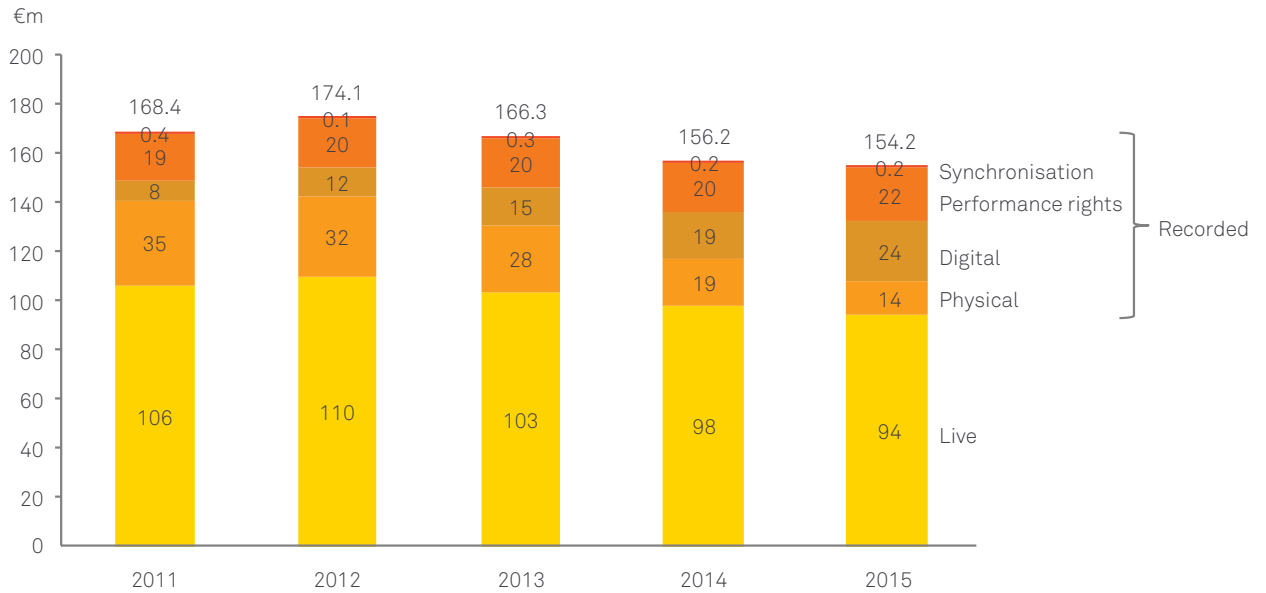


Source: PwC 'Global Entertainment and Media Outlook 2016 - 2020'

5.3 Revenues in the music industry by country

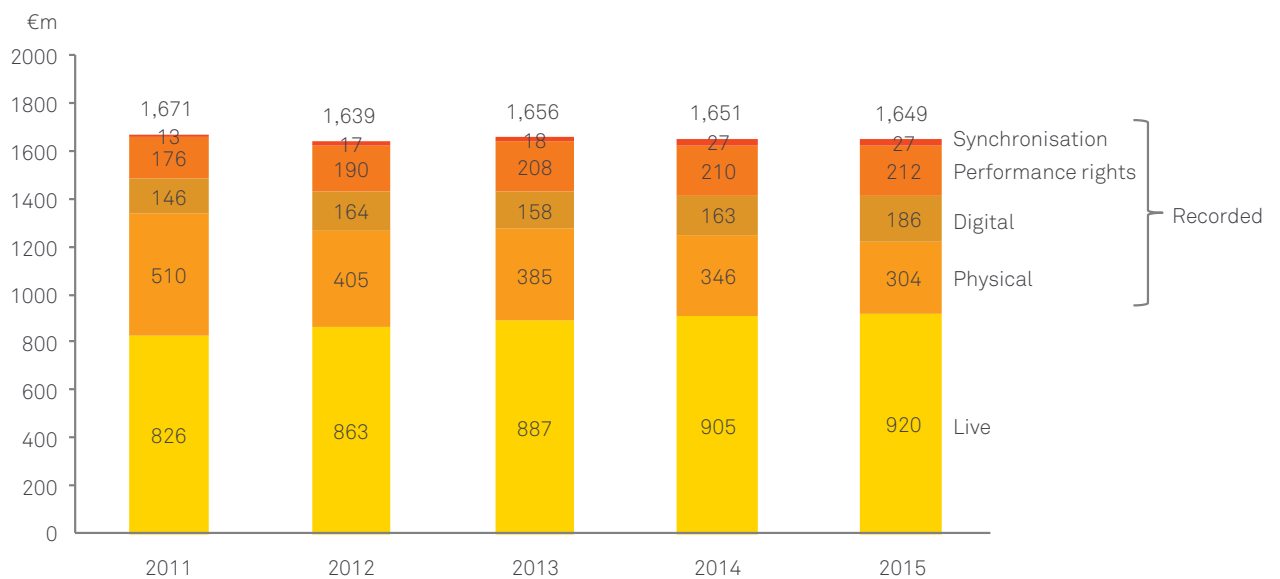
This section breaks out the revenue data for the music industry which we present in Part 5 of our report. We use IFPI data for all but live music revenues, rather than PwC data, on the basis that the IFPI data offers a granular breakdown of digital revenues.

Figure 5.11 Total music revenues split by segment in Finland



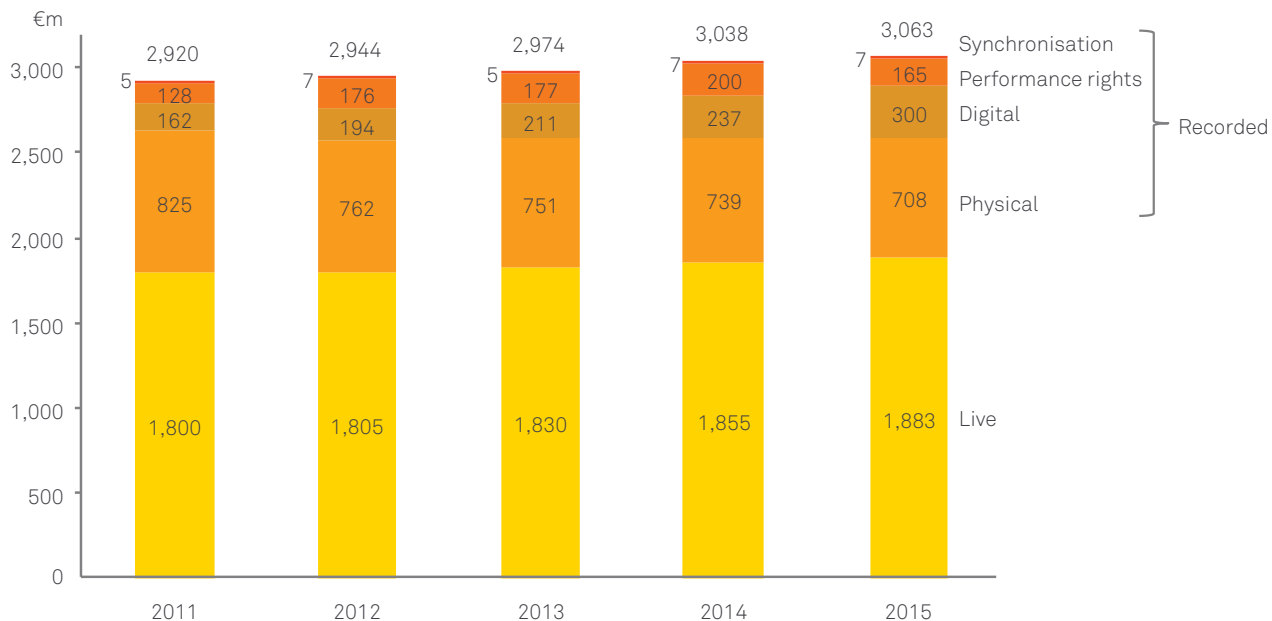
Source: Recorded – IFPI
Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.12 Total music revenues split by segment in France



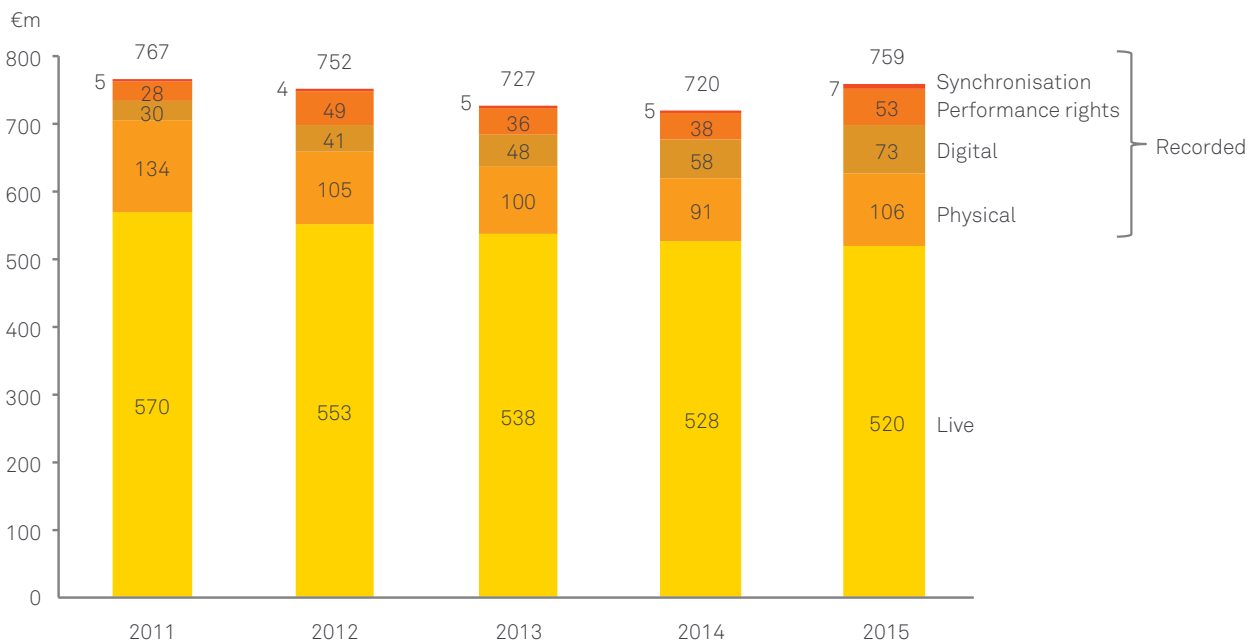
Source: Recorded – IFPI
Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.13 Total music revenues split by segment in Germany



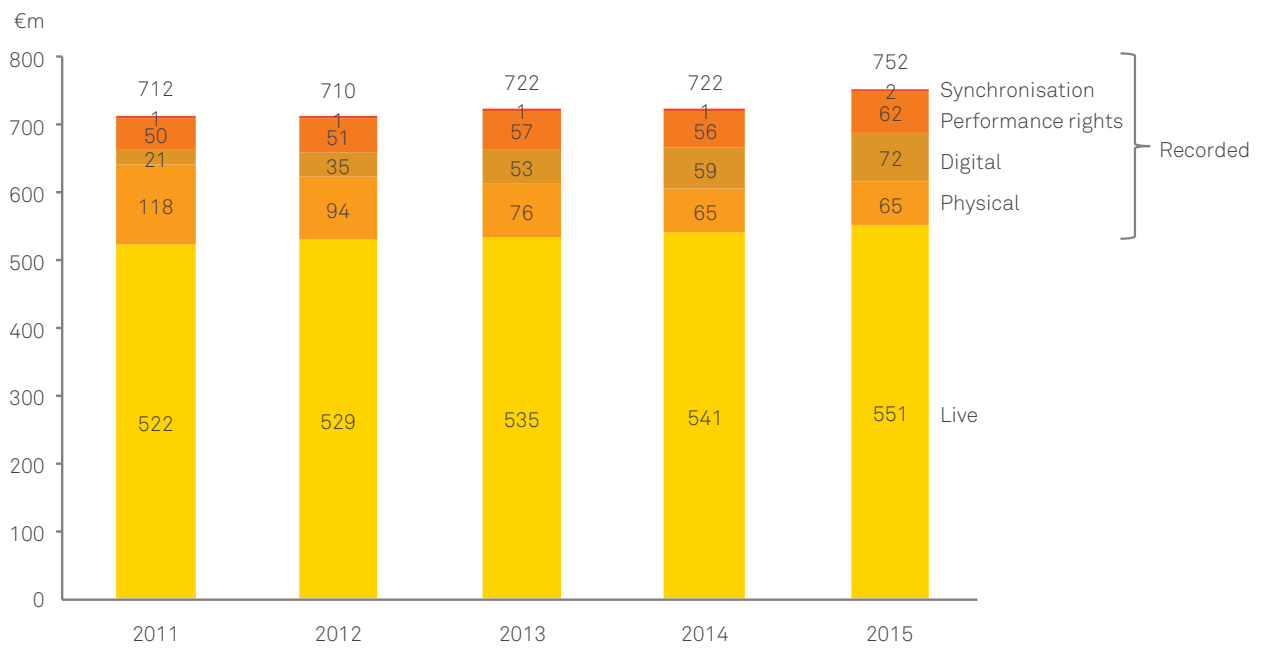
Source: Recorded – IFPI
 Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.14 Total music revenues split by segment in Italy



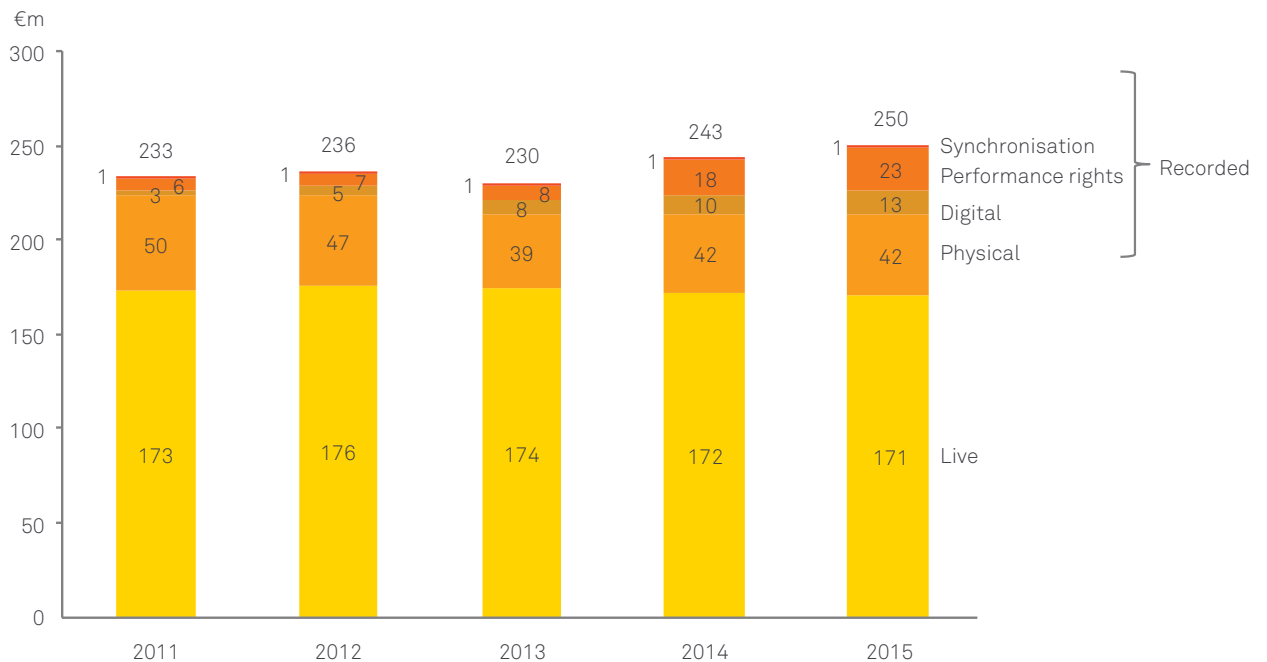
Source: Recorded – IFPI
 Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.15 Total music revenues split by segment in Netherlands



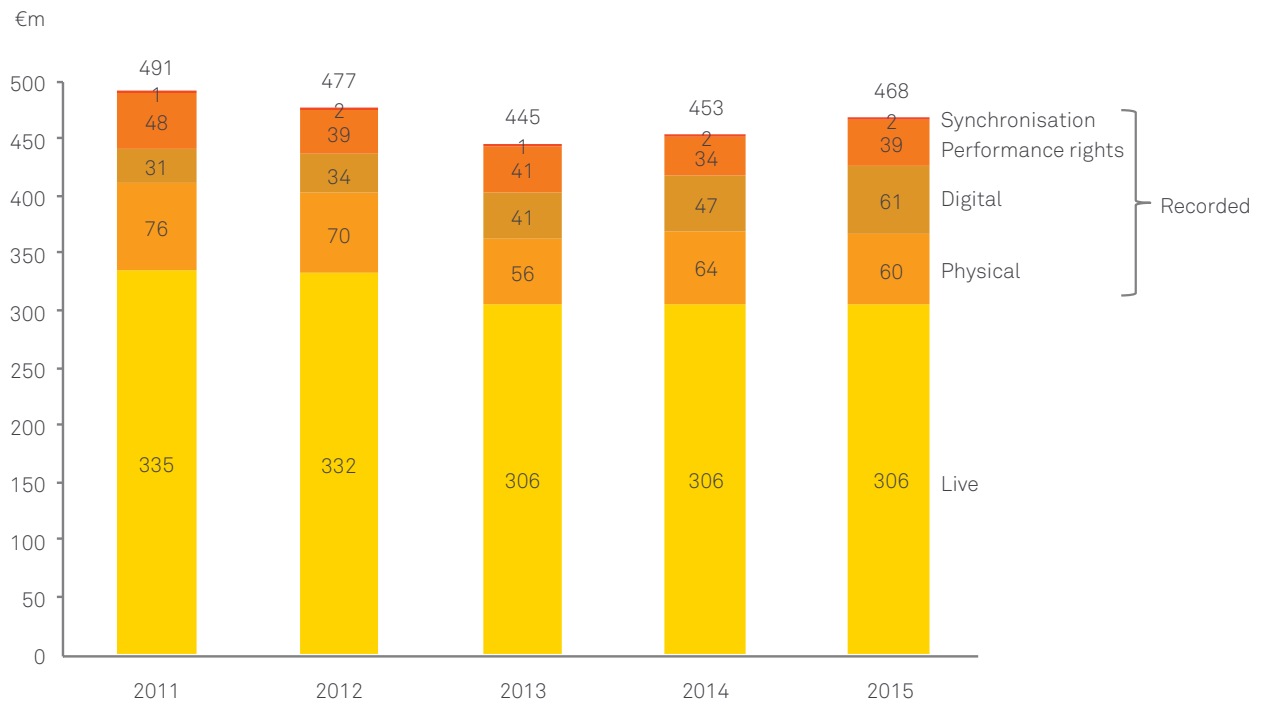
Source: Recorded – IFPI
Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.16 Total music revenues split by segment in Poland



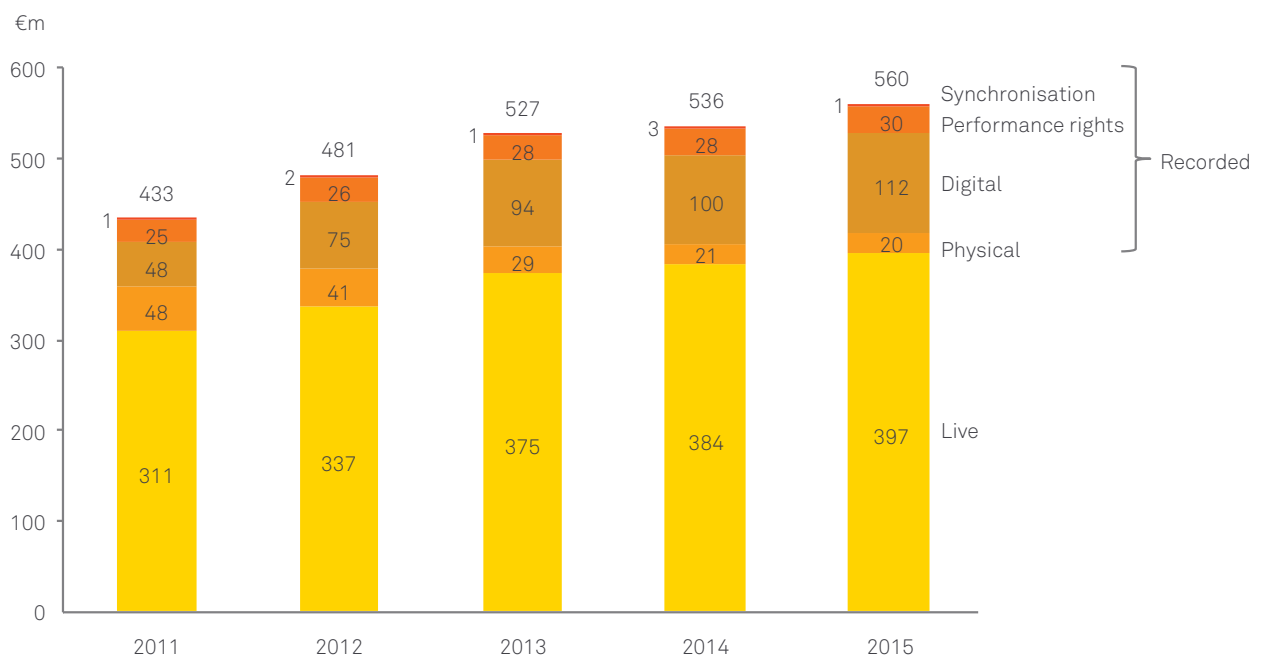
Source: Recorded – IFPI
Live – PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.17 Total music revenues split by segment in Spain



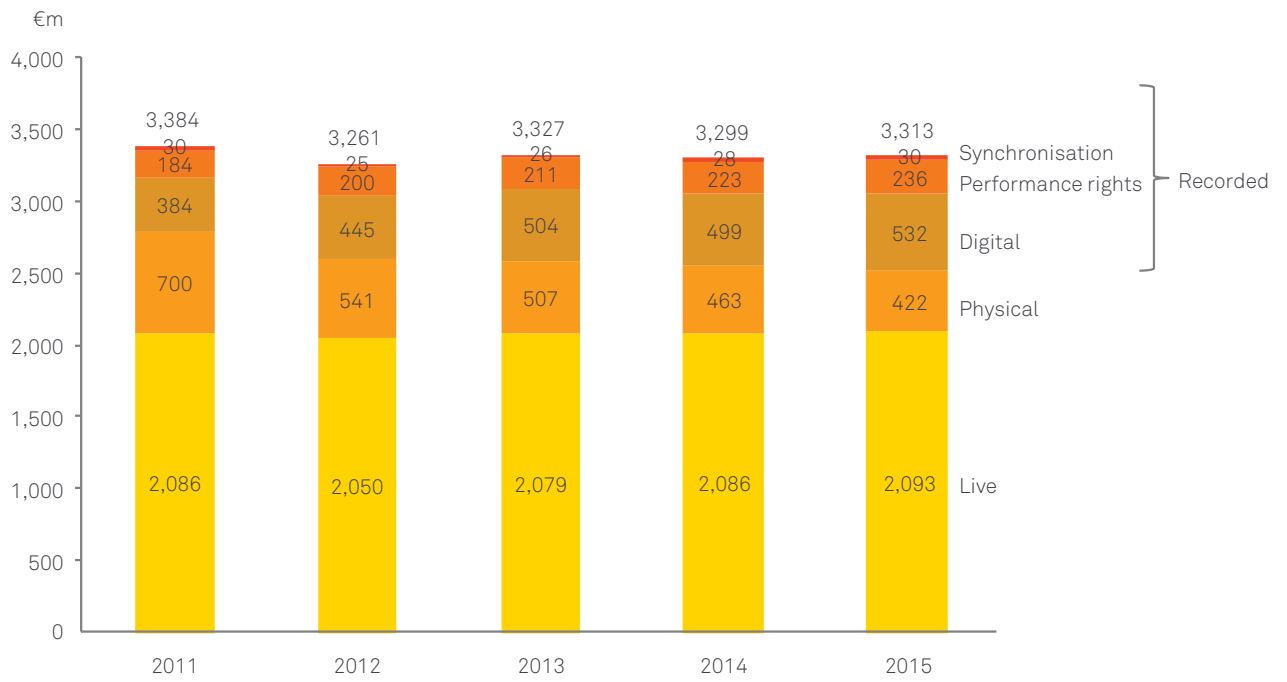
Source: Recorded – IFPI
 Live – PwC ‘Global entertainment and media outlook: 2016-2020’

Figure 5.18 Total music revenues split by segment in Sweden



Source: Recorded – IFPI
 Live – PwC ‘Global entertainment and media outlook: 2016-2020’

Figure 5.19 Total music revenues split by segment in UK



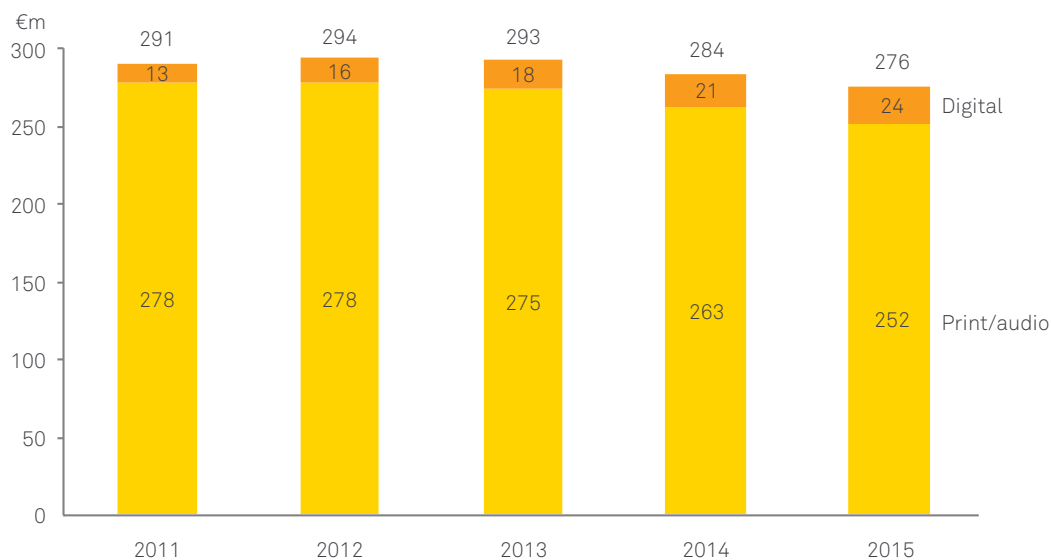
Source: Recorded – IFPI

Live – PwC 'Global entertainment and media outlook: 2016-2020'

5.4 Revenues in the book publishing industry by country

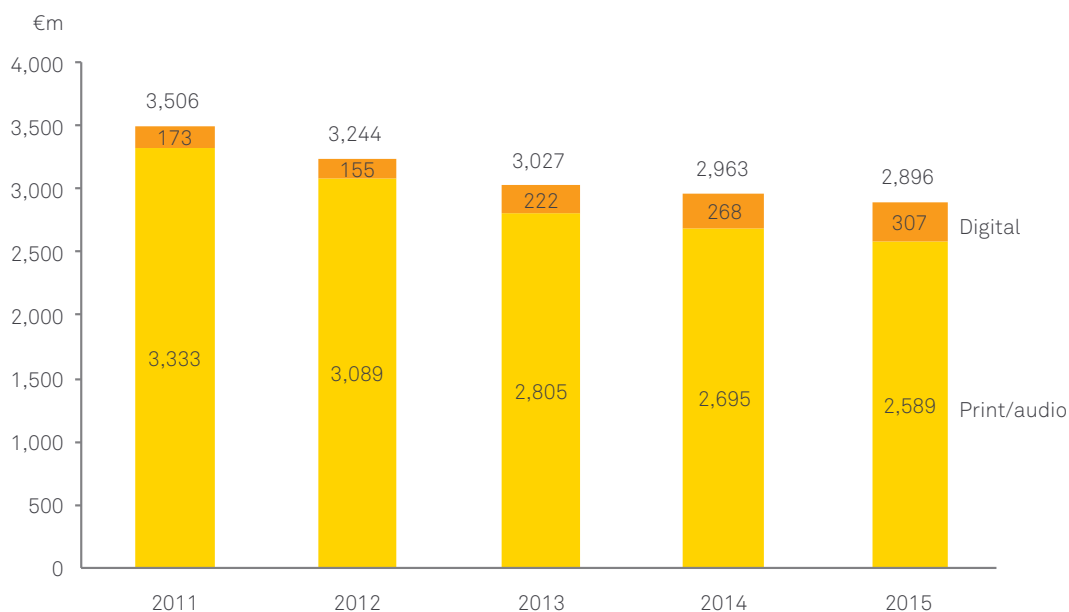
This section breaks out the revenue data for the books industry which we present in Part 6 of our report, by individual market.

Figure 5.20 Total book publishing revenues split by segment in Finland



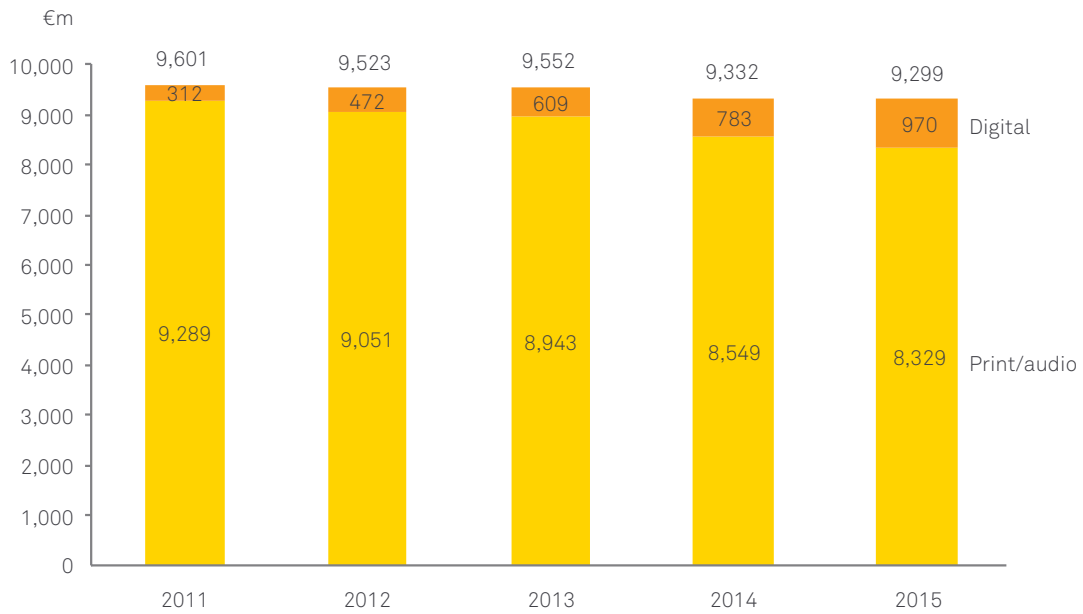
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.21 Total book publishing revenues split by segment in France



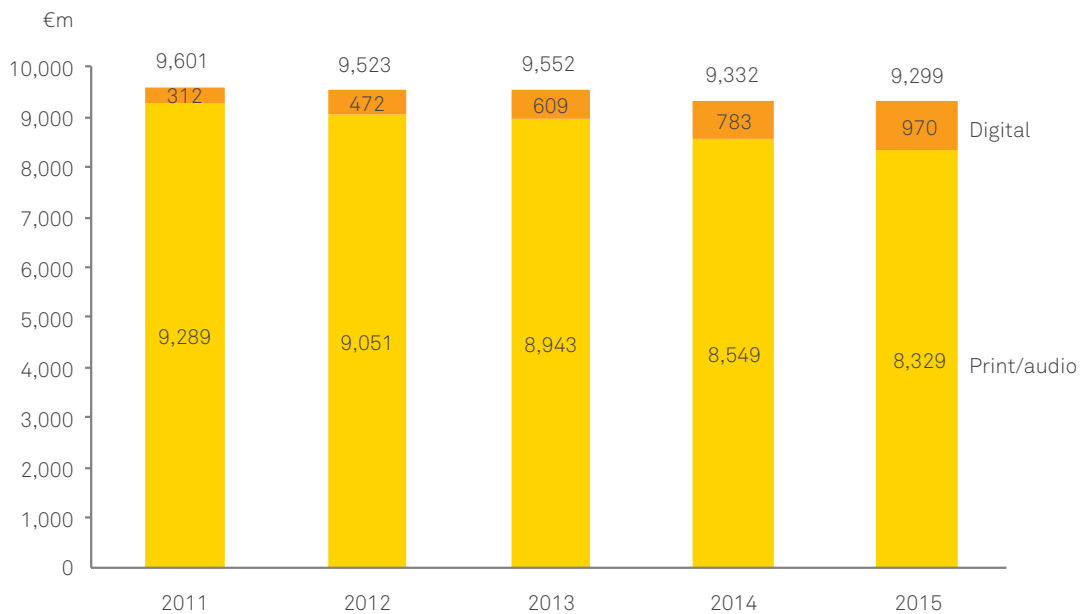
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.22 Total book publishing revenues split by segment in Germany



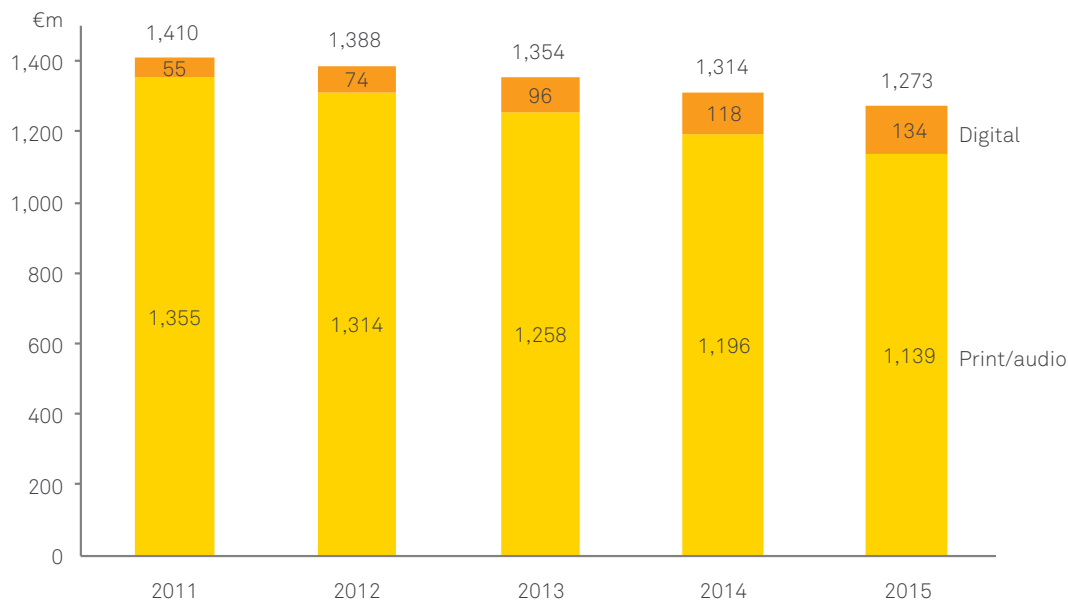
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.23 Total book publishing revenues split by segment in Italy



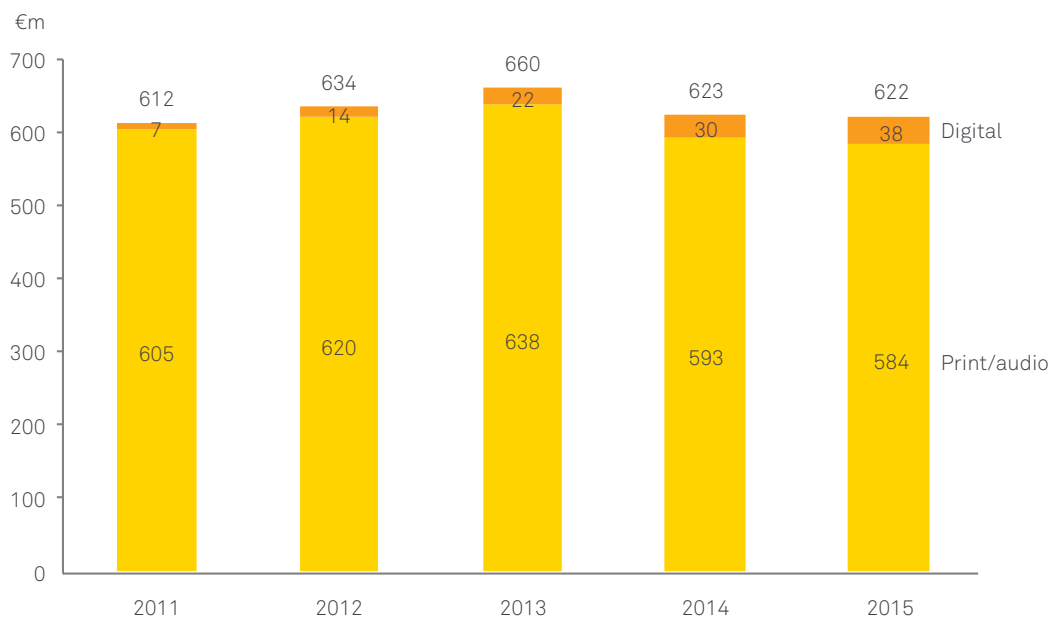
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.24 Total book publishing revenues split by segment in Netherlands



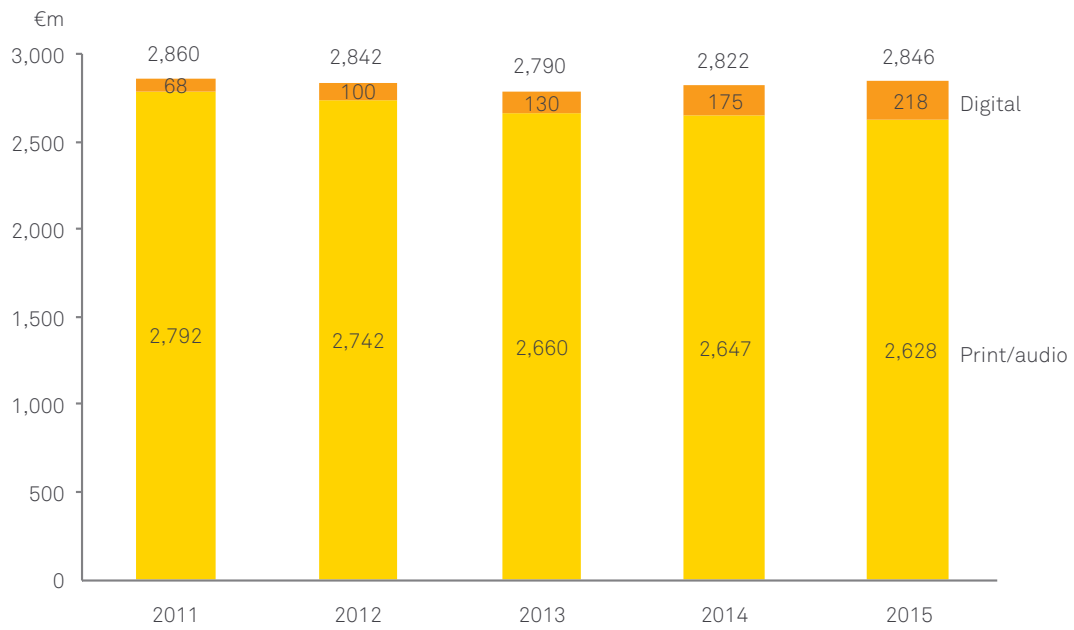
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.25 Total book publishing revenues split by segment in Poland



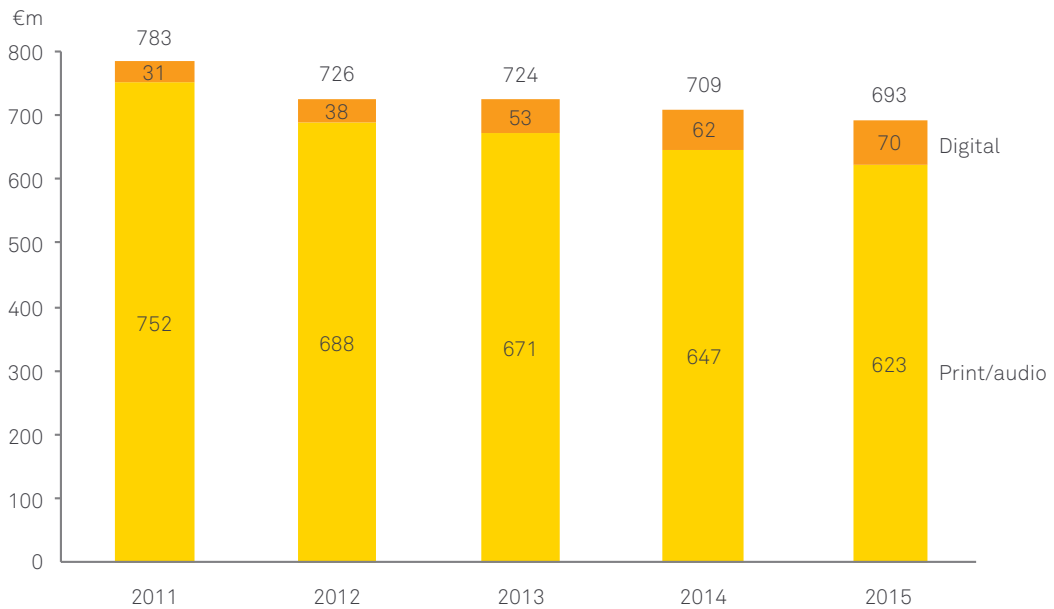
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.26 Total book publishing revenues split by segment in Spain



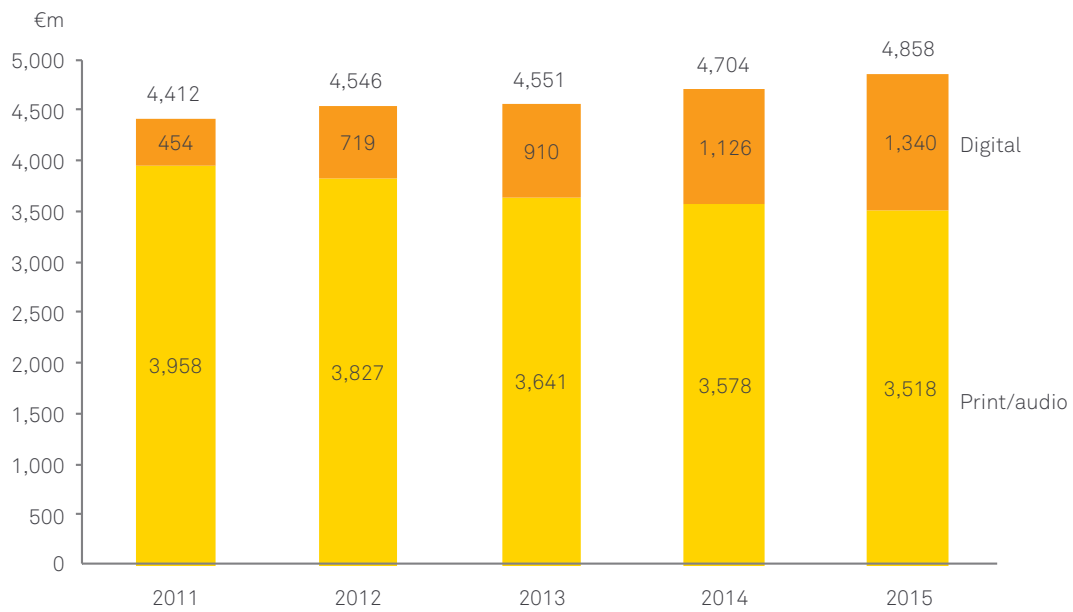
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.27 Total book publishing revenues by segment in Sweden



Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.28 Total book publishing revenues by segment in UK

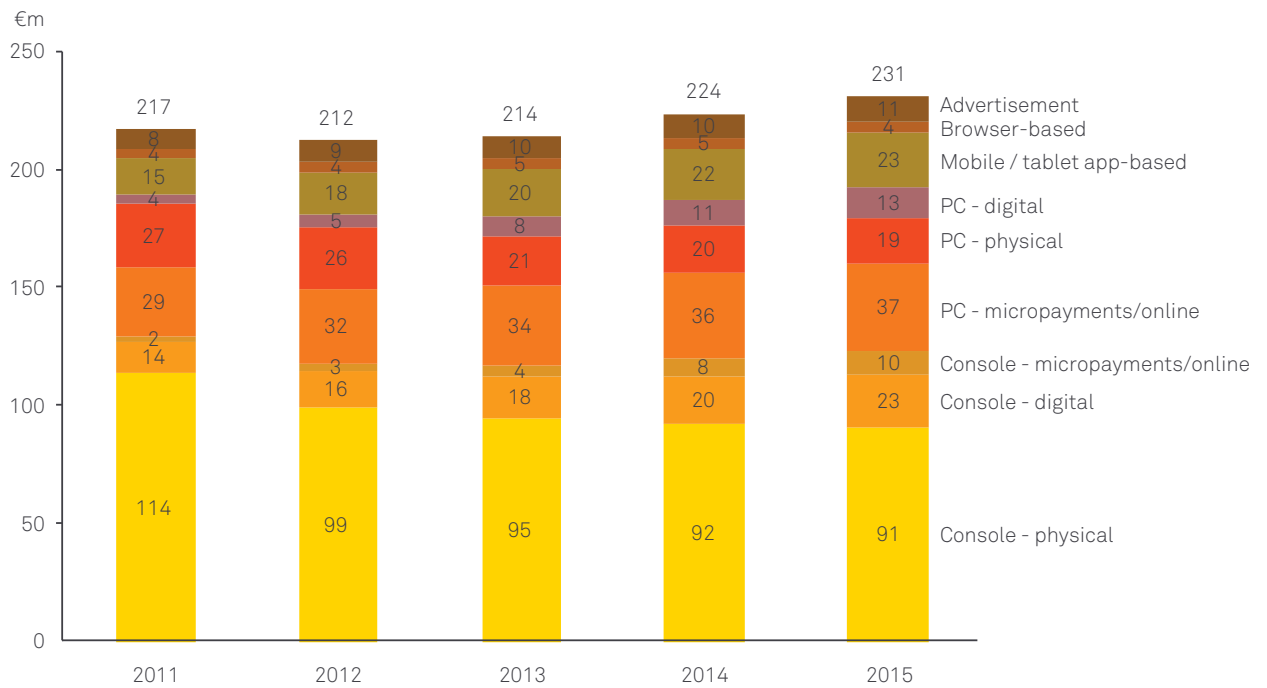


Source: PwC 'Global entertainment and media outlook: 2016-2020'

5.5 in the video games industry by country

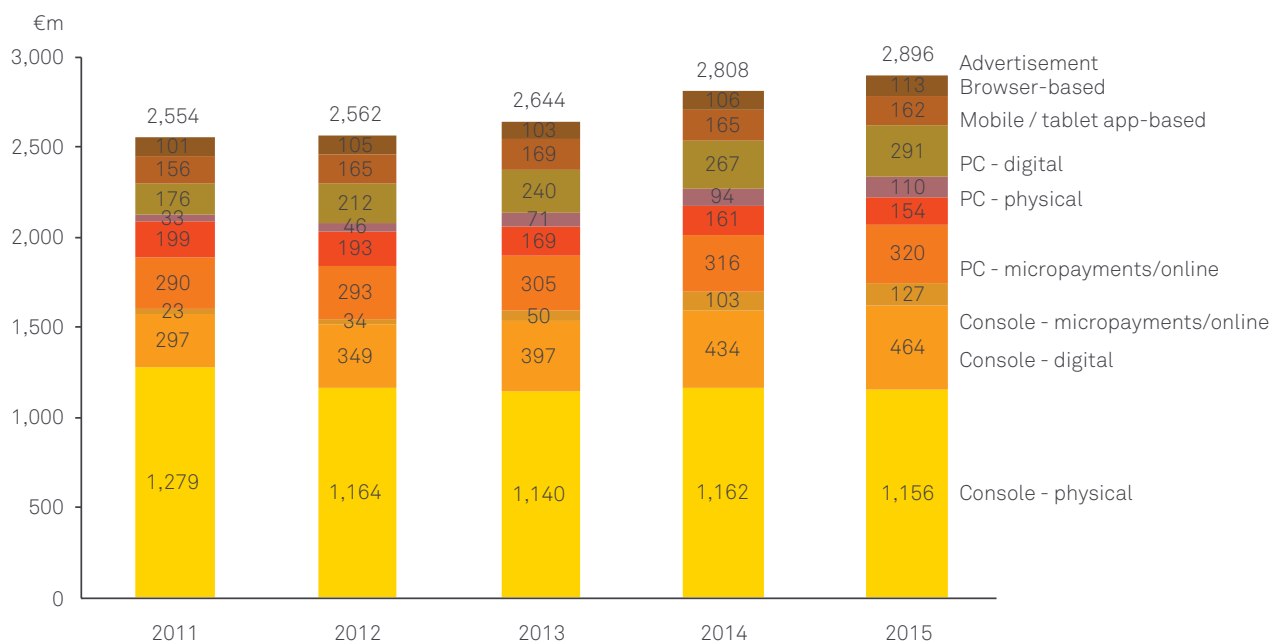
This section breaks out the revenue data for the video games industry, which we present in Part 7 of our report, by individual market.

Figure 5.29: Total video games revenue split by segment in Finland



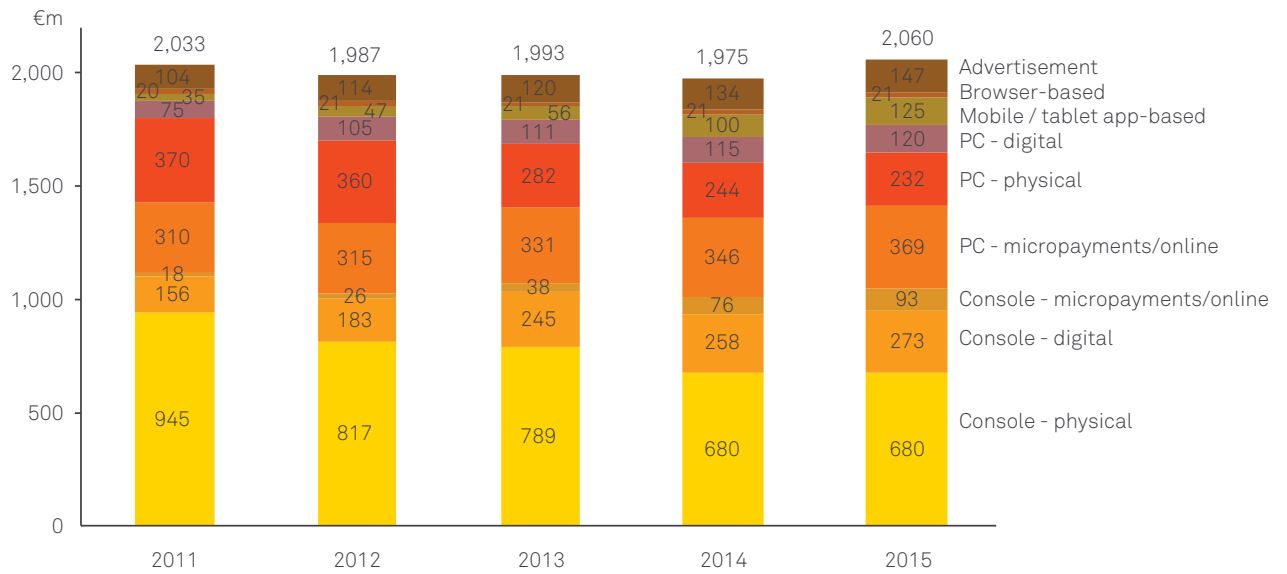
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.30: Total video games revenue split by segment in France



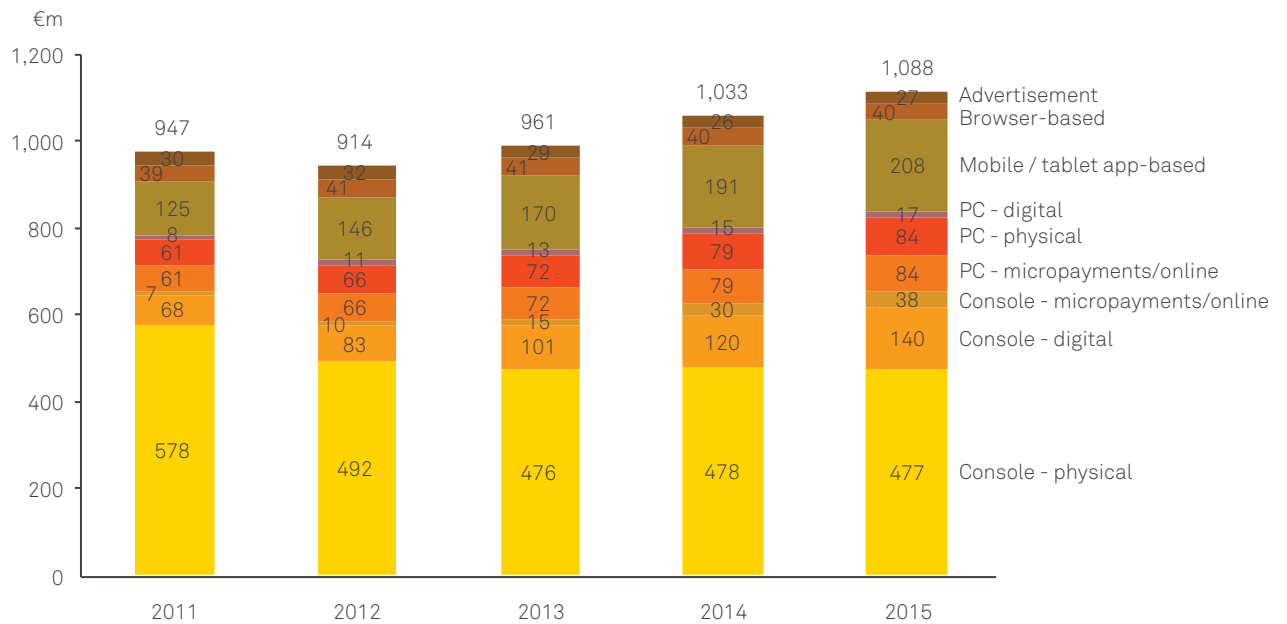
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.31: Total video games revenue split by segment in Germany



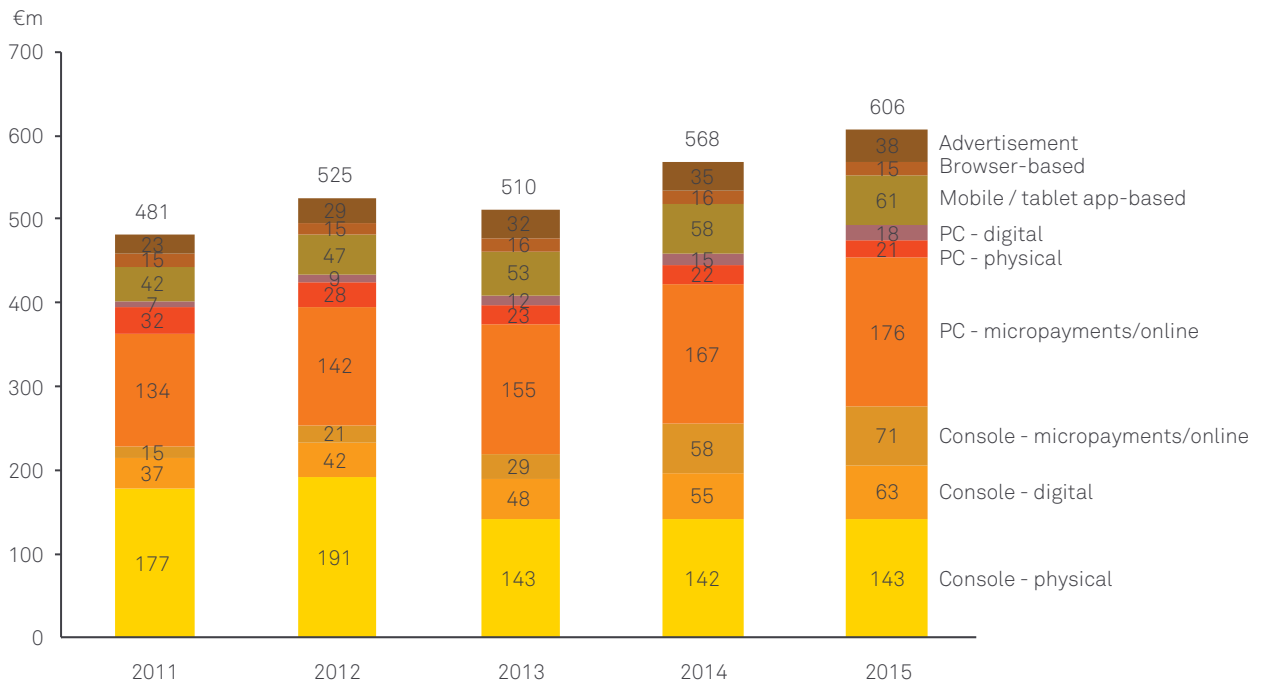
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.32: Total video games revenue split by segment in Italy



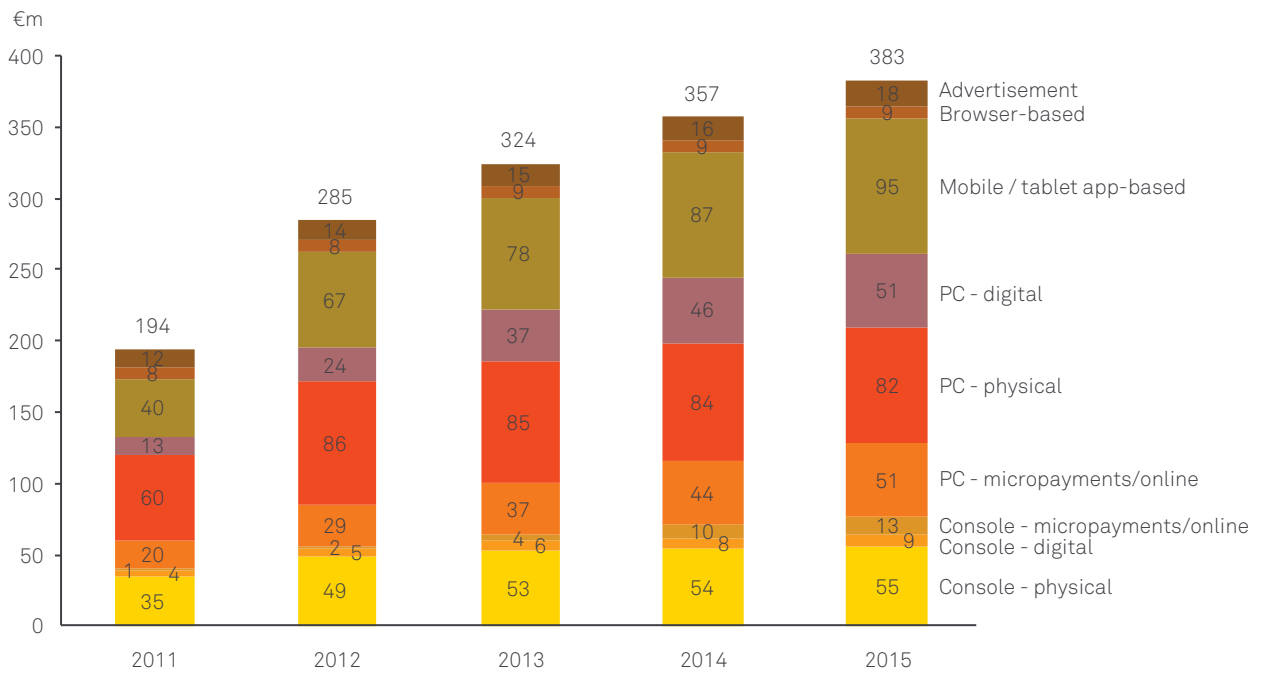
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.33: Total video games revenue split by segment in Netherlands



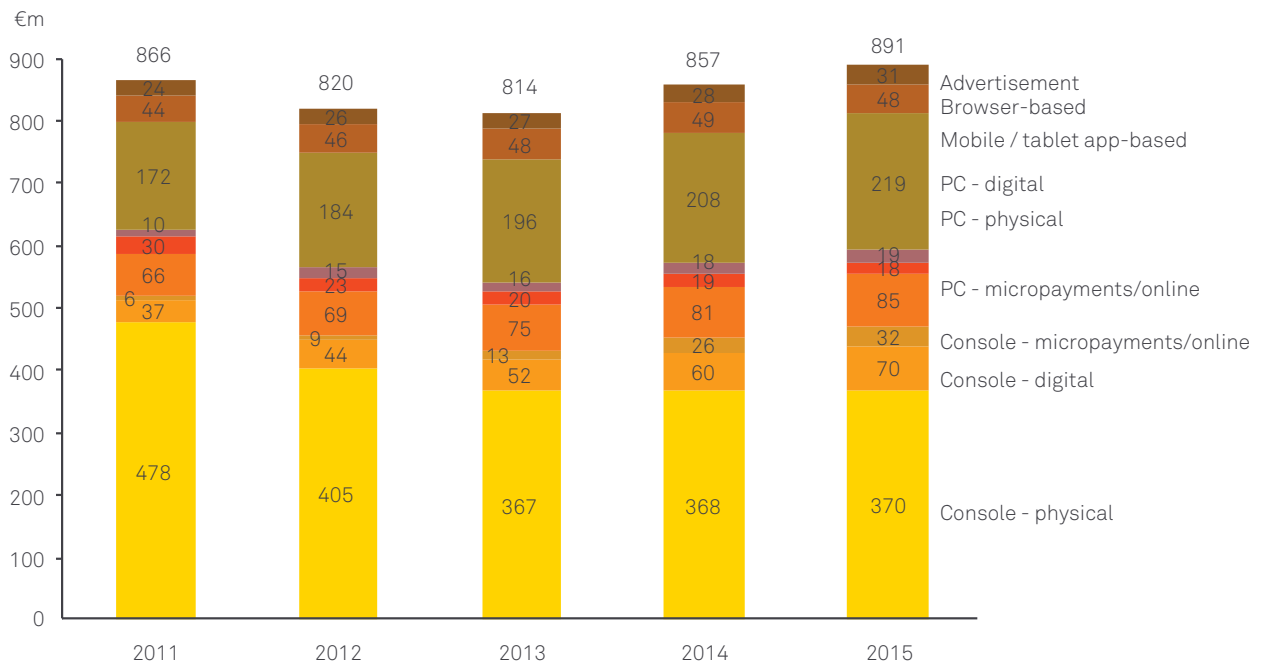
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.34: Total video games revenue split by segment in Poland



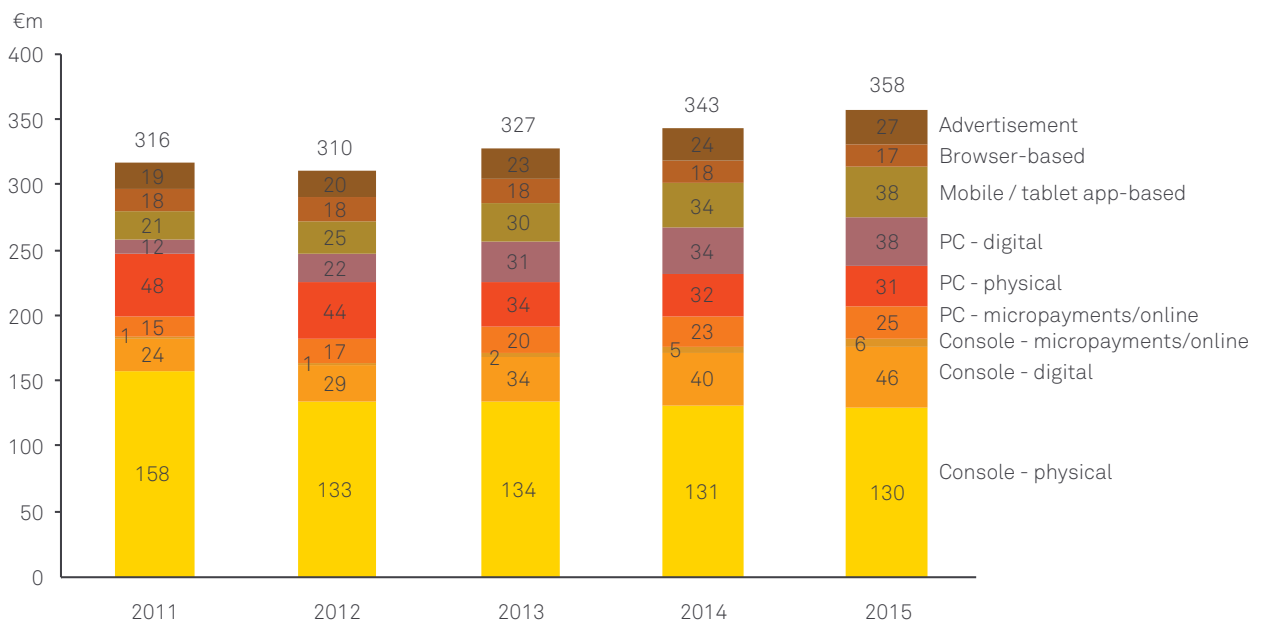
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.35: Total video games revenue split by segment in Spain



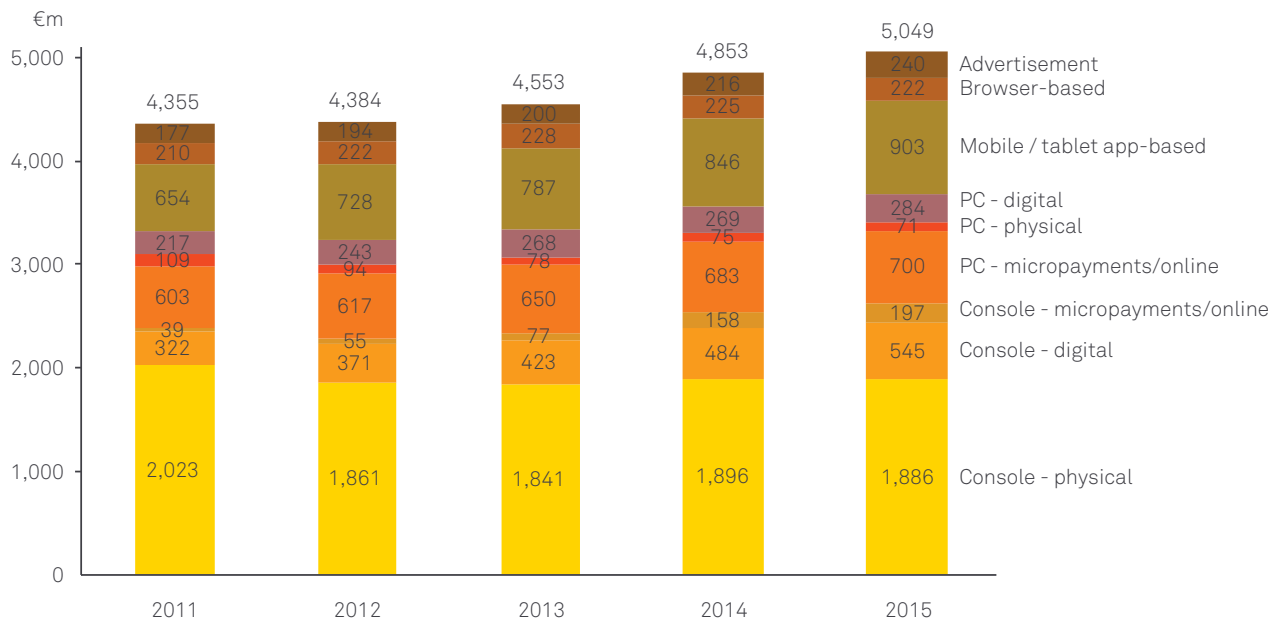
Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.36: Total video games revenue split by segment in Sweden



Source: PwC 'Global entertainment and media outlook: 2016-2020'

Figure 5.37: Total video games revenue split by segment in UK



Source: PwC 'Global entertainment and media outlook: 2016-2020'

6 Interviewees

To support our literature review and research into each of the creative industries, we conducted a programme of interviews. These discussions were designed to offer perspectives from individuals/organisations at different stages of the creative industry value chains, both traditional players and disrupters, enabled by the internet.

Organisation	Market	Description
TV, film and video		
Double Negative	UK	Visual effects company focused on high-end film and TV
Fremantle	Global	Content company which produces and distributes TV worldwide
Monterosa	UK	Creator of apps to facilitate fan interaction with TV programming and brands
YouTube	Global	Video-sharing platform owned by Google
YouView	UK	TV platform which enables access to FTA DTT, as well as catch up TV via a STB
Music		
Karaoke One	Italy	An app which enables users to record covers of songs and share them on social media
PRS	UK	The UK's leading music collecting society
Soundsgood	France	A music curation platform which enables users to create playlists and share them across multiple streaming platforms
Spotify	Sweden	Music streaming service with ad-supported and subscription models
Books		
Fairbooks	Italy	Online platform which enables writers of fanfiction to share their work, backed by authorization from the original creators
iClassics	Spain	Company which creates interactive versions of classic literature, incorporating illustration, animation and audio
Word Audio International	Sweden	Independent audiobook publisher
Video games		
Gamepix	Italy	A service to help video games developers convert their products to HTML5, and distribute them online
Ola & Olo	Poland	Video games developer, specialising in games for children
34 Big Things	Italy	Independent video games developer
Cultural institutions		
Google Arts & Culture	Global	Google's mobile app and website dedicated to arts and culture; creates digital experiences in collaboration with cultural institutions
Royal Opera House	UK	Home of the Royal Opera and Royal Ballet
Berlin Philharmonic Digital Concert Hall	Germany	The digital portal of the Berlin Philharmonic Orchestra
Other		
The Sharp Project	UK	Manchester-based hub providing facilities for creative digital businesses

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