

# Economic Value of the Screen Sector in Scotland in 2021

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CHARTERED ACCOUNTANTS



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## Table of Contents

<b>Executive Summary</b>	<b>iii</b>
<b>Key Findings</b>	<b>viii</b>
<b>1. Introduction</b>	<b>1</b>
1.1 Sector growth 2019 to 2021	1
1.2 Policy context	3
1.3 About this report	5
1.4 Summary of results	6
1.5 Approach and methodology	7
1.6 Report outline	10
<b>2. Production and development</b>	<b>11</b>
2.1 Overview	11
2.2 Development	11
2.3 Production	12
2.4 Economic impact	17
<b>3. Sales and distribution</b>	<b>18</b>
3.1 Turnover and direct employment	18
3.2 Economic impact	19
<b>4. Exhibition</b>	<b>20</b>
4.1 Overview	20
4.2 Cinemas	21
4.3 Film festivals	22
4.4 Summary	25
<b>5. TV broadcast</b>	<b>26</b>
5.1 Broadcasting support operations	26
5.2 Economic impact	27
<b>6. Screen tourism</b>	<b>28</b>
6.1 Annual visitors and spending 2019	28
6.2 Annual visitors and spending 2021	30
6.3 Economic impact	31
<b>7. Education, skills and talent development</b>	<b>32</b>
7.1 Higher education	33
7.2 Further education	33
7.3 Pre-career and in-career skills development	34
7.4 Economic impact	35
<b>8. Infrastructure</b>	<b>36</b>
8.1 Studio facilities	36
8.2 Economic impact	37
<b>9. Regional analysis</b>	<b>38</b>
<b>List of abbreviations</b>	<b>43</b>
<b>Appendix A: Data tables</b>	<b>44</b>
<b>Appendix B: Screen tourism methodology</b>	<b>45</b>
<b>Appendix C: MyEIA™ Model</b>	<b>51</b>

# Executive Summary

## Higher levels of film and TV production in Scotland helped drive Scotland's overall screen sector to higher levels of employment and gross value added in 2021

The total value of film and HETV production activity in Scotland more than doubled between 2019 and 2021, driving higher levels of employment and gross value added (GVA) impact for the screen sector within Scotland's economy in 2021, compared to 2019.

In total, an estimated £617.4 million was spent on the production of film, TV and other audiovisual content in Scotland in 2021, compared to £398.6 million in 2019, and increase of 55% compared to 2019 (Figure E - 1a). This included content made by Scotland-based producers, producers based outside of Scotland filming in Scotland and PSBs.

Over 80% of the £218.8 million net increase in production spending between 2019 and 2021 was driven by film and HETV production supported by UK tax relief, but also by higher levels of PSB-commissioned TV programming made without tax reliefs (Figure E - 1a). Inward film and HETV production increased by 110%, from £165.3 million in 2019 to £347.4 million in 2021. PSB-commissioned content increased from £196.6 million to £223.3 million over that period.

The sector development and strategic support work undertaken by Screen Scotland and the Scottish Government since 2018 either delivered or supported the delivery of much of the capacity necessary to meet the increase in demand. The opening of new or expanded studio facilities, particularly FirstStage Studios in Edinburgh and The Pyramids in West Lothian, enabled Amazon's *The Rig*, *Good Omens 2* and *Anansi Boys* to film their entire production in Scotland, filming on-location and in studio. These studio facilities have made Scotland an even more attractive place to film, opening just in time to catch the global post pandemic boom in production.

Screen Scotland's participation in the Screen Sector Taskforce, led by the British Film Institute (BFI), enabled early agreement of safe-work protocols with the UK and Scottish Governments and the restart of film and high-end TV (HETV) production in Scotland from the late winter of 2020. Investment in skills development work – again by Screen Scotland in partnership with broadcasters, video-on-demand (VOD) platforms and production companies – enabled higher investment in crew training across 2021, giving inward investment producers' increased confidence in Scotland's ability to meet demand. The *Outlander* Training Programme, Screen NETS and the *Good Omens* (supported by Amazon Studios and BBC Studios) were among the training initiatives co-funded by Screen Scotland in that year.

On a like-for-like basis (i.e. excluding the 'other TV production' segment, which was not included in the 2019 estimates), employment in Scotland's screen sector increased by 5.7%, from 10,280 full-time equivalents (FTEs) in 2019 to 10,870 FTEs in 2021 (Figure E - 1b), while GVA in Scotland's screen sector overall increased by 9.7% (Figure E - 1c). The headline figures – which include the impacts of the Covid-19 pandemic on Scotland's exhibition and film festival, and screen tourism sub-sectors – mask the magnitude of the post-pandemic growth in all areas of production, particularly inward investment film and HETV production. Between 2019 and 2021, Scotland's production and development sub-sector delivered a 38% increase in employment, alongside a 39% increase in GVA, on a like-for-like basis.

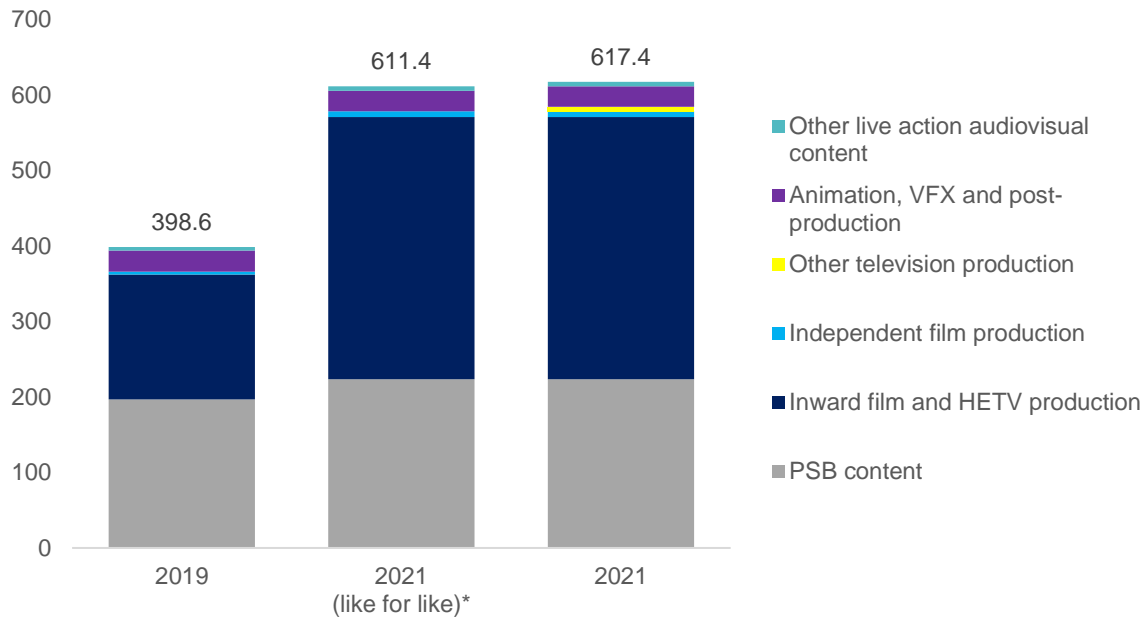
As both the global cinema industry and international tourism continue to recover to pre-pandemic levels, Scotland's own exhibition and film festivals, and screen tourism sub-sectors should also recover.<sup>1, 2</sup> With the higher levels of production and development activity observed in 2021, these recoveries could continue to propel Scotland's screen sector to higher levels of employment and GVA in 2023 if investment in production, skills, infrastructure and talent development is sustained at 2021/22 levels and continues to meet the increased demand.

<sup>1</sup> Mitchell, R. (2023) [Gower Street raises 2023 global box office projection to \\$32bn](#). *Gower Street Analytics*. 23 April.

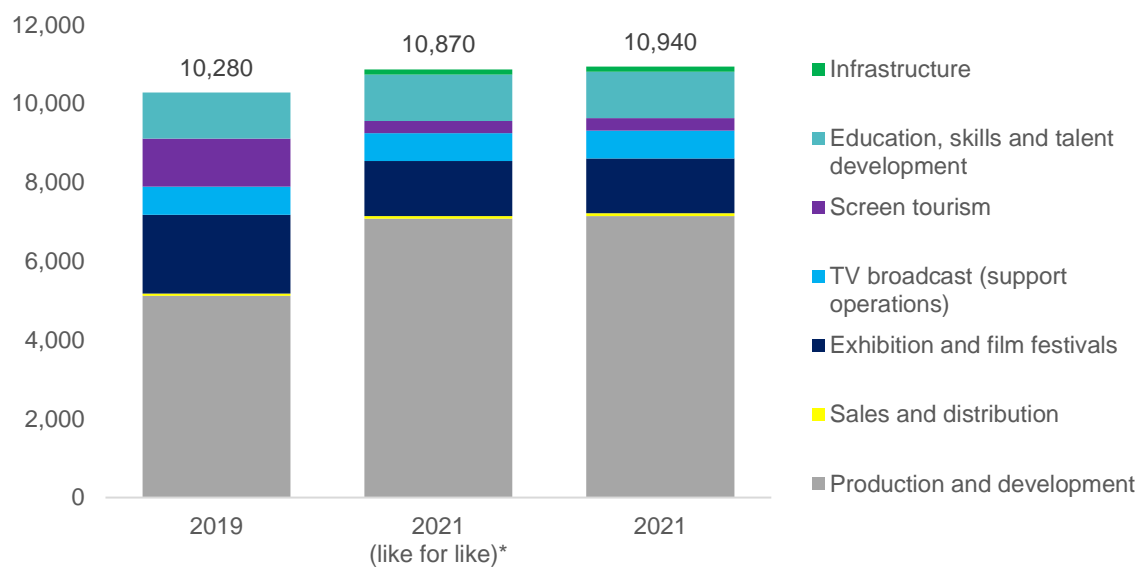
<sup>2</sup> Taylor, M. (2023) [Seeing the sights: Scotland's tourism sector sees signs of recovery](#). *Holyrood*. 8 June.

Figure E - 1 Growth in Scotland's screen sector, 2019 and 2021

a. Estimated spending on film, TV and audiovisual production (£ millions)

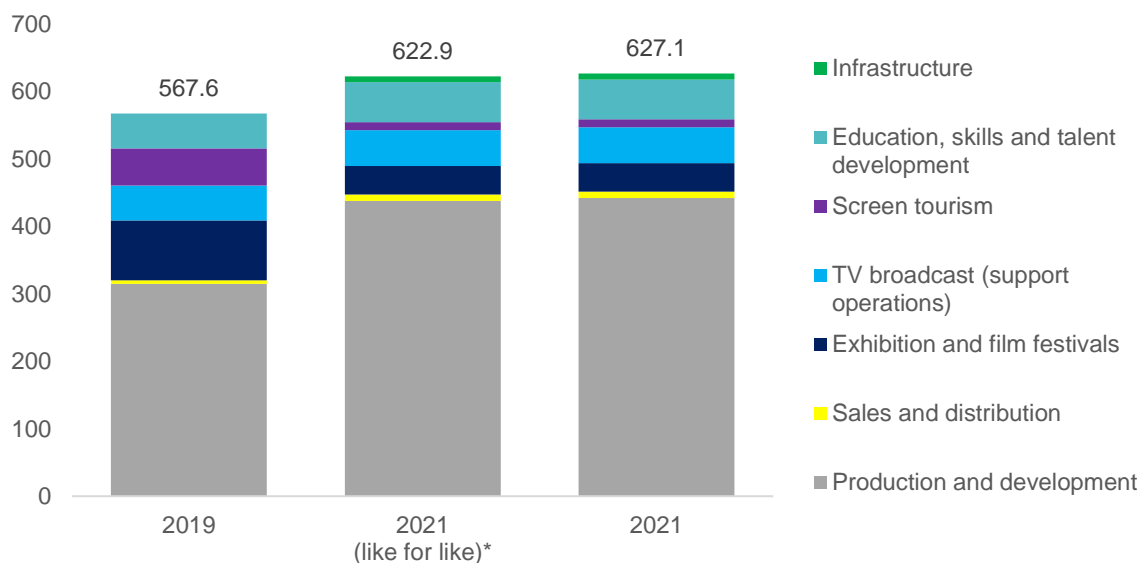


b. Employment (FTEs)



## Economic Value of the Screen Sector in Scotland 2021

### c. GVA (£ millions)



Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2021, 2022), Comscore, ONS, ABS, ASHE, IDBR, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

\* Excludes employment, GVA and production spending generated in the 'Other TV production' segment, which was not included in the 2019 estimates

## Scotland is home to a vibrant screen sector ecosystem benefitting from strong government commitment to its growth and success

Scotland remains home to an increasingly vibrant ecosystem of content creators, writers, independent producers, broadcasters and production companies creating a wide range of television programming and films for audiences within Scotland, across the UK and around the world. It is a home to a diverse independent film exhibition sector that includes long-standing film festivals, and Scotland also has several post-production facilities and animation studios of scale, specialising in both production and visual effects (VFX) work for both television and games. Since 2018, Scotland has had a dedicated screen agency in Screen Scotland, which is part of Creative Scotland.

Thanks to its rich built and natural environments Scotland has long been a popular location for the filming of inward-investment films produced by the global studios. The *James Bond*, *Harry Potter*, *Avengers*, *Batman*, *Indiana Jones* and *Fast & Furious* franchises have all filmed in Scotland in recent years. It is also home to the long-running TV series *Outlander*, *Shetland*, and *Location, Location, Location*, as well as newer shows such as *Traitors*, among many more.

Much of the television production in Scotland is enabled by the fact that it has an ecosystem of public service broadcasters (PSBs) based locally. There is BBC Scotland and MG Alba/BBC Alba. As the home to STV, Scotland is the only part of the UK with its own national 'affiliate' of ITV. Channel 4 also has a commissioning hub within Scotland.

The Scottish Government is committed to supporting the growth of Scotland's film and TV production sector. Beginning in 2017, it increased the funding for film and TV production and development. This was followed by the formation of Screen Scotland in August 2018.

As part of this commitment to grow the film and TV production sector as well as the wider screen sector in Scotland, Screen Scotland regularly monitors the contribution that the screen sector makes to Scotland's economy – where the screen sector has been defined as inclusive of **film and TV production and development; animation, VFX and post-production; film and TV content sales and distribution; film exhibition and festivals; TV broadcast; screen tourism; film and TV education, skills and talent development; and film and TV production facilities.**

This study follows our initial report on the [Economic Value of the Screen Sector in Scotland in 2019](#) (published in 2022). Like the 2019 report, this report covers film, TV and other audiovisual content, including television commercials. It does not cover the video games sector or online video production. In that regard, this report focuses on film and TV content that is intended for initial release in cinemas; on broadcast, multichannel or TV on-demand (TVOD) services; or subscription VOD (SVOD) services. Video content made primarily for video sharing platforms (e.g. YouTube or TikTok) may not be captured.

This study focuses on quantifying the overall **economic footprint** of the screen sector in Scotland – that is, the total number of people employed on an FTE basis and the monetary value of all economic activity within the screen sector as measured by GVA – rather than assessing the additional or net economic impact of the screen sector in Scotland.

### Scotland's screen sector generated 10,940 FTEs of employment in 2021

In total, the screen sector in Scotland generated an estimated 10,940 FTEs of employment for Scotland's economy in 2021 (Table E - 1). Of this total employment impact, the direct employment impact was 7,440 FTEs (up from 7,070 FTEs in 2019). These **direct impact** FTEs included the crew and cast employed on film and TV production projects and people employed at production companies, distributors, cinema exhibitors and film festivals, and at TV broadcasters in Scotland.

The direct impact also included people in those industries or sectors that benefit from screen sector spillovers, including screen tourism and screen education and training. These are two industries that lie outside the screen content value chain but still benefit from the creation of screen content, which ultimately generates demand for the products and services offered by these industries. In 2021 screen tourism was suppressed in Scotland, as it was elsewhere, by the global pandemic.

The infrastructure sub-sector, namely studio facilities, could also be considered a beneficiary of spillovers from the screen content value chain. In particular, rising levels of screen production in Scotland generate demand for the construction of new studio facilities – thereby creating a spillover for the construction and property development industries.

The sub-sectors that comprise both the screen sector value chain and the spillover industries all purchase supplies and services from other industries. Whilst some of these supply chain purchases are directed outside of Scotland, a very significant portion of these supply chains are located within Scotland. This type of economic impact is often referred to as the **indirect impact**. The impact of further re-spending of employment income by workers employed at both the direct and indirect phases of impact is often referred to as the **induced impact**. The screen sector generated an additional 3,500 FTEs of indirect and induced impact employment within Scotland in 2021. This excludes the indirect and induced impacts that would have been generated outside of Scotland.

The production and development of screen content accounted for the largest share of the screen sector's total employment impact. In 2021, it accounted for 7,150 FTEs of employment, or 65% of the sector's overall employment impact.

**Table E - 1 Employment impact generated by screen sector in Scotland, 2021 (FTEs)**

		Direct	Indirect/ Induced	Total
Screen content value chain	Production and development	4,570	2,580	7,150
	Sales and distribution	30	40	70
	Exhibition and film festivals	1,160	230	1,390
	TV broadcast (support operations)	400	310	710
Spillovers	Screen tourism	250	60	310
	Education, skills and talent development	960	220	1,180
	Infrastructure	70	60	130
<b>Total</b>		<b>7,440</b>	<b>3,500</b>	<b>10,940</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

Note: Figures may not sum to totals due to rounding

### The sector's GVA totalled £627 million in 2021

The monetary contribution that the screen sector makes to Scotland's economy can be measured through GVA. In 2021, the screen sector in Scotland generated a total GVA impact of £627.1 million (Table E - 2). Out of this total impact, £394.4 million was generated directly within the various sub-sectors of the screen sector value chain and the spillover industries.

As with employment, the production and development of screen content was the largest single source of GVA – contributing just over two-thirds of the sector's total and direct GVA. In 2021, production and development accounted for £442.1 million in total GVA, including £267.2 million in direct GVA.

**Table E - 2 GVA impact generated by screen sector in Scotland, 2021 (£ millions)**








		Direct	Indirect/ Induced	Total
Screen content value chain	Production and development	267.2	175.0	442.1
	Sales and distribution	7.3	2.4	9.8
	Exhibition and film festivals	29.3	12.6	41.9
	TV broadcast (support operations)	31.4	22.0	53.4
Spillovers	Screen tourism	8.0	3.6	11.7
	Education, skills and talent development	45.6	13.6	59.2
	Infrastructure	5.4	3.5	8.9
<b>Total</b>		<b>394.4</b>	<b>232.7</b>	<b>627.1</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

Note: Figures may not sum to totals due to rounding



## Key Findings

Economic Value* of the Screen Sector in Scotland			
	2019	2021	
	<b>10,280 FTEs</b> <b>£567.6m GVA</b>	<b>10,940 FTEs</b> <b>£627.1m GVA</b>	<b>▲</b>
 Production and development	<b>5,120 FTEs</b> <b>£315.1m GVA</b>	<b>7,150 FTEs</b> <b>£442.1m GVA</b>	<b>▲</b>
 Sales and distribution	<b>60 FTEs</b> <b>£5.0m GVA</b>	<b>70 FTEs</b> <b>£9.8m GVA</b>	<b>▲</b>
 TV broadcast	<b>710 FTEs</b> <b>£51.8m GVA</b>	<b>710 FTEs</b> <b>£53.4m GVA</b>	<b>▲</b>
 Education, skills and talent development	<b>1,170 FTEs</b> <b>£51.8m GVA</b>	<b>1,180 FTEs</b> <b>£59.2m GVA</b>	<b>▲</b>
 Infrastructure	--	<b>130 FTEs</b> <b>£8.9m GVA</b>	<b>▲</b>
 Exhibition and film festivals	<b>2,000 FTEs</b> <b>£88.9m GVA</b>	<b>1,390 FTEs</b> <b>£41.9m GVA</b>	<b>▼</b>
 Screen tourism	<b>1,220 FTEs</b> <b>£55.0m GVA</b>	<b>310 FTEs</b> <b>£11.7m GVA</b>	<b>▼</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

Note: Figures may not sum to totals due to rounding

\* Total economic contribution, including direct, indirect and induced impacts

# 1. Introduction

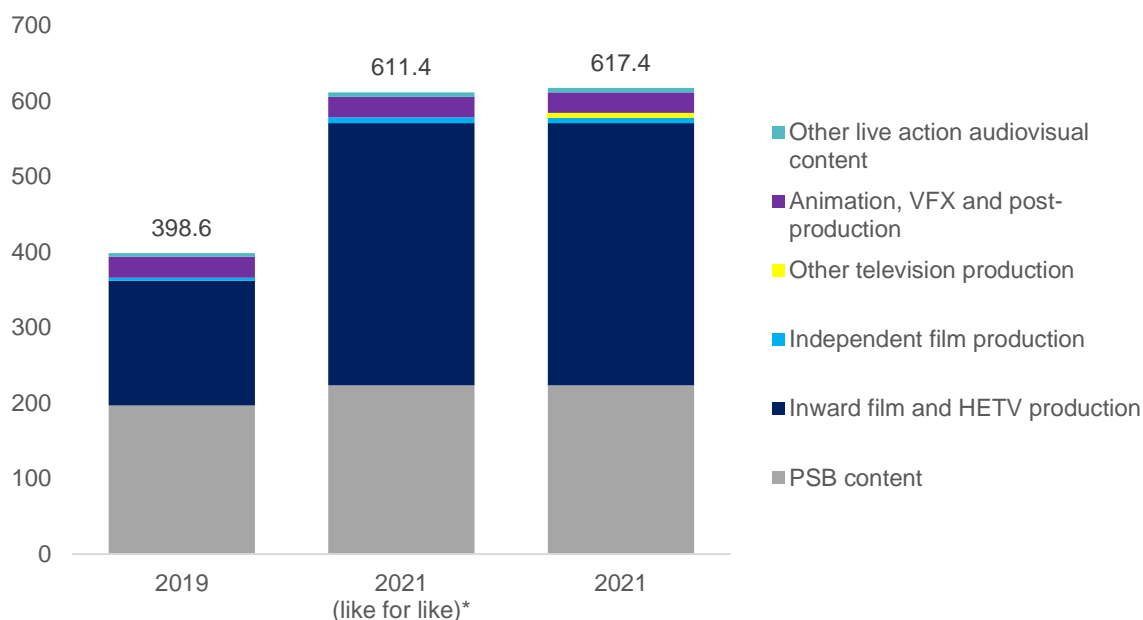
## 1.1 Sector growth 2019 to 2021

The [Economic Value of the Screen Sector in Scotland 2019](#), published by Screen Scotland in June 2022, found that audiovisual production spending in Scotland was an estimated £398.7 million by 2019. Like the rest of the UK – and globally for that matter – Scotland’s audiovisual production industry experienced a pause in 2020 due to the Covid-19 pandemic. However, this new study, **Economic value of the Screen Sector in Scotland 2021**, shows that production spending not only rebounded in 2021, but also grew to a record £617.4 million (Figure 1).

This record level of spending on film, TV and other audiovisual content production in Scotland in 2021 included content made by Scotland-based producers, producers based outside of Scotland filming in Scotland and public service broadcasters (PSBs). Over 80% of the £218.8 million net increase in production spending between 2019 and 2021 was driven by inward film and HETV production supported by UK tax relief, but also by higher levels of PSB-commissioned TV programming made without tax reliefs. Inward film and HETV production increased by 110%, from £165.3 million in 2019 to £347.4 million in 2021. PSB-commissioned content increased from £196.6 million to £223.3 million over that period (Figure 1).

This strong growth in the production and development sub-sector helped drive employment and gross value added (GVA) higher across Scotland’s overall screen sector in 2021, compared to 2019. On a like-for-like basis (i.e. excluding the ‘other TV production’ segment, which was not included in the 2019 estimates), employment in Scotland’s screen sector increased by 5.7%, from 10,280 full-time equivalents (FTEs) in 2019 to 10,870 FTEs in 2021 (Figure 2a), while GVA in Scotland’s screen sector overall increased by 9.7% (Figure 2b).

**Figure 1 Estimated spending on film, TV and audiovisual production in Scotland (£ millions)**



Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2021, 2022), Comscore, ONS, ABS, ASHE, IDBR, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

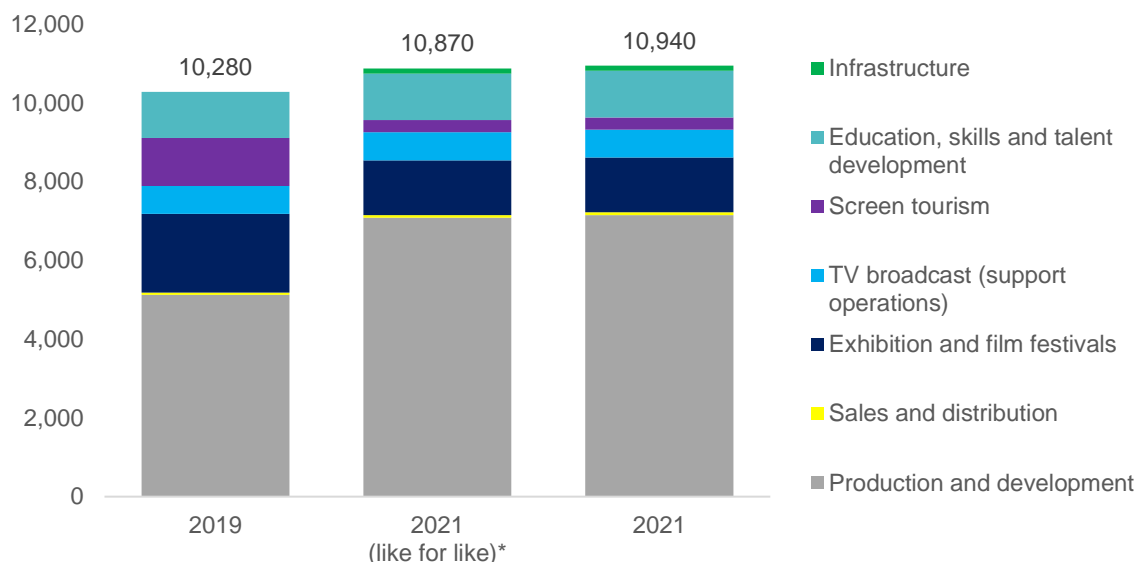
\* Excludes employment, GVA and production spending generated in the ‘Other TV production’ segment, which was not included in the 2019 estimates

## Economic Value of the Screen Sector in Scotland 2021

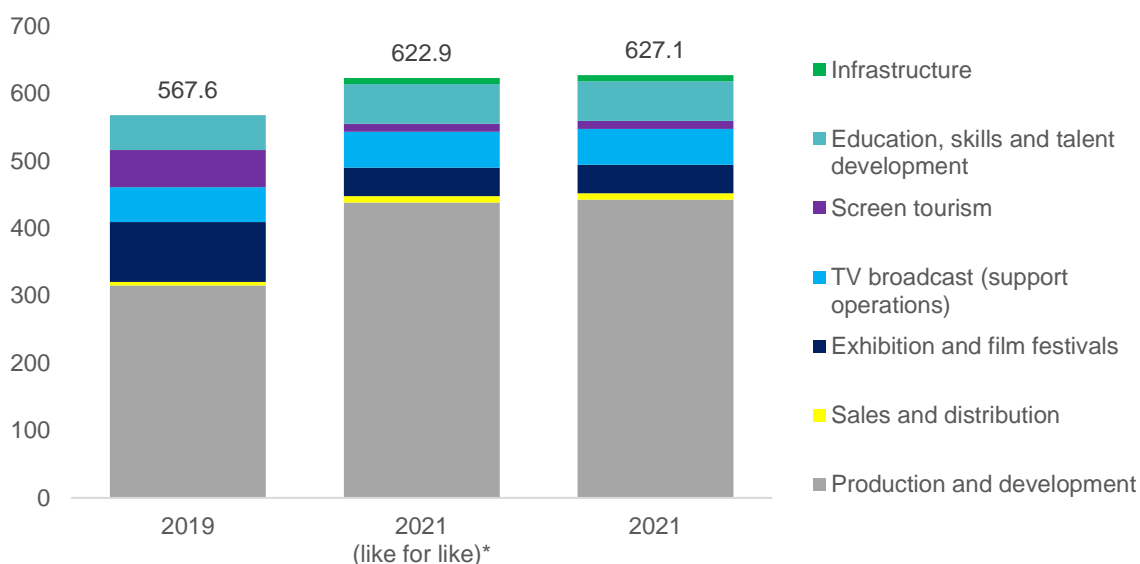
On the surface, these may seem like good, if moderate, rates of sector growth, but the headline figures – which include the impacts of the Covid-19 pandemic on Scotland’s exhibition and film festival, and screen tourism sub-sectors – mask significant post-pandemic growth in all areas of production, particularly inward investment film and HETV production. Indeed, between 2019 and 2021, Scotland’s production and development sub-sector delivered a 38% increase in employment, alongside a 39% increase in GVA, on a like-for-like basis.

**Figure 2 Growth in Scotland’s screen sector, 2019 and 2021**

### a. Employment (FTEs)



### b. GVA (£ millions)



Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2021, 2022), Comscore, ONS, ABS, ASHE, IDBR, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

\* Excludes employment, GVA and production spending generated in the ‘Other TV production’ segment, which was not included in the 2019 estimates

The total value of inward investment film and HETV production activity in Scotland more than doubled between 2019 and 2021 (see Table 6; Section 2.3.2). In large part, this was due to the opening of new or expanded studio facilities, particularly FirstStage Studios in Edinburgh, where Amazon’s *The*

*Rig* and *Anansi Boys* were filmed; and the expansion of the studio facilities at the Pyramids Business Park in West Lothian, home to another Amazon HETV series, *Good Omens 2*. These studio facilities have made Scotland an even more attractive place to film, opening just in time to catch the global post pandemic boom in production.

As both the global cinema industry and international tourism continue to recover to pre-pandemic levels, Scotland's own exhibition and film festivals, and screen tourism sub-sectors should also recover.<sup>3, 4</sup> With the higher levels of production and development activity observed in 2021, these recoveries could continue to propel Scotland's screen sector to higher levels of employment and GVA in 2023, if investment in skills, infrastructure and talent development continues to meet the increased demand.

## 1.2 Policy context

The creative industries have been one of the key engines of the UK economy over the past 10-15 years. According to statistics published by the Department for Culture, Media and Sport (DCMS), in the decade leading up to the start of the Covid-19 pandemic (i.e. 2010 to 2019), GVA in the creative industries grew by 32%, which was more than 1.5 times the 20% growth experienced by the overall UK economy.

During the pandemic, the growth of the creative industries continued to outpace that of the overall economy. Between April 2020 and March 2023, GVA in the creative industries grew by 15.1%, or twice as fast as the overall UK economy (7.7%).<sup>5</sup> By 2021, the UK's creative industries were worth over £100 billion and employed over 2 million people – more than the UK's life sciences, automotive manufacturing, aerospace and the oil and gas sectors combined.<sup>6</sup>

The latest published statistics indicate that there were over 15,000 businesses operating in Scotland's creative industries in 2020, employing nearly 80,000 people and just under £4.4 billion in GVA.<sup>7</sup>

The UK government clearly recognises how the creative industries and the screen sector in particular are economic engines – driving exports and high-value job creation. For that reason, the creative industries are now one of the current UK Prime Minister's five priority sectors, along with digital technology, green industries, life sciences, and advanced manufacturing. Indeed, in May 2023, UK government announced that it was significantly increasing its funding of the creative industries in an effort to help them expand by a further 50% by 2030.

The Scottish government also views the creative industries as vital to Scotland's economy. Scotland's Economic Strategy published in March 2022 identifies the creative industries as one of the key industries of future growth for Scotland.<sup>8</sup>

Within Scotland and across the UK, the screen industries are one of the most important contributors to the creative industries' recent growth. According to the British Film Institute (BFI), the combined value of spending on the production of films and high-end TV programmes grew at an annual average rate of 25.8% between 2013 and 2022 and reached a record £6.3 billion in that year (Figure 3).

All indications are that film and TV production in the UK should continue to grow. This sustained growth in film and TV production reflects not only the UK's talented filmmakers, crews and performers, and world-class infrastructure, but also central government's ongoing commitment to ensuring that the UK production sector is globally competitive.

<sup>3</sup> Mitchell, R. (2023) [Gower Street raises 2023 global box office projection to \\$32bn](#). *Gower Street Analytics*. 23 April.

<sup>4</sup> Taylor, M. (2023) [Seeing the sights: Scotland's tourism sector sees signs of recovery](#). *Holyrood*. 8 June.

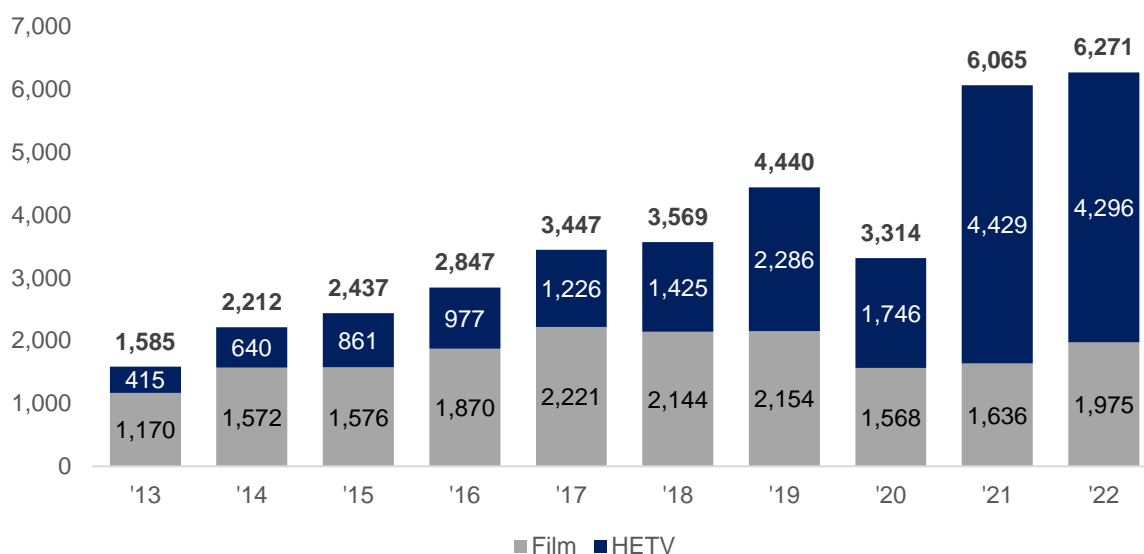
<sup>5</sup> DCMS (2023) [DCMS Economic Estimates: Monthly Gross Value Added for DCMS Sectors and subsectors](#). 17 May.

<sup>6</sup> Frazer, L. (2023) [Lucy Frazer's speech at the Enders Media & Telecoms Conference](#). 18 May.

<sup>7</sup> Scottish Government (2022) [Scottish Annual Business Statistics 2020](#). 30 August.

<sup>8</sup> Scottish Government (2022) [Scotland's National Strategy for Economic Transformation](#). March. pp. 23-24.

**Figure 3 UK expenditures on production supported by Film Tax Relief and High-End TV Tax Relief (£ millions)**



Source: BFI

The Scottish Government is committed to supporting the growth of Scotland’s film and TV production sector. Beginning in 2017, it significantly increased the funding for film and TV production and development. This was followed by the formation of Screen Scotland in August 2018.<sup>9</sup>

The [Economic Value of the Screen Sector in Scotland 2019](#) found that film, TV and audiovisual production spending in Scotland was an estimated £398.6 million by 2019. This new study shows that production spending had not only rebounded from the economic effects of the Covid-19 pandemic in 2020 but grew to an estimated £617.6 million by 2021 (Figure 1). For the Scottish Government and Screen Scotland, the over-arching goal is to further increase not only the level of annual spending on audiovisual production, but also economic activity and employment across Scotland’s entire screen sector, so that by 2030 it can be a £1 billion industry.

### Box 1 What is GVA?

GVA is the standard measure used by the Office for National Statistics (ONS) and other national statistical agencies for measuring the monetary value of economic activity and the economic performance of industries.

Unlike turnover, which measures the income collected by a firm or industry from the sale of its final product or service, GVA essentially measures the value ‘added’ by that firm or industry to the inputs purchased from other firms or industries in order to create its final products or services for sale.

GVA can be calculated by either summing the value of payments to workers and suppliers of capital or deducting the value of purchase of goods, materials and services from total turnover.

GVA provides a much more indicative measure of economic activity, particularly when summing activity across different industries. GVA removes the double counting inherent in other measures such as turnover. When a firm’s turnover is summed with the turnover of its upstream suppliers, the turnover of the latter is counted twice. However, because GVA measures the unduplicated value of economic activity, there is no such double counting.

<sup>9</sup> Screen Scotland (2019). *Business Plan 2019/20*. p. 5.

## 1.3 About this report

As part of its commitment to grow the film and TV production sector as well as the wider screen sector in Scotland, Screen Scotland commissioned Saffery Champness LLP and Nordicity to prepare a study of the [Economic Value of the Screen Sector in Scotland 2019](#), which was published in June 2022.

The objective of the study was to quantify the contribution that the screen sector made to Scotland's economy – where the screen sector has been defined as inclusive of film and TV production and development; animation, visual effects (VFX) and post-production; film and TV sales and distribution; TV broadcast; film exhibition and festivals; screen tourism; film and TV education, skills and talent development; and film and TV production facilities. The study only covered film, TV and other audiovisual content; it did not cover the video games sector, nor did it include all of the commercials/corporate sector.

The following report, **Economic Value of the Screen Sector in Scotland 2021**, provides an update to the 2019 report. In general, this report follows the same sector definition and framework as was used for the 2019 report, but expands in a few respects.

- Additional data provided by Screen Scotland's Screen Commission has allowed for a more comprehensive estimate of production spending associated with TV commercials and advertising.
- Data provided by the Screen Commission has also allowed for the inclusion of estimates of spending on the production of television content commissioned by SVODs or commercial multichannel services that was not eligible for tax relief, and therefore, would not already be captured by production statistics compiled by BFI or Ofcom for the PSBs.
- Estimates of the impact of capital investment in studio infrastructure have been added.

We note that the Scottish Annual Business Statistics (SABS) does provide annual industry-by-industry data on employment, turnover, GVA and compensation of employment (COE). According to the SABS, the film, video, and TV and radio broadcasting sector employed 6,000 people in 2020 (the most recent of available published SABS data at an industry level), earned £319 million in turnover and generated £145 million in GVA in that year. For several reasons, however, the SABS does not present a representative picture of the full economic activity generated by the screen sector.

- Because the SABS is only published for four-digit (or fewer) Standard Industrial Classification (SIC) codes, it is not possible to, for example, untangle TV broadcasting from radio broadcasting.
- Notably, the SIC-based SABS only captures the economic activity generated by businesses based in Scotland and fails to account for economic activity generated by the inward production of audiovisual content made by production companies based outside of Scotland.
- Finally, data based strictly on SIC codes would not necessarily capture the whole range of economic activity in the screen sector in so far as that activity falls outside of the SICs specific to the audiovisual sector – for example, screen tourism.

In light of the above, the following study draws upon a variety of different sources – the Annual Business Survey (ABS), other data from the Office for National Statistics (ONS), the BFI, Ofcom, industry surveys and interviews – to provide a comprehensive estimate of the contribution that the entire screen sector value chain and its spillover impacts – particularly screen tourism and screen education and skills development – make to Scotland's economy.

## 1.4 Summary of results

The screen sector in Scotland generated an estimated 10,940 FTEs of employment for Scotland's economy in 2021 (Table 1).

Of this total employment impact, the direct employment impact was 7,440 FTEs. These direct impact FTEs included the production teams employed directly in film and TV production and people employed at production companies, distributors, cinema exhibitors and film festivals, and at TV broadcasters in Scotland. The Scottish screen sector also generated 3,500 FTEs of indirect and induced impact employment within Scotland in 2021.

The production and development of screen content accounted for the largest share of the screen sector's total employment impact. In 2021, it accounted for 7,150 FTEs of employment, or 65% of the sector's overall employment impact. This is up from a 50% share in 2019.

The exhibition and festivals sub-sector (1,390 FTEs); as well as and the education, skills and talent development (1,180 FTEs) were also significant sources of employment impact.

**Table 1 Employment impact generated by screen sector in Scotland, 2021 (FTEs)**

		Direct	Indirect/ Induced	Total
Screen content value chain	Production and development	4,570	2,580	7,150
	Sales and distribution	30	40	70
	Exhibition and film festivals	1,160	230	1,390
	TV broadcast (support operations)	400	310	710
Spillovers	Screen tourism	250	60	310
	Education, skills and talent development	960	220	1,180
	Infrastructure	70	60	130
<b>Total</b>		<b>7,440</b>	<b>3,500</b>	<b>10,940</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

Note: Figures may not sum to totals due to rounding

In 2021, the screen sector in Scotland generated a total GVA impact of £627.1 million for Scotland's economy (Table 2). Out of this total impact, £394.4 million was generated directly within the various sub-sectors of the screen sector value chain and the spillover industries.

As with employment, the production and development of screen content was the largest single source of GVA – contributing just over 70% of the sector's total and direct GVA. In 2021, production and development accounted for £442.1 million in total GVA and £267.2 million in direct GVA.



**Table 2 GVA impact generated by screen sector in Scotland, 2021 (£ millions)**

		Direct	Indirect/ Induced	Total
Screen content value chain	Production and development	267.2	175.0	442.1
	Sales and distribution	7.3	2.4	9.8
	Exhibition and film festivals	29.3	12.6	41.9
	TV broadcast (support operations)	31.4	22.0	53.4
Spillovers	Screen tourism	8.0	3.6	11.7
	Education, skills and talent development	45.6	13.6	59.2
	Infrastructure	5.4	3.5	8.9
<b>Total</b>		<b>394.4</b>	<b>232.7</b>	<b>627.1</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media  
 Note: Figures may not sum to totals due to rounding

Although the exhibition and film festivals, and screen tourism sub-sectors were negatively affected by the Covid-19 pandemic, the strong growth in the production and development sub-sector – particularly in film and TV production – helped drive employment and GVA higher in Scotland’s screen sector in 2021 (compared to 2019). On a like-for-like basis (i.e. excluding the ‘other TV production’ segment, which was not included in the 2019 estimates, employment increased by 5.7%, from 10,280 FTEs to 10,870 FTEs (Figure 2a). Furthermore, if exhibition and film festivals, and screen tourism are excluded from the sector total, the sector’s total employment impact increased by 30% between 2019 and 2021.<sup>10</sup>

## 1.5 Approach and methodology

To prepare this study, originally for the 2019 report, we collaborated with Screen Scotland to develop an over-arching framework for the definition of the screen sector and the key sub-sectors for inclusion in the study. A combination of desk research and primary research was then used to gather the data to derive estimates of production spending, business activity, employment and GVA across the various sub-sectors of the screen sector.

### 1.5.1 Definition of screen sector

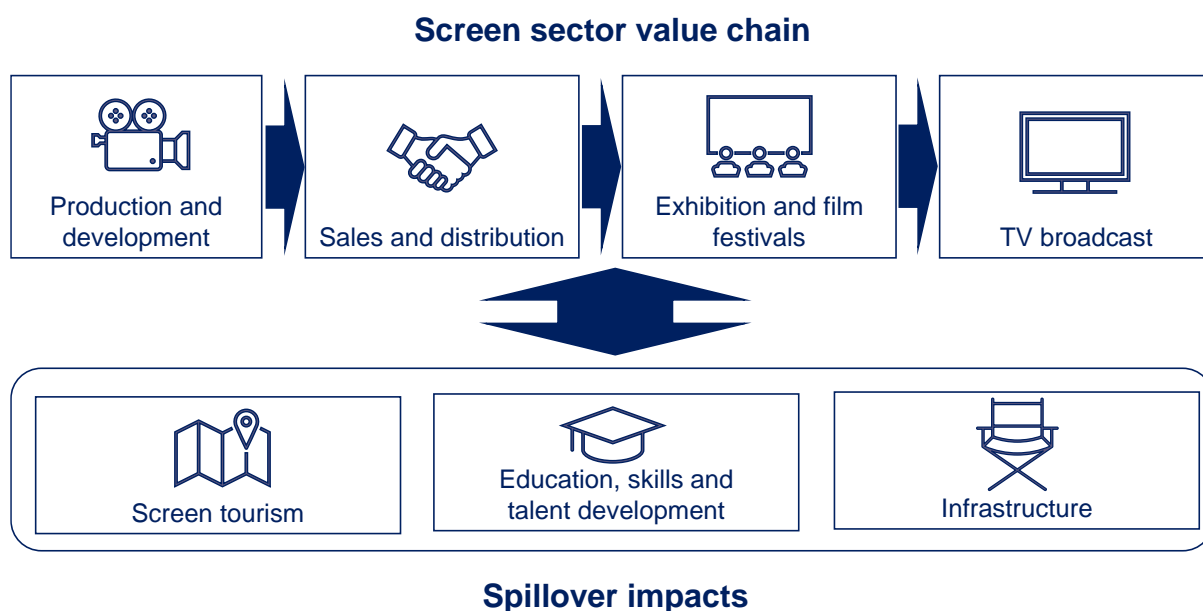
As noted above, this study analyses the economic contribution of both the screen sector value chain and the wider impacts that fall outside of that value chain – referred to as spillover impacts in this report. In that regard, the study follows the framework outlined in Figure 4.

With respect to the screen sector value chain, the analysis covers: (i) the production and development of film and TV content; (ii) the sales and distribution of screen content, (iii) the exhibition sub-sector, including cinemas and film festivals, and (iv) the TV broadcast sub-sector within Scotland. This value chain and the various sub-sector components of it trace the path of screen content: from its formulation as an idea or screen-based story to the points at which it is made available to audiences – either at festival screenings, in cinemas, on television or via online subscription video on demand (SVOD) platforms.

<sup>10</sup> Increase from 7,060 FTEs to 9,170 FTEs. Like-for-like 2019 figure of 9,170 FTEs excludes 70 FTEs associated with other TV production, which was not part of the 2019 tabulations.



Figure 4 Framework for screen sector economic contribution analysis



The screen content value chain’s impact also extends into the supply chains that provide supplies and services to each stage of the value chain. For example, the production of film and TV content stimulates demand, income and employment within a variety of supplier industries such as timber and other building materials, transport, catering and accommodation.

Outside of this screen content value chain, the screen sector can also stimulate economic activity elsewhere in the Scottish economy. Firstly, Scotland’s tourism industry benefits from screen tourism – as people from inside and particularly outside of Scotland visit locations featured in films and TV programmes made in Scotland or about places in Scotland.

The provision of education, skills-training and talent-development programmes related to the screen sector also generates additional income and employment for public and private education and training institutions and organisations within Scotland. Finally, the construction industry within Scotland benefits when screen sector production stimulates the development of studio facilities (i.e. infrastructure) within Scotland.

### 1.5.2 Desk research

The desk research consisted of the review and compilation of data and other information supplied by Screen Scotland and Screen Scotland’s Screen Commission and sourced from the BFI, ONS, Ofcom, the annual reports of the public service broadcasters (PSBs), VisitScotland, Companies House filings and D&B Hoovers.

**Screen Scotland:** Data from Screen Scotland’s funding awards, as well as the cost reports Screen Scotland received from funded projects, were used to estimate the total value of production and development spending supported by Screen Scotland. The analysis focused on estimating the total production spending on projects that started principal photography in 2021, regardless of when they received funding from Screen Scotland.

**Screen Commission:** The Screen Commission (as part of Screen Scotland) provided data on the number of filming days for projects supported by Film Tax Relief (FTR) or High-End Tax Relief (HETR). These filming days data were combined with a new rate card developed for BFI’s *Screen Business 2021* to estimate the total spending on production in Scotland (supported by FTR or HETR), where spending data was not otherwise available from Screen Scotland.

**BFI:** Certain data for cinema admissions was sourced from the BFI. The BFI's new production daily spending rate card was also used to estimate total spending on FTR and HETR production Scotland, where spending data was not available from Screen Scotland.

**ONS:** Data was sourced from various ONS surveys, including the ABS, Annual Survey of Hours and Earnings (ASHE) and Business Register and Employment Survey (BRES) to estimate the economic contribution of certain screen sub-sectors or develop other assumptions for estimating employment, COE or GVA within certain screen sub-sectors.

**Ofcom:** Data from the *Media Nations 2022 Scotland* report (which included data for 2021) and *Made-Outside-London Register* were used to estimate TV production in Scotland, identify TV projects made in Scotland and production companies operating in Scotland.

**Annual reports of PSBs:** Data from the annual reports published by BBC, STV, Channel 4, MG Alba and ITV<sup>11</sup> was used to estimate the PSBs' spending on TV production and broadcasting operations in Scotland.

**VisitScotland:** Certain data on visitors to Scotland and admissions to castles and other monuments in Scotland was used to model the economic contribution from screen tourism.

**Companies House and D&B:** In some cases, turnover, employment and other financial data for specific companies operating in Scotland's screen sector was sourced from public accounts available from Companies House or D&B Hoovers.

### 1.5.3 Primary research

The primary research consisted of a survey of production companies and consultation interviews with a wide range of stakeholders within the Scotland's screen sector.

In collaboration with Screen Scotland, an online survey of production companies was conducted between August 2022 and January 2023. The main purpose of the survey was to collect data on production activity in 2021 that would not otherwise be captured by data available from Screen Scotland, BFI, Ofcom or the PSBs. The online survey was also used to gather data on development and distribution – two segments of the screen content value chain for which comprehensive data is not necessarily available from other sources. Screen Scotland invited over 200 production companies to participate in the online survey research. A total of 54 production companies submitted completed responses to the survey. Crucially, several of the largest production companies in Scotland submitted survey responses.

### 1.5.4 Economic impact modelling

The data collected through the desk and primary research was used in combination with Nordicity's MyEIA™ Model to generate estimates of economic impact in terms of full-time equivalent (FTE) employment, COE and GVA. The general MyEIA™ Model is based on the input-output tables and other economic statistics published by ONS. The MyEIA™ Model used for this study was based on the input-output tables published by the Scottish Government for Scotland's economy.

The bespoke nature of the MyEIA Model™ means that it can provide reliable estimates for any industry, even if that industry is not among the 98 industries that comprise the Scottish Government's 2019 supply and use tables.<sup>12</sup> With detailed data on expenditures within an industry or any type of economic shock, the MyEIA Model™ can generate estimates of direct, indirect and induced economic impacts (see Box 2 for definitions). A more detailed description of the MyEIA™ Model can be found in Appendix C.

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<sup>11</sup> Data for Channel 5 was sourced from Ofcom, *Media Nations 2020 Scotland* report.

<sup>12</sup> At the time of writing, the Scottish government's 2019 supply and use tables (published in October 2022) were the latest years available.

### Box 2 Types of economic impact

**Direct economic impact** refers to the employment, COE and GVA generated directly within the screen sub-sectors in Scotland.

**Indirect economic impact** refers to the increased employment, COE and GVA experienced by the businesses located in Scotland that provide supplies and services to businesses and other organisations operating in the screen sub-sectors.

**Induced economic impact** refers to the increased employment, COE and GVA experienced across the wider Scotland economy, when workers employed on account of the direct and indirect impacts proceed to spend their earnings within Scotland on purchases of consumer goods and services.

**Spillover impacts** occur when industries outside of the screen sector value chain (e.g. the tourism sector) benefit from screen content. For example, screen tourism can generate additional spending on accommodation, meals, transport and shopping within Scotland's economy, thereby raising employment, COE and GVA.

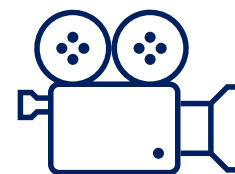
## 1.6 Report outline

The report has been organised to correspond with the screen sector framework found in Figure 4.

- **Section 2** summarises the research and analysis of the production and development sub-sector.
- **Section 3** examines the sales and distribution sub-sector.
- **Section 4** summarises the research and analysis of the exhibition sub-sector and film festivals.
- **Section 5** presents our analysis of the contribution of the TV broadcast sub-sector – beyond the portion of its contribution associated with TV production already counted in Section 2.
- **Section 6** examines the economic impact of screen tourism.
- **Section 7** assesses the contribution of education and skills development related to the screen sector.
- **Section 8** examines the impact of infrastructure investment.
- **Section 9** presents a regional analysis of the economic impact of the screen sector within Scotland.

## 2. Production and development

- £617.6 million in production expenditures
- 4,570 FTEs of direct employment in cast, crew and other creative roles within the production industry
- Including indirect and induced impacts, total employment impact of 7,150 FTEs
- £442.1 million in GVA for the Scotland economy



### 2.1 Overview

The following section analyses the economic contribution that film and TV production, and development make to Scotland. It includes estimates of spending on production and development derived by collecting, compiling and reconciling data from Screen Scotland, the Screen Commission, PSBs, an online survey of production companies based in Scotland, and other sources.

This section concludes with an analysis of the economic contribution of production and development activity in Scotland in 2021, based on the estimates of production and development spending (Section 2.4).

### 2.2 Development

In the film and TV sector, development includes the research and writing that goes into creating ideas for new films and TV programmes and then writing the outlines, treatments and pitch decks, and screenplays for those productions. TV executive producers, film and television producers, development executives and screenwriters often lead the development process and once they have a programme proposal, treatment or screenplay, they find a broadcaster, public funder, or distributor/sales agent (in the case of films) to financially support the production of the project. In many cases, the development leads will fund or underwrite the development process from the income earned from other projects that have gone into production. In other cases, a broadcaster may help fund a producer or screenwriter's development in exchange for a 'first refusal' on the project or a certain period of exclusivity over the production of the screenplay. In television, distributors may also advance development support against future rights income.

In many jurisdictions – including Scotland – public funding is available to producers and screenwriters to undertake development, especially if they are unable to self-fund the development or obtain development funding from broadcasters or distributors. With PSB production and development budgets under ever-increasing pressure and production an increasingly marginal business for independent producers, this public funding is often essential in 'priming the pump', enabling producers to take forward new projects and sustain their growth.

In Scotland, Screen Scotland provides grants to filmmakers and other creators resident in Scotland for the development of feature films or documentaries through the Film Development and Production Fund. Producers who would like to develop TV projects can access project or slate funding through the Broadcast Content Fund.

During the 2021 calendar year, Screen Scotland disbursed just over £775,000 in development funding for feature films and documentaries through its Film Development and Production Fund, and over £850,000 for the development of TV projects through its Broadcast Content Fund, memorandums of understanding (MOUs) with BBC and Channel 4, and a partnership with Sky. In total, Screen Scotland provided just over £1.6 million in development funding in 2021. This was down from £2.4 million in 2019.

Data collected through the survey of Scotland-based producers indicates that an estimated total of £13.5 million was spent on the development of films and TV programmes in Scotland in 2021 (Table 3). This included not only Screen Scotland's £1.6 million in funding, but also self-funding by production companies (£8.9 million), funding from broadcasters (£2.1 million), funding from distributors (£0.5 million), funding from the BFI (£0.1 million) and other sources (£0.3 million).

Total development funding increased by £2.3 million or 21% compared to 2019, due to higher levels of reported self-funding and higher levels of funding from broadcasters.

**Table 3 Estimated spending on film and TV programme development in Scotland (£ millions)**

	2019	2021
Production companies (self-funding)	6.8	8.9
Screen Scotland	2.4	1.6
Broadcasters	1.3	2.1
Distributors	0.3	0.5
BFI	0.1	0.1
Other	0.3	0.3
<b>Total</b>	<b>11.2</b>	<b>13.5</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland and producer survey (2021, 2022)

Note: Figures may not sum to totals due to rounding

## 2.3 Production

Scotland has a vibrant independent production ecosystem. Raise the Roof Productions, Tern Television, Synchronicity, Firecrest Films, Sigma Films, Hello Halo, Wild Child Animation, Young Films, Hopscotch, Bandicoot, Black Camel, Axis Animation, Two Rivers and IWC Media represent just some of the leading independent film and television production companies based in Scotland.

Alongside these Scotland-based independent companies, several leading UK production companies based outside Scotland, such as World Productions, Tinopolis and Objective Media Group, maintain a business base in Scotland. Scotland also hosts production units for a number of broadcaster-owned production companies, including BBC Studios and STV Studios.

In recent years, these production companies have been responsible for making a variety of scripted and unscripted content in Scotland, including *Mayflies*, *Crime, Girl*, *Silent Roar*, *Rescue: Extreme Medics*, *Annika* and *Highland Cops*.

### 2.3.1 PSB content

The PSBs represent one of the core sources of demand, financing and commissioning of TV programmes and documentary films made by Scotland-based producers. By and large, this consists of TV programmes and films commissioned by PSBs from external, independent and so-called 'non-qualifying independent' producers (e.g. drama, documentary, specialist factual, factual entertainment and entertainment programmes) or made in-house by the PSBs (e.g. news and current affairs programmes).

To estimate the total value of spending on PSB content, we reviewed the PSBs' public financial reports and Ofcom data on TV production in the nations. We also conducted research interviews with the PSBs.

The data gathered through this desk research and research interviews indicates that PSBs' operating expenditures in Scotland totalled an estimated £277.6 million in 2021 (Table 4). This included not only the PSBs' spending on content production, but also other aspects of their broadcasting support operations in Scotland, such as transmission, sales and marketing, administration and other overhead.

## Economic Value of the Screen Sector in Scotland 2021

After making adjustments to remove expenditures on broadcasting support operations (e.g. operation of transmission infrastructure), payments made between PSBs (e.g. BBC Scotland contributions to MG Alba/BBC Alba) and content already supported by tax relief (see Section 2.3.2), we conclude that the PSBs spent an estimated £223.3 million on content production in Scotland in 2021. This included PSBs' spending on news, current affairs, sports, children's, arts, entertainment and factual entertainment programming.

As noted in Section 2.3.7, in 2019, PSB content was the single largest type of film and TV production in Scotland (£196.6 million), followed closely by inward film and HETV production. However, the tremendous growth in the latter in 2021 meant that the total value of PSB content that year (£223.3 million) trailed inward film and HETV production (£347.4 million) for the first time.

**Table 4 PSB's estimated spending on TV production in Scotland, 2021 (£ millions)**

	Gross operating expenditures in Scotland	Content spending in Scotland <sup>1</sup>
BBC Scotland <sup>2</sup>	84.9	67.1
BBC Network <sup>3</sup>	92.8	92.8
MG Alba / BBC Alba <sup>4</sup>	20.3	16.9
STV <sup>5</sup>	34.8	9.4
ITV	8.1	8.1
Channel 4	31.2	23.5
Channel 5	5.5	5.5
<b>Total</b>	<b>277.6</b>	<b>223.3</b>

Source: Saffery Champness / Nordicity estimates based on data from public financial reports, Ofcom and interviews with broadcasters

1 Excludes estimated spending on broadcasting support operations

2. Gross operating expenditures and content spending amounts adjusted to remove BBC Scotland's contributions to BBC Alba; figures exclude operating expenditures for BBC Scotland's radio operations and the Scottish Symphony Orchestra.

3 Gross operating expenditures for BBC Network have been adjusted to remove value of spending on content supported by tax relief

4. Includes contributions to gross operating expenditures and content spending from MG Alba and BBC Scotland

5. Gross operating expenditures and content spending have been adjusted to remove programming payments made to ITV (est. £52.2m); figures exclude STV Productions

The total value of PSB's estimated content spending in Scotland increased by £26.7 million or 14% between 2019 and 2021 (Table 5).

**Table 5 PSB's estimated TV content spending in Scotland (£ millions)**

	2019	2021
BBC Scotland	60.1	67.1
BBC Network	84.8	92.8
BBC Alba	16.9	16.9
STV	9.2	9.4
ITV	2.7	8.1
Channel 4	20.7	23.5
Channel 5	2.2	5.5
<b>Total</b>	<b>196.6</b>	<b>223.3</b>

Source: Saffery Champness / Nordicity estimates based on data from public financial reports, Ofcom and interviews with broadcasters



### 2.3.2 Inward film and HETV production<sup>13</sup>

Producers based outside of Scotland – particularly those based outside the UK – also made significant contributions to production activity within Scotland. In most cases, this inward production was supported by the Film Tax Relief (FTR) or High-end Tax Relief (HETR). In some cases, projects also received funding from Screen Scotland’s Production Growth Fund (PGF).

In 2021, films such as *Batgirl* (which filmed in Scotland in 2021 before being shelved during postproduction), *The Lost King*, *Man & Witch* and *Downton Abbey: A New Era* were filmed in Scotland, along with TV series such as the long-running *Outlander* (season 6), *Good Omens 2*, *The Rig*, and *Anansi Boys*.

To estimate the total spending generated by inward film and HETV production in Scotland, data on the number of filming days was sourced from Scotland’s Screen Commission. These filming days were multiplied by a rate card developed for the BFI for average daily production spending for different types of film and HETV projects. These rate-card rates included estimates of spending on Scotland-based elements used on inward production, as well as elements based outside of Scotland.

Producers based outside of Scotland spent an estimated £347.4 million on the inward production of films and HETV programmes filmed on location or in studio facilities in Scotland in 2021 (Table 6). This included £117.7 million in spending on FTR-supported films and £229.7 million on HETR-supported TV programmes.

The total value of film and HETV production activity in Scotland more than doubled between 2019 and 2021. In large part, this was due to the opening of new or expanded studio facilities, particularly FirstStage in Edinburgh, where *The Rig* and *Anansi Boys* were filmed. These new studio facilities have made Scotland and even more attractive place to film.

**Table 6 Estimated spending in Scotland on inward film and HETV production (£ millions)**

	2019	2021
Film Tax Relief projects	60.4	117.7
HETV Tax Relief projects	104.9	229.7
<b>Total</b>	<b>165.3</b>	<b>347.4</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission and BFI

### 2.3.3 Independent film production

In addition to the TV programmes and films commissioned by PSBs and inward film and HETV production supported by tax relief, data from Screen Scotland indicate that there were 12 independently produced fiction and documentary films made by Scotland-based producers in 2021 (i.e. films that started principal photography in 2021) with support from Screen Scotland’s Film Development and Production Fund. These films, including *Silent Roar*, *Skint* and *Girl*, generated an estimated **£7.6 million in production spending** in Scotland. Spending in Scotland on Independent film production practically doubled from £3.9 million in 2019.

### 2.3.4 Other television production

The vast majority of television programs made in Scotland are either commissioned by the PSBs (see Section 2.3.1) or are made by inward producers receiving tax relief (see Section 2.3.2). However, a small number of television programs made in Scotland in 2021 were commissioned by one of the SVODs or commercial multichannel services (e.g. Sky, Discovery Channel) rather than the PSBs and were also in genres not eligible for tax relief (e.g. entertainment or reality programming). Based on the

<sup>13</sup> In this report, the term ‘inward production’ refers to films and TV programmes made by producers based outside of Scotland, including other parts of the UK and outside the UK.

total number of location filming-days tracked by the Screen Commission, an estimated **£6 million** was spent on this type of television production in Scotland in 2021.

### 2.3.5 Animation, VFX and post-production

Scotland is also home to several production companies that focus on the creation of animation content as well as studios engaged in VFX and post-production work. Axis Studios, Wild Child and TG Entertainment are among Scotland’s leading animation companies. Notable post-production companies include Serious, Blazing Griffin, Edit 123 and Arteus, as well as the BBC’s facility within its Glasgow base.

According to the survey research, the total value of animation, VFX and post-production work in Scotland was an estimated £27.1 million in 2021 – most of which (£15.9 million) was earned on a service basis for projects ultimately created by producers based outside of Scotland (Table 7).

While, the overall level of animation, VFX and post-production activity in Scotland was down by only 3% compared to 2019, there was a shift in more of this production being made for Scotland-based producer as opposed to service work for producers based outside of Scotland. Production for Scotland-based producers more than tripled between 2019 and 2021 to £11.3 million, while service work was down by 36%.

**Table 7 Estimated value of animation production, VFX and post-production in Scotland (£ millions)**

	2019	2021
<b>For Scotland-based producers</b>		
Animation	0.5	7.1
VFX	0.3	0.2
Post-production	2.3	3.9
<b>Subtotal</b>	<b>3.1</b>	<b>11.3</b>
<b>Service work</b>		
Animation	19.8	11.7
VFX	5.0	3.4
Post-production	0.1	0.8
<b>Subtotal</b>	<b>24.9</b>	<b>15.9</b>
<b>Total</b>		
Animation	20.3	18.8
VFX	5.3	3.6
Post-production	2.4	4.7
<b>Subtotal</b>	<b>28.0</b>	<b>27.1</b>

Source: Saffery Champness / Nordicity estimates based on data from producers survey (2021, 2022)



### 2.3.6 Other audiovisual production

Survey data and filming-days data supplied by Scotland' Screen Commission were used to estimate the spending on the production of advertising and other live action screen content (e.g. corporate or educational content) in Scotland in 2021. As Screen Scotland's relationship with the purely corporate sector is limited, this figure is likely an underestimate. Producers spent an estimated £6 million on these other forms of live action audiovisual production in 2021, up from £4.8 million in 2019 (Table 8).

**Table 8 Estimated spending in Scotland on other live action audiovisual production (£ millions)**

	2019	2021
Advertising (e.g. television and web commercials)	4.7	4.5
Other live action screen content (e.g. corporate videos, music videos)	0.1	1.5
<b>Total</b>	<b>4.8</b>	<b>6.0</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Commission and producers survey (2021, 2022)

### 2.3.7 Summary

In total, an estimated £617.4 million was spent on the production of film, TV and other audiovisual content in Scotland in 2021 (Table 9). This included content made by Scotland-based producers, producers based outside of Scotland filming in Scotland and PSBs, and was up 55% compared to 2019. Over 80% of the net increase in production spending between 2019 and 2021 (£218.8 million) was due to the tremendous growth in inward film and HETV production. It more than doubled from £165.3 million to £347.4 million, as Scotland attracted the filming of several big-budget films (*Batgirl*, *Indiana Jones and the Dial of Destiny*) and HETV programmes (*The Rig*, *Good Omens*, *Anansi Boys*).

**Table 9 Estimated spending in Scotland on film, TV and other audiovisual production (£ millions)**

	2019	2021
PSB content	196.6	223.3
Inward film and HETV production <sup>1</sup>	165.3	347.4
Independent film production <sup>2</sup>	3.9	7.6
Other television production <sup>3</sup>	--	6.0
Animation, VFX and post-production	28.0	27.1
Other live action audiovisual content	4.8	6.0
<b>Total</b>	<b>398.6</b>	<b>617.4</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, producers survey (2021, 2022)

1. All of the inward production projects were supported by tax relief. A subset of inward production projects received funding from Screen Scotland's Production Growth Fund

2. These films projects received production funding from Screen Scotland's Film Development and Production Fund but have not been counted under the other categories of film, TV and other audiovisual production.

3. Includes television programs made without tax relief, and by or for SVODs or commercial multichannel broadcasters (i.e. not the PSBs). The value of this type of production was not counted in 2019.

## 2.4 Economic impact

The total expenditures on production and development in Scotland in 2021 generated a total of 7,150 FTEs of employment, £318.5 million in COE and £442.1 million in GVA for Scotland's economy in 2021 (Table 10). This total impact included 4,570 FTEs of employment in the film and TV production sub-sector (i.e. cast, crew and other creative roles in development) along with £225.4 million in direct COE and £267.2 million in direct GVA.

**Table 10 Economic impact of production and development in Scotland, 2021**

	Direct	Indirect	Induced	Total
<b>Employment (FTEs)</b>				
Development	220	20	30	<b>270</b>
PSB content	1,990	700	540	<b>3,230</b>
Inward location production <sup>1</sup>	1,880	590	440	<b>2,910</b>
Independent film production	50	40	20	<b>110</b>
Other TV production	50	10	10	<b>70</b>
Animation, VFX and post-production	360	90	60	<b>510</b>
Other audiovisual content (live action)	20	20	10	<b>50</b>
<b>Total</b>	<b>4,570</b>	<b>1,470</b>	<b>1,110</b>	<b>7,150</b>
<b>COE (£m)</b>				
Development	10.8	0.7	0.9	<b>12.4</b>
PSB content	108.3	27.0	17.9	<b>153.1</b>
Inward location production <sup>1</sup>	85.5	22.7	14.7	<b>122.9</b>
Independent film production	2.1	1.5	0.7	<b>4.3</b>
Other TV production	2.2	0.5	0.4	<b>3.1</b>
Animation, VFX and post-production	15.6	3.1	2.1	<b>20.8</b>
Other audiovisual content (live action)	0.9	0.6	0.3	<b>1.8</b>
<b>Total</b>	<b>225.4</b>	<b>56.1</b>	<b>37.0</b>	<b>318.5</b>
<b>GVA (£m)</b>				
Development	10.8	1.0	1.6	<b>13.4</b>
PSB content	128.8	51.8	32.6	<b>213.2</b>
Inward location production <sup>1</sup>	102.9	43.6	26.9	<b>173.5</b>
Independent film production	2.5	2.9	1.4	<b>6.8</b>
Other TV production	2.6	1.0	0.6	<b>4.2</b>
Animation, VFX and post-production	18.5	5.9	3.8	<b>28.2</b>
Other audiovisual content (live action)	1.0	1.2	0.6	<b>2.8</b>
<b>Total</b>	<b>267.2</b>	<b>107.4</b>	<b>67.6</b>	<b>442.1</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, producers survey (2021, 2022) and interviews with broadcasters

1. The economic impact of inward location production assumes that 55% of total spending in Scotland is paid to Scotland-based personnel and suppliers. This local-spend share of 55% was derived from research of actual and illustrative production budgets.

## 3. Sales and distribution

- £16.3 million in turnover
- 30 FTEs of direct employment and a total employment impact of 70 FTEs
- £7.3 million in direct GVA and a total GVA impact of £9.8 million



### 3.1 Turnover and direct employment

The sales and distribution segment of the screen sector value chain encompasses the business activities associated with the acquisition, licensing and sale of audiovisual content. Film and TV distribution companies will often advance financing to film or TV projects in exchange for rights to license that content to cinema exhibitors, TV broadcasters in the UK or overseas, or home video platforms. Distributors do not always provide upfront financing for production. They may also acquire exhibition or broadcast rights in already completed – and even released – films and TV programmes, with a view to re-selling those rights.

Distribution companies are often distinct from production companies. In Scotland, Park Circus, Conic, Cosmic Cat and Anime Limited are examples of distribution companies. In some cases, production companies will operate distribution themselves to oversee the monetisation of the exhibition and broadcast rights they hold in their produced content or to reach audiences when the market interest dictates they handle distribution directly. In Scotland, production companies such as STV Studios, Raise the Roof Productions, Firecrest Films, Synchronicity Films, Hopscotch Films, Two Rivers Media and Friel Kean Films maintained significant distribution activity in 2021, according to the industry survey.

Data collected from D&B and Companies House for Park Circus and Anime Limited, combined with sales and distribution revenue data collected from through the survey from Cosmic Cat and other production companies with distribution arms indicates that companies based in Scotland earned an estimated £16.3 million in sales and distribution revenue in 2021.

Whilst comprehensive distribution-operations employment data was not available for all these companies, the employment data available for the largest distribution companies in Scotland indicates that they employ approximately 2 persons for every £1 million in turnover. That employee-turnover ratio implies that the distribution sub-sector in Scotland generated an estimated 30 FTEs of direct employment in 2021 (Table 11).

According to the Annual Survey of Hours and Earnings (ASHE), full-time workers employed in SIC 5913 in the UK earned a mean weekly salary (excluding overtime) of £837 in 2022. This implies a mean annual salary of £43,500 and mean employment cost of approximately £50,000. This implies that distribution sub-sector generated direct COE of £1.5 million in 2021.

According to the ONS's Annual Business Survey (ABS), the GVA-to-turnover ratio in SIC 5913 was equal to 0.45 in 2021. Applying this ratio to total estimated turnover of £16.3 million implies that distribution sub-sector generated an estimated £7.3 million in direct GVA for Scotland's economy in 2021.

**Table 11 Direct economic impact of the film and TV distribution sub-sector in Scotland<sup>1</sup>, 2021**

	<b>Amount</b>
Turnover (£m)	16.3
Direct GVA (£m) <sup>2</sup>	7.3
Direct COE (£m) <sup>3</sup>	1.5
Total employment (FTEs)	30

Source: Saffery Champness / Nordicity estimates based on data from producers/distributors survey (2020), D&B, ASHE and ABS

Notes:

1. SIC 5913 Motion picture, video and television programme distribution activities
2. Scotland GVA estimated by applying GB-wide GVA-to-turnover ratio (0.45) to Scotland turnover (£16.3 million)
3. Scotland COE estimated by multiplying 30 FTEs by average full-time employment cost of £50,000

## 3.2 Economic impact

Through the purchase of advertising and marketing services as well as other business services, the film and TV distribution sub-sector also generates significant indirect and induced impacts across the economy. In total, Scotland's film and TV distribution sub-sector generated 70 FTEs of employment, £2.8 million in COE and £9.8 million in GVA for Scotland's economy in 2021 (Table 12). This included 30 FTEs, £1.5 million in COE and £7.3 million in GVA directly within the distribution sub-sector.

**Table 12 Economic impact of film and TV distribution sub-sector in Scotland, 2021**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Employment (FTEs)	30	20	20	<b>70</b>
COE (£m)	1.5	0.7	0.6	<b>2.8</b>
GVA (£m)	7.3	1.3	1.2	<b>9.8</b>

Source: Saffery Champness / Nordicity estimates based on data from producers/distributors survey (2022), D&B, ASHE and ABS

## 4. Exhibition

- 6.2 million admissions and £45.7 million in box office revenue
- 30,000+ in-person and online audience across 16 film festivals based on Scotland
- 2,000 persons employed in exhibition sector, representing 1,120 FTEs
- Direct employment impact of 1,160 FTEs and total impact of 1,390 FTEs across cinemas and film festivals
- £41.9 million in GVA for Scotland's economy, including £29.3 million in GVA generated directly within the exhibition sub-sector



### 4.1 Overview

The Covid-19 pandemic led to the temporary closure of cinemas in the UK and many other countries in March 2020. While cinemas in the UK did reopen to the public in August 2020, subsequent lockdowns, social distancing restrictions on audience capacity and the general public's avoidance of indoor public spaces meant that the box office remained well below pre-pandemic levels even in 2021. The UK box office totalled £542 million in 2021, 57% below the 2019 box office of £1,254 million.<sup>14</sup> Cinema admissions in the UK did recover further in 2022, rising to £904 million – but were still 28% lower than in 2019.<sup>15</sup>

The UK's cinema market is dominated by the major multiplex chains – Cineworld, Odeon and Vue – which collectively held 70% of the market in 2019. While these cinema chains are domiciled outside of Scotland, they still have a significant economic impact within Scotland. Cinema chains maintain large workforces and it is largely through this employment and employment income that these cinema chains contribute to the Scottish economy. Scotland also has a significant independent cinema sector operating as small and medium-sized enterprises. Together they are a significant employer in the sector and driver of economic activity in the communities – often small towns – in which they are based.

In this section, we estimate the economic contribution of the cinema chains and independent cinemas located in Scotland. As part of the exhibition sub-sector, we also examine the economic contribution associated with alternative cinema and screen festivals.

<sup>14</sup> BFI (2023) [The UK box office in 2022](#). 2 February.

<sup>15</sup> BFI (2023).

## 4.2 Cinemas

### 4.2.1 Admissions and revenue

According to data from Comscore and certain cinemas and arts venues that do not report to Comscore<sup>16</sup>, cinemas in Scotland earned total box office revenue of £45.7 million (including VAT) in 2021 (Table 13). Box office and admissions data for the entire UK published by the BFI indicate that this box office revenue was earned from an estimated 6.2 million admissions.<sup>17</sup>

**Table 13 Estimation of cinema box office and admissions in Scotland**

	2019	2021
Box office (incl. VAT) (£m)	99.8	45.7
Cinema admissions (est.) (millions)	14.0	6.2

Source: Saffery Champness / Nordicity estimates based on data from BFI, Comscore and ONS

Notably, the recovery in cinema box office was slightly faster in Scotland compared to the overall UK. In 2021, Scotland's cinema box office (£45.7 million) had recovered to 46% of its 2019 level (£99.8 million). Across the entire UK, the cinema box office in 2021 (£542 million) had recovered to 43% of its 2019 level (£1.254 billion).<sup>18</sup>

Statistics for the UK-wide cinema sub-sector published by the BFI and ONS's ABS for SIC 5914 *Motion picture projection activities* suggest that the cinema sub-sector in the UK earn £0.64 in revenue from other sources such as food and beverage sales and advertising for every £1.00 of box office revenue. Based on that ratio, cinemas in Scotland earned an estimated £65.2 million in total revenue (excluding VAT) in 2021 (Table 14).

**Table 14 Estimated cinema revenue in Scotland (£m)**

	2019	2021
Gross box office (excl. VAT) <sup>1</sup>	83.2	38.1
Other revenue <sup>2</sup>	53.2	24.4
<b>Total revenue</b>	<b>136.4</b>	<b>62.5</b>

Source: Saffery Champness / Nordicity estimates based on data from BFI, Comscore and ABS

1. 2019: £99.8m ÷ 1.20 = £83.2m; 2021: £45.7m ÷ 1.20 = £38.1m

2. 2019: £83.2m x 0.64 = £53.2m; 2021: £38.1m x 0.64 = £24.4m

### 4.2.2 Economic impact

A similar approach was used to estimate the direct employment, COE and GVA contribution of the cinema sub-sector in Scotland. Data sourced from the Business Register and Employment Survey (BRES) indicated that 2,000 people, or 1,120 FTEs, were employed in the cinema sub-sector in Scotland in 2021. This workforce earned an estimated £28.3 million in COE in 2021 and generated £28.3 million<sup>19</sup> in direct GVA (Table 15).

<sup>16</sup> Two cinemas were identified that did not report to Comscore. The total admissions and estimated box office for these two cinemas were added to the data provided by Comscore.

<sup>17</sup> Box office data published by BFI for the entire indicates that the average ticket price (i.e. average box office per admission) was £7.12 in 2019 and £7.32 in 2021.

<sup>18</sup> BFI (2023).

<sup>19</sup> Due the challenging market conditions facing the UK cinema sub-sector in 2021, cinemas were assumed to earn no operating profits in Scotland in 2021. As a result, sub-sector GVA was equivalent to the value of COE in the sub-sector.

**Table 15 Direct economic impact of cinema sub-sector in Scotland**

	<b>2019</b>	<b>2021</b>
Total employment <sup>1</sup>	2,040	2,000
FTE employment <sup>2</sup>	1,290	1,120
COE <sup>3</sup>	27.7	28.3
GVA <sup>4</sup>	55.7	28.3

Source: Saffery Champness / Nordicity estimates based on data from BFI, Comscore, Screen Scotland, ABS and BRES

1. Total employment counts for Scotland sourced directly from BRES.

2. Total employment multiplied by an FTE conversion factor of 0.63 to account for part-time employment in the cinema exhibition industry.

3. UK-wide average annual FTE cost in SIC 5914 (2021: £25,295) multiplied by the total number of FTEs in Scotland.

4. UK-wide GVA-to-turnover ratio (0.43) multiplied by total cinema revenue in Scotland in 2019. For 2021, sub-sector operating profits were assumed to be zero. As a result, GVA was equal to COE.

Including indirect and induced impacts, the cinema sub-sector generated an estimated 1,320 FTEs of employment, £35.2 million in COE and £39.7 million in GVA for Scotland's economy in 2021 (Table 16).

**Table 16 Total economic impact of cinema sub-sector in Scotland, 2021**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Employment (FTEs)	1,120	110	90	<b>1,320</b>
COE (£m)	28.3	3.9	3.0	<b>35.2</b>
GVA (£m)	28.3	5.9	5.4	<b>39.7</b>

Source: Saffery Champness / Nordicity estimates based on data from BFI, Comscore, Screen Scotland, ABS and BRES

Note: Figures may not sum to totals due to rounding

## 4.3 Film festivals

### 4.3.1 Audience, visitors and expenditures

Film and TV festivals contribute to economic activity in several different respects. The operation of the festival itself generates income and employment as the festivals hire screens, produce festival events and an industry development programmes, and employ people to run the screenings and events. Many festivals attract attendees and delegates from outside Scotland and thereby stimulate tourism spending on accommodation, meals and other retail outside of festival venues. Finally, some festivals that also operate as markets can help local producers increase the sales of their content or secure financing for future projects.

Prior to the Covid-19 pandemic, Scotland also hosted approximately 30 film festivals on an annual basis. During the Covid-19 pandemic, many of these film festivals switched to online-only or hybrid models, which allowed audiences to enjoy screenings in person or online. Some these festivals, however, did cease to operate during the pandemic.

In 2021, Scotland hosted two major international festivals: the Edinburgh International Film Festival (EIFF) and the Glasgow Film Festival. Sixteen other film festivals received funding from Screen Scotland, which allowed them to operate on an online-only or hybrid model in 2021 (see Box 3).



**Box 3 Film festivals in Scotland, 2021**

Africa in Motion Film Festival	Glasgow Short Film Festival
Cinema-Attic	Govanhill International Festival and Carnival
Edinburgh International Film Festival	Havana Glasgow Film Festival
Edinburgh Spanish Film Festival	Hippodrome Silent Film Festival
Femspectives Weekender	IberoDocs
Folk Film Gathering	Sands International Film Festival of St Andrews
French Film Festival	Scotland Loves Anime
Fringe of Colour Films	Scottish Queer International Film Festival
Glasgow Film Festival	Take One Action Film Festivals

Source: Screen Scotland

According to data from Screen Scotland and independent research of film festivals’ public accounts, Scotland’s film festivals combined for total physical audiences of 31,500 in 2021, down from over 177,000 in 2019 (Table 17).

In total, Scotland’s film festivals attracted a core physical audience of 31,500 and an estimated 6,300 unique physical visitors in 2021. These were down from an audience of 177,000 in 2019 and an estimated 40,244 unique visitors (Table 17). In 2021, Scotland’s film festivals made operating expenditures of nearly £2.1 million to produce the festivals, down from £4.3 million in 2019. In-person audiences and media delegates spent an estimated £575,000 outside of festival venues in 2021, down from £4.7 million in Scotland.

Although attendance, and visitor and media delegate spending at Scotland’s film festivals was down significantly in 2021, compared to 2019, all indications are the in-person festival attendance globally will fully recover – as with most international travel.<sup>20</sup> In 2023 and subsequent years, the economic contribution from Scotland’s film festivals is likely to recover to its 2019 levels.

**Table 17 Summary of key performance indicators for film festivals in Scotland**

	2019	2021
Core attendance	177,624	31,500
Number of unique visitors	40,244	6,300
Festival operating expenditures (£)	4,286,105	2,120,610
Gross visitor and media delegate spending (£)	4,657,559	575,000

Source: Saffery Champness / Nordicity estimates based on data from EIFF, Glasgow Film Festival, Tourism Resources Company and Screen Scotland

Note: Figures may not sum to totals due to rounding

**4.3.2 Economic impact**

With over £2.1 million in operations expenditures in 2021, Scotland’s film festivals generated 50 FTEs of employment, £1.3 million in COE and £1.7 million in GVA (Table 18). This included 30 FTEs employed in festival operations – both on a temporary basis during the festival and on a permanent basis throughout the year.

The spending by visitors and media delegates outside of festival venues (£575,000) generated a further 20 FTEs, £300,000 in COE and £500,000 in GVA for Scotland’s economy in 2021. This included employment in the accommodation, food & beverage, transport, and other tourist-facing industries benefitting from festival-visitor spending.

<sup>20</sup> Szalai, G. (2023) [Cannes Film Market Breaks Accreditation Record](#). *The Hollywood Reporter*. 17 May.



## Economic Value of the Screen Sector in Scotland 2021

Combining the impacts of festival operations and visitor spending indicates that Scotland's film festivals generated a total of 40 FTEs of employment, £1.6 million in COE, and £2.3 million in GVA for Scotland's economy in 2021.

**Table 18 Total economic impact of film festivals in Scotland, 2021**

	Direct	Indirect	Induced	Total
<b>Festival operations</b>				
Employment (FTEs)	30	10	10	<b>50</b>
COE (£m)	0.7	0.5	0.2	<b>1.3</b>
GVA (£m)	0.7	0.7	0.4	<b>1.7</b>
<b>Visitor and media delegate spending</b>				
Employment (FTEs)	10	10	0	<b>20</b>
COE (£m)	0.2	0.1	0.0	<b>0.3</b>
GVA (£m)	0.3	0.1	0.1	<b>0.5</b>
<b>Total</b>				
Employment (FTEs)	40	20	10	<b>70</b>
COE (£m)	0.9	0.5	0.2	<b>1.6</b>
GVA (£m)	1.0	0.8	0.4	<b>2.3</b>

Source: Saffery Champness / Nordicity estimates based on data from EIFF, Glasgow Film Festival, Tourism Resources Company and Screen Scotland

Note: Figures may not sum to totals due to rounding

## 4.4 Summary

Summing the impact of the cinema exhibition industry in Scotland with the impact of film festivals indicates that Scotland's exhibition sub-sector generated 1,390 FTEs of employment, £36.8 million in COE and £41.9 million in GVA for Scotland's economy in 2021 (Table 19).

**Table 19 Total economic impact of exhibition sub-sector in Scotland, 2021**

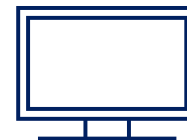
	Direct	Indirect	Induced	Total
<b>Cinemas</b>				
Employment (FTEs)	1,120	110	90	<b>1,320</b>
COE (£m)	28.3	3.9	3.0	<b>35.2</b>
GVA (£m)	28.3	5.9	5.4	<b>39.7</b>
<b>Film festivals</b>				
Employment (FTEs)	40	20	10	<b>70</b>
COE (£m)	0.9	0.5	0.2	<b>1.6</b>
GVA (£m)	1.0	0.8	0.4	<b>2.3</b>
<b>Total</b>				
Employment (FTEs)	<b>1,160</b>	<b>130</b>	<b>100</b>	<b>1,390</b>
COE (£m)	<b>29.2</b>	<b>4.4</b>	<b>3.2</b>	<b>36.8</b>
GVA (£m)	<b>29.3</b>	<b>6.7</b>	<b>5.9</b>	<b>41.9</b>

Source: Saffery Champness / Nordicity estimates based on data from BFI, Comscore, Screen Scotland, ABS, EIFF, Glasgow Film Festival, Tourism Resources Company and Screen Scotland

Note: Figures may not sum to totals due to rounding

## 5. TV broadcast

- £54.3 million spent on broadcasting support operations
- 400 FTEs of direct employment and 710 FTEs of total employment
- £31.4 million in direct GVA and £53.4 million in total GVA



### 5.1 Broadcasting support operations

In Section 2, we estimated the portion of PSBs' gross operating expenditures in Scotland that were devoted to the creation of TV content – both in-house and through external commissioning – and the economic impact of that content production. In this section, we consider the economic impact generated by the balance of PSBs' operating expenditures: that is, their spending on broadcasting support operations such as transmission infrastructure, sales and marketing, administration, and other overhead expenses.

As with the rest of the UK, households in Scotland can access PSB TV content broadcast by the BBC (network), ITV, Channel 4, Channel 5 and S4C; however, ITV programming is rebroadcast by STV within Scotland. Scotland is also home to BBC Scotland and BBC Alba, as well as opt-outs on the Channel 3 service operated by ITV for STV programming. BBC Scotland and STV have the largest operations in Scotland, and along with BBC Alba account for the broadcasting support operations in Scotland, including terrestrial and digital operations.

After removing content spending, the PSBs spent an estimated £54.3 million on broadcasting support operations in Scotland in 2021, or 20% of their total estimated gross operating expenditures in Scotland in 2021 (£277.6 million) (Table 20).

**Table 20 PSB's estimated spending on broadcasting support operations in Scotland, 2021 (£ millions)**

	Gross operating expenditures in Scotland	Content spending in Scotland	Expenditures on broadcasting support operations <sup>1</sup>
BBC Scotland	84.9	67.1	17.8
BBC Network	92.8	92.8	0.0 <sup>3</sup>
BBC Alba/MG Alba	20.3	16.9	3.4
STV <sup>4</sup>	34.8	9.4	25.4
ITV	37.9	37.9	0.0
Channel 4	31.2	23.5	7.7
Channel 5	5.5	5.5	0.0
<b>Total</b>	<b>277.6</b>	<b>223.2</b>	<b>54.3</b>

Source: Saffery Champness / Nordicity estimates based on data from public financial reports, Ofcom and broadcaster interviews

1. Includes spending on transmission infrastructure, sales and marketing, administration and other overhead
2. Gross operating expenditures have been adjusted to remove value of spending on content supported by tax relief
3. BBC Network only has content production and commissioning operations in Scotland; it has no broadcasting support operations in Scotland

4. Gross operating expenditures and content spending have been adjusted to remove programming payments made to ITV (est. £52.2m); figures exclude STV Productions

## 5.2 Economic impact

These expenditures on broadcasting support operations generated an estimated 710 FTEs of employment, £34.4 million in COE and £53.4 million in GVA in Scotland in 2021 (Table 21). This included 400 FTEs of employment, £22.4 million in COE and £31.4 million in GVA generated directly within the TV broadcasting subs-sector – namely at the broadcasters themselves.

**Table 21 Economic impact of broadcasting support operations in Scotland, 2019**

	Direct	Indirect	Induced	Total
Employment (FTEs)	400	180	130	<b>710</b>
COE (£m)	22.4	7.7	4.3	<b>34.4</b>
GVA (£m)	31.4	14.1	7.9	<b>53.4</b>

Source: Saffery Champness / Nordicity estimates based on data from public financial reports, PSBs, Ofcom, broadcaster interviews and ASHE

### Box 4 Public reporting of PSBs' employment in Scotland

Our estimates of the direct employment impact of the TV broadcast sub-sector are based on the compilation and analysis of employment data gathered from public financial reports and interviews with PSBs. In particular, we note that the PSBs have publicly reported the following staff levels within Scotland:

- The BBC employed 1,225 people in Scotland in 2021/22 across all its services including support functions, of which 962 were employed to directly support the BBC service in Scotland. This includes persons employed in TV and radio operations.<sup>21</sup>
- STV employed 463 people in 2021.<sup>22</sup>
- MG Alba employed 42 people in 2021.<sup>23</sup>
- Channel 4 employed approximately 20 people at its Glasgow Creative Hub office.<sup>24</sup>
- ITV employed under 50 people in Scotland in 2019 (the most recent year of available data), largely in news gathering functions.<sup>25</sup>

Together, these reported employment statistics point to as many as 1,800 people directly employed in TV (and BBC radio) broadcasting in Scotland. Through the research conducted for this study, we removed employment in BBC radio operations. We also removed employment in TV content production (already estimated in Section 2.3.3) and converted the headcount statistics to FTEs. After making these adjustments, we concluded that an estimated 400 FTEs were employed in TV broadcasting support operations in Scotland in 2021.

<sup>21</sup> BBC (2022). *BBC Group Annual Report and Accounts 2021/22*. P. 193. Available at: <https://downloads.bbc.co.uk/aboutthebbc/reports/annualreport/ara-2021-22.pdf>

<sup>22</sup> STV (2022). *Annual Report and Accounts 2021*. P. 108. Available at: <https://www.stvplc.tv/media/racmxgv4/annual-report-and-accounts-2021.pdf>

<sup>23</sup> MG Alba (2022). *Annual report & statement of accounts 2021/2022*. P. 89. Available at: <https://mgalba.com/wp-content/uploads/2022/07/annual-report-21-22.pdf>

<sup>24</sup> Interview with Channel 4.

<sup>25</sup> Mediatique (2021). *ITV in the Nations and Regions: Storied past, dynamic present, challenges ahead*. May 2021. P. 36. Available at: [https://www.itv.com/presscentre/sites/default/files/210510\\_mediatique\\_report\\_itv\\_nations\\_and\\_regions.pdf](https://www.itv.com/presscentre/sites/default/files/210510_mediatique_report_itv_nations_and_regions.pdf)

## 6. Screen tourism

- 91,000 overnight screen tourists<sup>26</sup> in 2021
- £56.8 million total spending by screen tourists of which £11.6 million was attributable to screen tourism activities and spent within Scotland
- 250 FTEs of direct employment and 310 FTEs of total employment impact
- £8 million in direct GVA and £11.7 million in total GVA impact



The economic contribution of the screen sector is not confined to the content value chain. Once films and TV programmes are released, they can continue to generate economic benefits for the countries and regions that hosted production or were the settings for the stories depicted in the films or TV programmes.

Scotland has, over the years, been a beneficiary of screen tourism. *Braveheart*, released in 1995, was set in Scotland and generated significant interest for tourists visiting Scotland. In recent years, the television series *Outlander* has garnered a strong global audience following, and significant interest among tourists visiting Scotland.

In addition to *Outlander*, several other popular films and TV series, including the *Harry Potter* films, *Skyfall*, *Mary Queen of Scots* and *Outlaw King* have been partially filmed in Scotland and subsequently generated significant tourist interest.

Of course, the pandemic and associated lockdowns and travel restrictions led to a sharp drop in travel and tourism, particularly inbound tourism to the UK including Scotland. While tourism did recover in 2021, inbound tourism – historically an important source of screen tourists – remained weak in 2021.

In this section, we analyse the tourism spending and economic impact of *Outlander* prior to the pandemic – which is, by far, the most notable current screen tourism asset for Scotland. We then use data from the VisitScotland to extrapolate the impact of *Outlander* to the wider screen tourism sector for Scotland in 2019 and 2021.

### 6.1 Annual visitors and spending 2019

According to a survey conducted by VisitScotland in 2016, 6% of overnight leisure tourists in Scotland, including domestic and overseas overnight tourists, visited a film or TV location in Scotland during their trip. This was equivalent to a total of 525,000 overnight screen tourists in 2016.

However, between 2016 and 2019 screen tourism in Scotland likely grew significantly, mainly due to the popularity of *Outlander* – the first season of which began airing in 2014 in 87 territories.<sup>27</sup> In fact, an updated version of the difference-in-difference analysis of visits of historic sites featured in *Outlander* and first set out by VisitScotland indicates that *Outlander* probably led to an additional one million visits to 23 *Outlander* sites since 2013 (Figure 5).

With that in mind, visitor data for *Outlander* sites in Scotland along with additional tourism data from VisitScotland, VisitBritain and VisitEngland were used to estimate the total number of screen tourists

<sup>26</sup> In this study, 'screen tourist' refer to tourists who, as part of their visit to Scotland, visited a site in Scotland that was either a filming location or a setting for a film or TV programme. These site visits may not have been the prime motivation for that person's visit to Scotland.

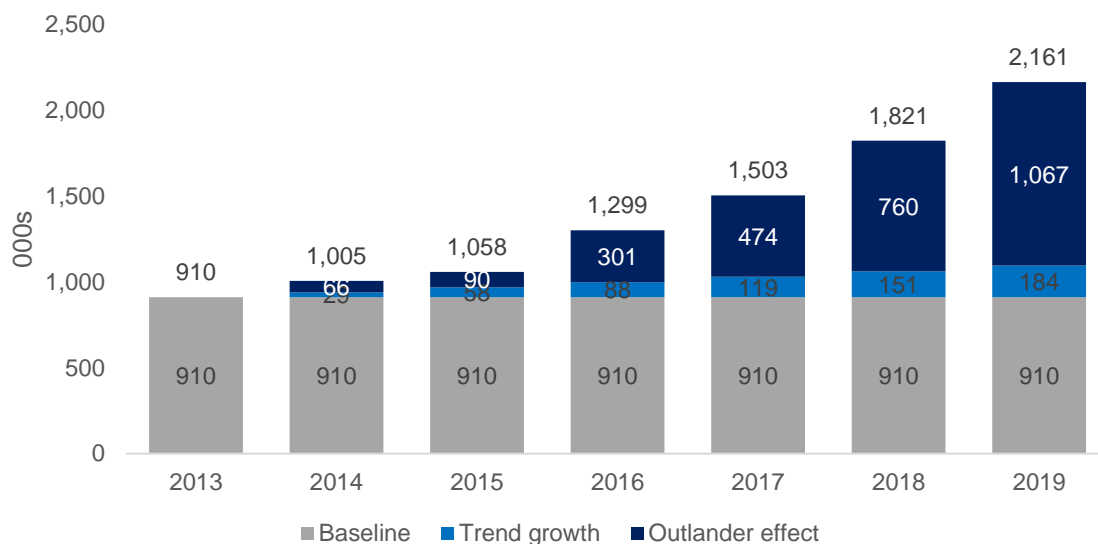
<sup>27</sup> VisitScotland (2020), Insight Department: The Outlander Effect & Tourism. February 2020. p. 3.

## Economic Value of the Screen Sector in Scotland 2021

visiting Scotland in 2019, their gross tourism spending and the portion of that gross spending that can be attributed to screen tourism.

The methodology and calculations used to derive these estimates are summarised in this sub-section and detailed in Appendix B.

**Figure 5 Annual visits to historic sites featured in *Outlander***

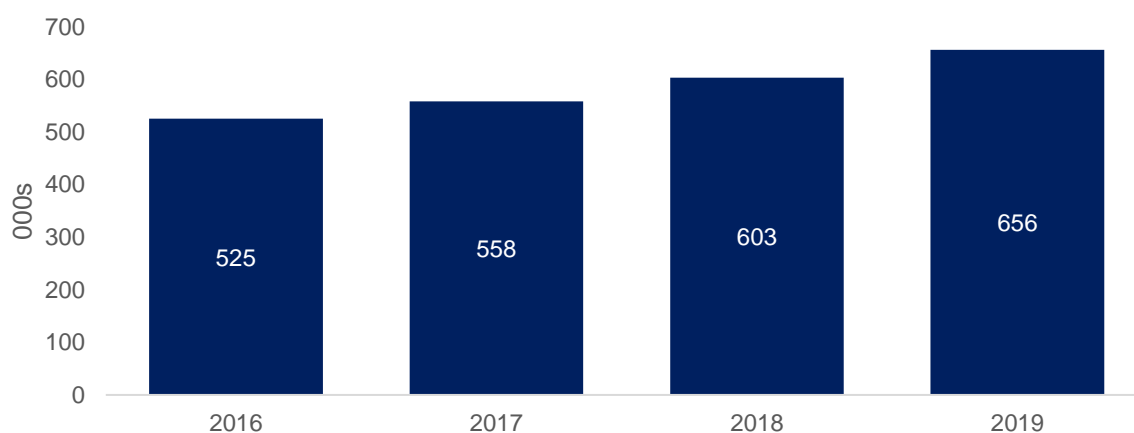


Source: Saffery Champness / Nordicity analysis based on data from the Moffat Centre for Travel & Tourism Business Development (2021)

An analysis of the annual increases in visits to *Outlander* sites indicates that the total number of unique overnight visitors to those sites was 71,000 higher in 2019 compared to 2016. Metrics from VisitScotland's website – particularly the web pages it maintains for *Outlander* and other TV programmes and films – suggest that *Outlander* likely accounted for 54% of interest in screen tourism in Scotland in 2019, when compared alongside other content such as *Harry Potter*, *Skyfall* and *Mary Queen of Scots*.

*Outlander's* share of screen tourism interest further suggests the total number of screen tourists in Scotland was 131,000 higher in 2019 than in 2016. In other words, the number of overnight screen tourists in Scotland increased from 525,000 in 2016 to 656,000 in 2019 (Figure 6).

**Figure 6 Estimated annual number of screen tourists in Scotland (domestic overnight and overseas visitors)**



Source: Saffery Champness / Nordicity analysis based on data from VisitScotland, Historic Houses, the Moffat Centre for Travel & Tourism Business Development, Glasgow Caledonian University (2021)

VisitScotland statistics for 2016 suggest that approximately half of Scotland’s overnight screen tourists in 2019 were domestic tourists (328,000) – i.e. residing in Scotland or elsewhere in the UK – and half were from overseas (328,000).

## 6.2 Annual visitors and spending 2021

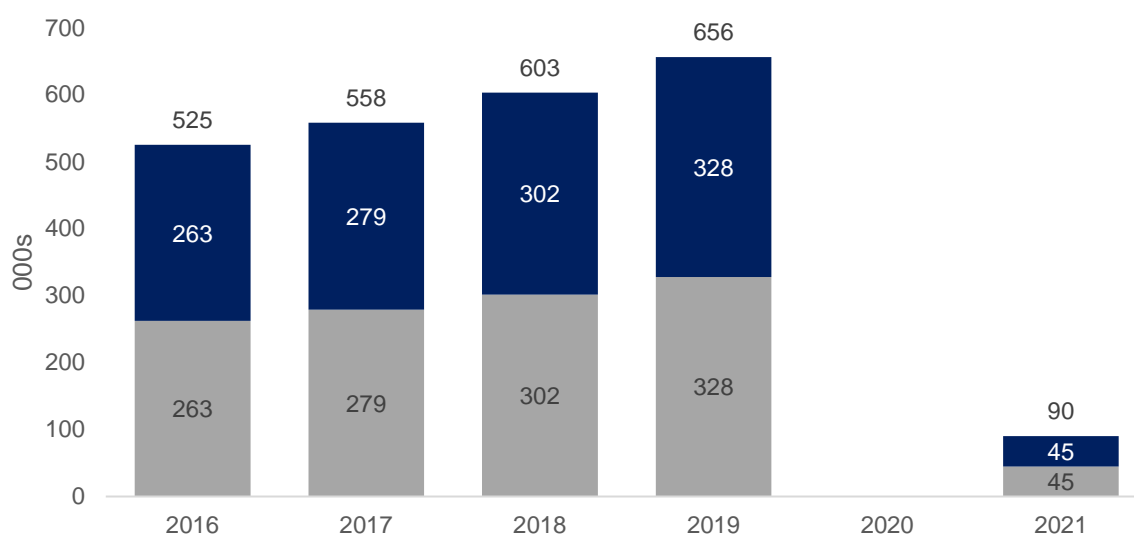
As a result of the pandemic, screen tourism – and most tourism – in Scotland was severely reduced in 2020. In 2021, tourism in Scotland started to recover.

Published statistics on general tourism trends in Scotland between 2019 and 2021 have been used to estimate levels of screen tourism in Scotland in 2021. The general assumption is that screen tourism in Scotland mirrored the underlying tourism trends in Scotland, and did not increase faster or slower than that general trend on account of expanded or reduced screen tourism attractions or offerings.

According to VisitScotland, international visits to Scotland fell from 3,460,100 in 2019 to 479,000 in 2021.<sup>28</sup> In other words, international tourism was 86% lower in 2021 compared to 2019. Applying the general trend in international visits to Scotland implies that the number of international screen tourists fell from an estimated 328,000 in 2019 to 45,000 in 2021.

Domestic tourism was assumed to have followed the same trend as international tourism in 2021.<sup>29</sup> Based on that assumption, the number of domestic overnight screen tourists in Scotland would have also dropped from 328,000 in 2019 to 45,000 in 2021.

**Figure 7 Estimated annual number of domestic overnight and international screen tourists in Scotland, 2016 to 2021**



Source: Saffery Champness / Nordicity analysis based on data from VisitScotland, Historic Houses, the Moffat Centre for Travel & Tourism Business Development, Glasgow Caledonian University (2021)

VisitScotland statistics also indicate that total spending by international visitors to Scotland was £459 million in 2021, or 82% lower than in 2019.<sup>30</sup> That is, average spending per international visitor increased from £734 in 2019 to £958 in 2021. If domestic overnight tourists average spending

<sup>28</sup> VisitScotland (2023a) [International tourism performance 2021](#). Downloaded 27 July 2023. Note: Due to limits on the ONS’s ability to administer the International Passenger Survey at certain ports of entry due to Covid-19 restrictions, some modelling of passenger numbers was required for parts of 2021. Data for those travelling via Dover was only collected from Q3 2021. In addition, no estimates are included for any travel across the Irish border in 2021.

<sup>29</sup> VisitScotland (2023b) [Domestic overnight tourism performance in 2021](#). Downloaded 27 July 2023. Note: While there are published statistics on domestic overnight tourism in Scotland for 2021, due to methodology and survey changes, they are not directly comparable to 2019.

<sup>30</sup> VisitScotland (2023a).

increased at the same rate, then it would have rose from £232 in 2019 to £303 in 2021. In total, therefore, screen tourists spent an estimated £56.8 million in 2021, down from £316.5 million in 2019.

Applying VisitBritain's tourism spending attribution model indicates that out of these gross expenditures of £56.8 million in 2021, £12.7 million can be attributed to the influence of visiting film and TV locations as opposed to other attractions or activities that draw people to Scotland (see Appendix B, Table A - 10). Out of this £12.7 million, **we estimate that £11.6 million can be attributed to businesses located in Scotland** (see Appendix B, Table A - 12).

### 6.3 Economic impact

These attributable Scottish tourism expenditures (£11.6 million) generated an estimated 160 FTEs of direct employment, £3.6 million in direct COE and £6.4 million in direct GVA in Scotland in 2021. This includes employment and economic activity in the accommodation, food and beverage, transport, tour operators, retail, and culture and entertainment industries, which directly benefit from tourist spending.

These direct impacts were adjusted to take into account the effects of the Coronavirus Job Retention Scheme (CJRS), which meant that a portion of the employment that would have been lost on account of the steep drop in screen tourism between 2019 and 2021 would still have been effectively employed at 80% of their salary (up to a maximum of £2,500 per month). CJRS statistics indicate that 12% of the tourism industry workforce was on paid furlough in 2021.<sup>31</sup>

Taking into account workers that were on paid furlough in 2021 raises the direct employment impact to 250 FTEs, direct COE to £5.2 million and direct GVA to £8 million. Overall, therefore, screen tourism generated 310 FTEs of employment, £7.2 million in COE and £11.7 million in GVA in 2021 (Table 22).

**Table 22 Economic impact of screen tourism in Scotland, 2021\***

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Employment (FTEs)	250	30	30	<b>310</b>
COE (£m)	5.2	1.2	0.9	<b>7.2</b>
GVA (£m)	8.0	2.1	1.6	<b>11.7</b>

Source: Saffery Champness / Nordicity estimates based on data from VisitScotland, VisitBritain, Historic Houses, the Moffat Centre for Travel & Tourism Business Development, Glasgow Caledonian University (2021)

\* Estimates of direct impact include adjustment for tourism industry workers employed on paid furlough.

<sup>31</sup> Skills Development Scotland (2021) Covid-19 Labour Market Insights (October 2021).



## 7. Education, skills and talent development

- £9.6 million in annual spending on the provision of film, TV and broadcast education and training
- 960 FTEs of direct employment and total employment impact of 1,180 FTEs
- £45.6 million in direct GVA and £59.2 million in total GVA impact



In Scotland there is an evolving education, skills and talent development ecosystem in place that operates at three main junctures along the talent pipeline for film and TV:

- **Exposure:** introduces film and TV to young people as a potential career (pre-career);
- **Entry:** further education (FE), higher education (HE) and independent organisations provide academic or vocational courses, or experience to educate and prepare individuals for entry into the screen sector; and
- **Evolution:** a network of additional training services that support the continued development of screen sector workers, as they grow and advance their careers within their profession, as well as talent development opportunities for creatives to develop, especially early in their careers.

The support ecosystem is made up of public, private and not-for-profit organisations that largely operate in a complementary way endeavouring to ensure services are available to support the breadth of screen sector occupations as well as the geography of Scotland. Most of this provision originates from within Scotland but some of this is provided by UK-wide organisations and other provision is exported from Scotland to the rest of the UK.

Screen Scotland is part of Creative Scotland and is charged with growing the screen sector in Scotland. Within this role, Screen Scotland has a number of objectives that relate to education and skills development:

- Improving and expanding the provision of moving-image education in every context, increasing its reach, depth and inclusivity.
- Developing Scotland's screen talent and promoting that talent in domestic and international markets.
- Improving employment opportunities in the screen sector through increased and coordinated opportunities for work-based learning, training, and development.

This is funded by the Scottish Government through grant-in-aid and the National Lottery. Furthermore, BFI and ScreenSkills – each of which has a UK-wide remit – also operate within Scotland as part of the education and skills development ecosystem for the screen sector. Lastly, there is the education sub-sector which provides FE and HE qualifications for entry into the screen sector.

In the rest of this section, we estimate the total level of expenditures associated with the delivery of FE and HE courses in Scotland for the screen sector. We also estimate the annual expenditures on non-tertiary level exposure and training – either pre-career or in-career – and continuing professional development (CPD). These various estimates of expenditures on education and skills within the screen sector on Scotland provide the basis for our estimates of the contribution that this sub-sector made to Scotland's economy in 2021.

## 7.1 Higher education

Screen Scotland identified a small number of key HE institutions (HEIs) that provide courses for film, television and broadcast. In order to estimate the economic impact of the screen industries within HE, we took the approach of estimating the number of students studying courses for film, TV and broadcast in a single academic year at the identified HEIs and then applying an average cost incurred to educate a single HE student. In total, we estimate that there were 2,195 students enrolled in film, TV and broadcast courses at HEIs in Scotland in 2021 (Table 23). In estimating the total number of HE students we have included both undergraduates and postgraduates who were enrolled courses in film, TV or broadcast in 2021.

Separate research indicates across 18 HEIs in the UK that were notable for providing screen sector courses alongside a general portfolio of courses, the average cost per student was an estimated £12,400 in 2019. Education cost inflation implies that this likely rose to £12,484 in 2021.

Based on this average annual expenditure per learner, we estimate that total expenditures of £27.4 million were spent in 2021 to deliver film, TV and broadcast courses at HEIs in Scotland.

**Table 23 Estimated expenditures on screen sector HE courses in Scotland**

	2019	2021
Number HE students enrolled in film, TV or broadcast courses	1,898	2,195
Average expenditure per learner (£)*	12,400	12,484
Total HE expenditures (£m)	23.5	27.4

Source: Saffery Champness / Nordicity estimates based on data from HESA and consultations with the HEIs identified by Screen Scotland

Notes:

\* Based upon the data from the following HEIs: Abertay University Dundee, Arts University Bournemouth, Glasgow Caledonian University, Goldsmiths College, Leeds Beckett University, Ravensbourne University London, Solent University, Staffordshire University, Teesside University, University of Bolton, University of Edinburgh, University of Greenwich, University of Hertfordshire, University of Salford, University of Stirling, University of the Arts London, University of the Creative Arts and University of Westminster

## 7.2 Further education

In FE, there is a large number of colleges that provide courses that prepare students for careers in film, TV and broadcast that were identified for the study team by the Screen Scotland. These courses were at SCQF Levels 5-8 and were classified as either generalist or vocational. According to the data supplied by SQA and collected from FEIs, 3,854 students were enrolled in film, TV or broadcast courses at FE colleges in Scotland in 2021.

Using a large sample of 236 FE colleges reporting their financial data to the Education and Skills Funding Agency (ESFA), the average cost per learner was calculated to be approximately £6,500 in 2019. Education cost inflation implies that this average learner cost rose to £6,544 in 2021.

Based on this average annual expenditure per learner, we estimate that total expenditures of £24.8 million were spent in 2019 to deliver film, TV and broadcast courses at FE colleges in Scotland in 2019 (Table 24).

**Table 24 Estimated expenditures on screen sector FE courses in Scotland**

	2019	2021
Number FE students enrolled in film, TV or broadcast courses	3,809	3,854
Expenditure per learner (£)	6,500	6,544
Total FE expenditures (£m)	24.8	25.2

Source: Saffery Champness / Nordicity calculations based on data from FEIs, ESFA and SQA

## 7.3 Pre-career and in-career skills development

Prior to entering the screen sector, the aspirations of young people are exposed to the opportunities of a career in film, TV and broadcast by Screen Scotland and the BFI, through their Film Education and BFI Academy programmes, respectively.

In terms of developing creative talent and skills there are, in addition to schemes run by Screen Scotland and the BFI, a number of not-for profit or private organisations that deliver pre-career skills development or in-career CPD.

Through National Lottery and grant-in-aid funding from the Scottish Government, Screen Scotland funds three strands of pre-career and in-career skills development.

- **Film education** for improving and expanding the provision of film and moving-image education in every context, increasing its reach, depth and inclusivity.
- **Skills development** for improving employment opportunities in the sector through increased and coordinated training.
- **Talent development** for developing Scotland's screen talent (as well as promoting Scotland's talent in domestic and international markets).

To estimate the annual level of expenditures devoted to skills development within the screen sector in Scotland, we compiled data on the levels of funding, overall budgets and income for the leading providers of skills development programmes available in Scotland (Table 25). This includes funding from Screen Scotland's skills development programme strands. In total, we estimate that just under £6.3 million was spent on the delivery of screen sector education, skills and talent development programmes in Scotland in 2021.

**Table 25 Total annual budgets or spending for screen sector education, talent or skills development programmes in Scotland, 2021 (£m)**

Programme	Amount
Screen Scotland Talent Development and Skills programme <sup>1, 2</sup>	5,151,811
Screen Scotland Screen Education projects <sup>1, 2</sup>	677,724
TRC Media	467,645
<b>Total</b>	<b>6,297,180</b>

Source: Screen Scotland and TRC Media

Notes:

1. Where a fundee's total project budget was not available, the value of Screen Scotland's grant funding has been used to estimate total spending.

2. Screen Scotland funding for TRC Media has been removed to avoid double counting with separate statistics for these organisation's overall operating expenditures in 2021.

In addition to the specific funding of screen education, skills development programmes, Screen Scotland funds and promotes on the job training, upskilling and trainees through its Production Growth Fund (PGF). As part of the PGF, producers typically have to employ trainees. According to Screen Scotland, 86 production trainee roles were supported through the PGF on projects that started filming 2021. A further 1,200+ trainee roles were supported by Screen Scotland's general skills and talent development programmes.

## 7.4 Economic impact

The research summarised in Sections 7.1 to 7.3 indicates that an estimated total of £58.9 million was spent to deliver screen sector education, skills and talent development in Scotland in 2021 (Table 26).

**Table 26 Estimated expenditures on screen education, skills and talent development in Scotland (£m)**

	2019	2021
Higher education	23.5	27.4
Further education	24.8	25.2
Screen education and pre-career and in-career skills and talent development	5.9	6.3
<b>Total</b>	<b>54.2</b>	<b>58.9</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Creative Scotland, HESA, HEIs, ESFA, SQA, BFI and TRC Media

Scotland's supply and use tables and Nordicity's MyEIA Model were used to convert these estimated total expenditures into estimates of employment, COE and GVA. In total, screen sector education, talent and skills development in Scotland generated 1,180 FTEs of employment, £42.8 million in COE and £59.2 million in GVA for Scotland's economy in 2021 (Table 27). This included 960 FTEs of employment, £35.1 million in COE and £45.6 million in GVA directly within Scotland's education and training sub-sector.

**Table 27 Total economic impact of screen sector education, skills and talent development in Scotland, 2021**

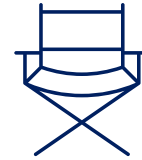
	Direct	Indirect	Induced	Total
Employment (FTEs)	960	70	150	<b>1,180</b>
COE (£m)	35.1	2.6	5.1	<b>42.8</b>
GVA (£m)	45.6	4.2	9.4	<b>59.2</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Creative Scotland, HESA, HEIs, ESFA, SQA, BFI and TRC Media

Note: Figures may not sum to totals due to rounding

## 8. Infrastructure

- As of July 2023, Scotland had 24 studio and build space facilities totalling 779,264 sq. ft.
- Of this total figure, there are 10 facilities totalling 370,091 sq. ft. of stage space available with the height generally required for film and TV production
- Potential to attract £5 million to £10 million in annual film and TV production spending for every 10,000 sq. ft. of new state of the art stage space

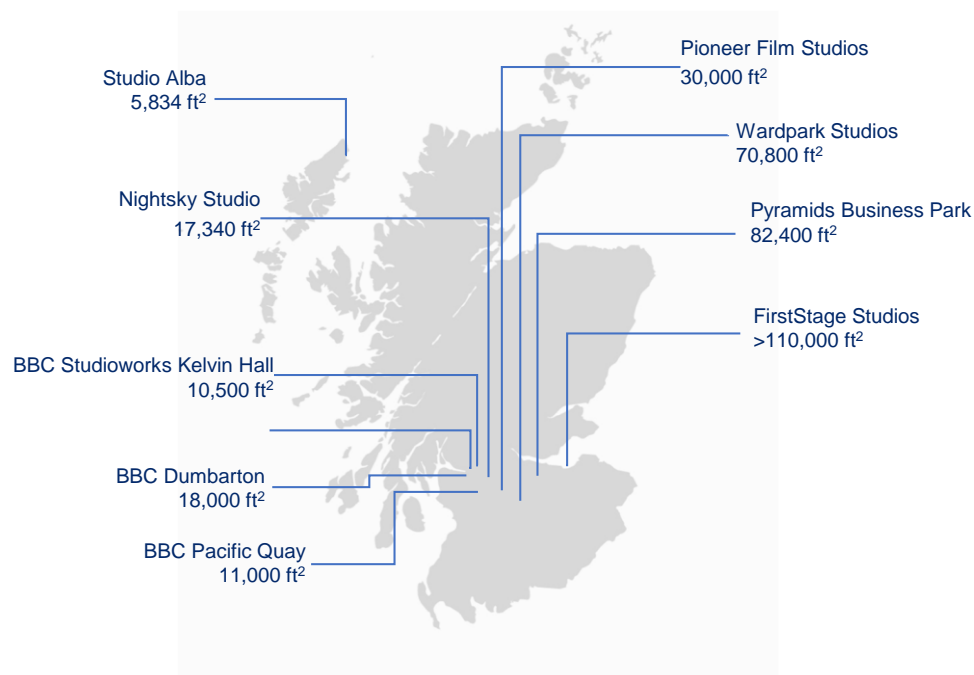


### 8.1 Studio facilities

Within the screen sector, infrastructure is largely comprised of the studio facilities that are used by producers of films, TV programmes, TV commercials and other audiovisual content. According to Scotland's Screen Commission, as of July 2023 Scotland had:

- 13 studio facilities or build spaces of **under 10,000 sq. ft.** offering a combined 72,988 sq. ft. of stage space, and
- 11 studio facilities or build spaces of **over 10,000 sq. ft** offering a combined 706,276 sq. ft. of stage space.

Among these 24 facilities, 10 provide stages with suitable height available to film and TV producers: (i) BBC Dumbarton, (ii) Wardpark Studios, (iii) Pyramids Business Park, (iv) FirstStage Studios, (v) BBC Pacific Quay, (vi) Studio Alba, (vii) Kelvin Hall, (viii) Kelvin Hall (BBC), (ix) Pioneer Film Studios and (x) Nightsky Studios.



From an economic impact perspective, the ongoing use of studio facilities is captured as an indirect impact of production. The revenue earned by studio facilities and used to cover their own operating expenditures and employment costs is already counted as stage-hire fees in production budgets. Over the long-term, the capital investments made to build new studio facilities or convert existing buildings to suitable stage spaces would also be indirectly recovered as part of these stage-hire fees.

### 8.2 Economic impact

To provide a contemporaneous accounting of the economic contribution of the screen sector in Scotland, we have, however, estimated the capital construction costs associated with studio building in Scotland in 2021.

Funding data from Screen Scotland and consultations with studio operators in Scotland indicates that approximately £12.5 million was spent on studio capital investments in 2021, including builds, expansions and refurbishments.

These capital investments generated an estimated 130 FTEs of employment, £4.8 million in COE and £8.9 million in GVA in Scotland in 2021 (Table 22). This included 70 FTEs of employment, £2.9 million in COE and £5.4 million in GVA generated within Scotland's construction industry (Table 28).

**Table 28 Economic impact of studio capital investments, 2021**

	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total</b>
Employment (FTEs)	70	40	20	<b>130</b>
COE (£m)	2.9	1.4	0.6	<b>4.8</b>
GVA (£m)	5.4	2.5	1.0	<b>8.9</b>

Source: Saffery Champness / Nordicity estimates based on data from Screen Commission and interviews with studio operators

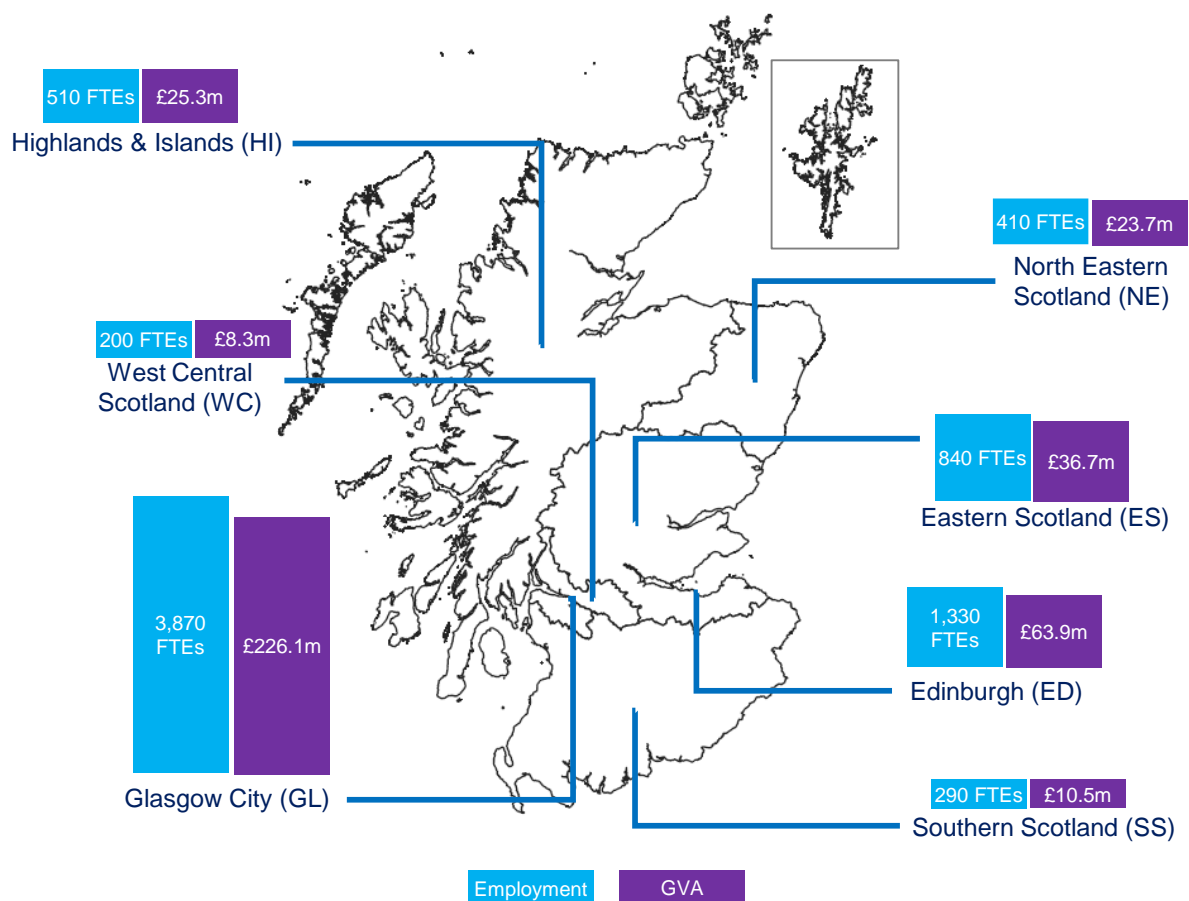
## 9. Regional analysis

In the following section we provide a regional breakdown of the economic impact of the screen sector in Scotland. This regional breakdown is based on a modified version of the International Territorial Levels Level 2 (ITL-2) regions of Scotland. We have estimated the economic impacts for each of Scotland's five ITL-2 regions; however, we have also estimated the impacts for Glasgow City and Edinburgh and removed those impacts from the ITL-2 regions that those two urban centres are located within (see Box 5).

Our regional analysis indicates that Glasgow accounted for the largest shares of direct employment and GVA in the screen sector in 2021 (Figure 8). In that year, Glasgow accounted for 51.9% of direct employment and 57.3% of direct GVA (Table 29). Glasgow's screen cluster generated 3,870 FTEs of direct employment and £226.1 million in direct GVA in 2021.

Most of the employment generated within the Glasgow cluster is due to production and development; however, Glasgow also accounts for significant shares of employment in GVA in other sub-sectors, particularly TV broadcast, distribution, exhibition and festivals. In fact, with the exception of screen tourism, and education and skills development, Glasgow was Scotland's leading centre of economic activity within the screen sector.

**Figure 8 Direct economic impact of screen sector in Scotland, by region, 2021**



Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, broadcaster interviews, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media



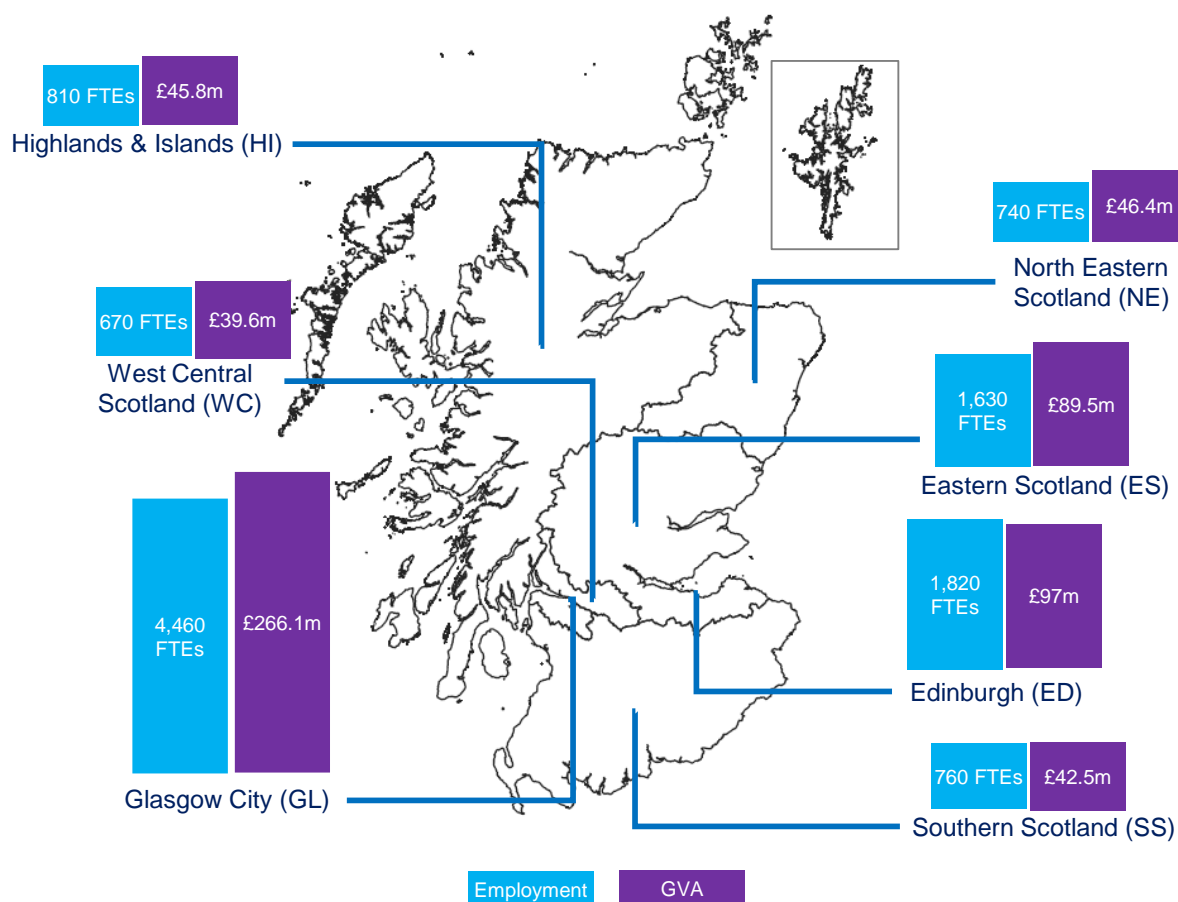
## Economic Value of the Screen Sector in Scotland 2021

Glasgow was followed by Edinburgh, which accounted for 1,330 FTEs of employment and £63.9 million in GVA; and then Eastern Scotland (excluding Edinburgh) with 800 FTEs of employment and £35.9 million in GVA.

Highlands and Islands, West Central Scotland (excluding Glasgow City), North Eastern Scotland and Southern Scotland each accounted for under 7% of direct employment and GVA in 2021.

Glasgow also accounted for the largest share of the total economic impact of the screen sector in 2021 (Figure 9), with a 41% share of the total employment impact and a 42.4% share of total GVA impact (Table 30). Glasgow's slightly lower share in relation to its share of direct impacts was due to the fact that many indirect and induced impact are spread across a wider range of industries that are less concentrated in Glasgow and more evenly distributed (in terms of business and economic activity) across Scotland.

**Figure 9 Total economic impact of screen sector in Scotland, by region, 2021**



Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, broadcaster interviews, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

**Table 29 Direct economic impact of screen sector in Scotland, by region and sub-sector, 2021**

	GL	ES	ED	HI	WC	NE	SS	Total
<b>Employment (FTEs)</b>								
Production and development	3,130	290	700	220	10	190	30	<b>4,570</b>
Distribution	30	<0	0	0	0	<0	0	<b>30</b>
Exhibition and film festivals	250	190	270	140	110	60	150	<b>1,160</b>
TV broadcast	140	10	20	100	40	80	20	<b>400</b>
Screen tourism	30	120	0	30	0	0	70	<b>250</b>
Education, skills and talent development	270	210	320	20	40	70	20	<b>960</b>
Infrastructure	20	20	20	0	0	10	0	<b>70</b>
<b>Total</b>	<b>3,870</b>	<b>840</b>	<b>1,330</b>	<b>510</b>	<b>200</b>	<b>410</b>	<b>290</b>	<b>7,440</b>
Share	51.9%	11.3%	17.9%	6.8%	2.7%	5.5%	3.9%	100.0%
<b>GVA (£m)</b>								
Production and development	186.8	15.8	38.5	12.0	0.7	11.8	1.7	<b>267.2</b>
Distribution	6.7	0.1	0.1	0.0	0.0	0.5	0.0	<b>7.3</b>
Exhibition and film festivals	6.2	4.7	6.7	3.5	2.9	1.4	3.8	<b>29.3</b>
TV broadcast	10.9	0.9	1.6	7.5	2.8	6.2	1.6	<b>31.4</b>
Screen tourism	1.0	3.8	0.1	1.0	0.0	0.0	2.1	<b>8.0</b>
Education, skills and talent development	13.0	10.2	15.1	1.1	1.7	3.4	1.2	<b>45.6</b>
Infrastructure	1.5	1.2	1.8	0.1	0.2	0.4	0.1	<b>5.4</b>
<b>Total</b>	<b>226.1</b>	<b>36.7</b>	<b>63.9</b>	<b>25.3</b>	<b>8.3</b>	<b>23.7</b>	<b>10.5</b>	<b>394.4</b>
Share	57.3%	9.3%	16.2%	6.4%	2.1%	6.0%	2.7%	100.0%

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, broadcaster interviews, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media  
 GL – Glasgow City, ES - Eastern Scotland (excluding Edinburgh), ED - Edinburgh, HI - Highlands & Islands, WC – West Central Scotland (excluding Glasgow City), NE – North Eastern Scotland, SS – Southern Scotland  
 Note: Figures may not sum to totals due to rounding

**Table 30 Total<sup>1</sup> economic impact of screen sector in Scotland, by region and sub-sector, 2021**

	GL	ES	ED	HI	WC	NE	SS	Total
<b>Employment (FTEs)</b>								
Production and development	3,580	870	1,070	440	360	440	390	<b>7,150</b>
Distribution	30	10	<10	<10	<10	<10	<10	<b>60</b>
Exhibition and film festivals	280	240	300	160	140	80	180	<b>1,390</b>
TV broadcast	190	80	60	120	80	110	60	<b>710</b>
Screen tourism	40	130	10	40	10	10	70	<b>310</b>
Education, skills and talent development	310	270	350	40	70	90	50	<b>1,180</b>
Infrastructure	30	30	30	10	10	10	10	<b>130</b>
<b>Total</b>	<b>4,460</b>	<b>1,630</b>	<b>1,820</b>	<b>810</b>	<b>670</b>	<b>740</b>	<b>760</b>	<b>10,940</b>
Share	41.0%	15.0%	16.7%	7.4%	6.2%	6.8%	7.0%	100.0%
<b>GVA (£m)</b>								
Production and development	217.4	55.3	63.6	27.3	24.4	28.5	25.8	<b>442.2</b>
Distribution	7.1	0.6	0.4	0.3	0.3	0.8	0.3	<b>9.8</b>
Exhibition and film festivals	8.3	7.6	8.5	4.7	4.6	2.7	5.6	<b>41.9</b>
TV broadcast	14.5	6.0	4.6	9.5	5.7	8.5	4.6	<b>53.4</b>
Screen tourism	1.6	4.6	0.6	1.4	0.5	0.4	2.6	<b>11.7</b>
Education, skills and talent development	15.2	13.3	17.0	2.3	3.5	4.8	3.0	<b>59.2</b>
Infrastructure	2.1	2.0	2.3	0.4	0.7	0.8	0.6	<b>8.9</b>
<b>Total</b>	<b>266.1</b>	<b>89.5</b>	<b>97.0</b>	<b>45.8</b>	<b>39.6</b>	<b>46.4</b>	<b>42.6</b>	<b>627.1</b>
Share	42.4%	14.3%	15.5%	7.3%	6.3%	7.4%	6.8%	100.0%

Source: Saffery Champness / Nordicity estimates based on data from Screen Scotland, Screen Commission, BFI, public financial reports, Ofcom, broadcaster interviews, producers/distributors survey (2022), Comscore, ONS, ABS, ASHE, BRES, D&B, EIFF, Glasgow Film Festival, Tourism Resources Company, VisitScotland, VisitBritain, the Moffat Centre for Travel & Tourism Business Development, HESA, ESFA, SQA and TRC Media

GL – Glasgow City, ES - Eastern Scotland (excluding Edinburgh), ED - Edinburgh, HI - Highlands & Islands, WC – West Central Scotland (excluding Glasgow City), NE – North Eastern Scotland, SS – Southern Scotland

Note: Figures may not sum to totals due to rounding

1. Includes direct, indirect and induced impacts

**Box 5 Modified ITL-2 regions**

As of January 2021, there were five ITL-2 regions in Scotland. For this study, those regions have been modified to create a total of seven regions within Scotland. Among urban centres in Scotland, our research indicates that Glasgow and Edinburgh account for significant amounts of production activity, business activity and employment within the screen sector (relative to Scotland’s other urban centres). For that reason, Glasgow City and Edinburgh were removed from their respective ITL-2 regions – West Central Scotland and Eastern Scotland, respectively.

**ITL-2 regions**

- Eastern Scotland
- Highlands and Islands
- North Eastern Scotland
- Southern Scotland
- West Central Scotland

**Modified ITL-2 regions**

- Eastern Scotland (excluding Edinburgh)
- Edinburgh
- Glasgow City
- Highlands and Islands
- North Eastern Scotland
- Southern Scotland
- West Central Scotland (excluding Glasgow City)

## List of abbreviations

ABS	Annual Business Survey
ASHE	Annual Survey of Hours and Earnings
BFI	British Film Institute
BRES	Business Register and Employment Survey
COE	Compensation of employment
EIFF	Edinburgh International Film Festival
ESFA	Education & Skills Funding Agency
FE	Further education
FEI	Further education institutions
FTE	Full-time equivalent
GBTS	Great Britain Tourism Survey
GVA	Gross value added
HE	Higher education
HEI	Higher education institution
HESA	Higher Education Statistics Agency
IDBR	Inter-Departmental Business Register
IPS	International Passenger Survey
ONS	Office for National Statistics
PSB	Public Service Broadcaster
SABS	Scottish Annual Business Statistics
SQA	Scottish Qualifications Authority
SVOD	Subscription Video on Demand
VOD	Video on Demand

## Appendix A: Data tables

Text

**Table A - 1 Key performance indicators for film festivals in Scotland, 2021**

	<b>EIFF</b>	<b>Glasgow Film Festival</b>	<b>Other film festivals in Scotland</b>	<b>Total</b>
Core attendance*	11,000	--*	20,500	<b>31,500</b>
Screenings per visitor	5.0	--*	5.0	--
Number of unique visitors	2,200	--*	4,100	<b>6,300</b>
Scotland residents	1,518	--*	2,829	<b>4,347</b>
Other UK residents	484	--*	902	<b>1,386</b>
Overseas residents	198	--*	369	<b>567</b>
Festival operating expenditures (£)	353,570	713,094	1,053,946	<b>2,120,610</b>
Gross visitor spending (£)	200,994	--*	374,579	<b>575,573</b>
Scotland residents	50,917	--*	94,890	<b>145,807</b>
Other UK residents	78,005	--*	145,373	<b>223,378</b>
Overseas residents	72,072	--*	134,316	<b>206,388</b>

Source: Saffery Champness / Nordicity estimates based on data from EIFF, Glasgow Film Festival, Tourism Resources Company, and Screen Scotland

\* Online-only festival in 2021.

## Appendix B: Screen tourism methodology

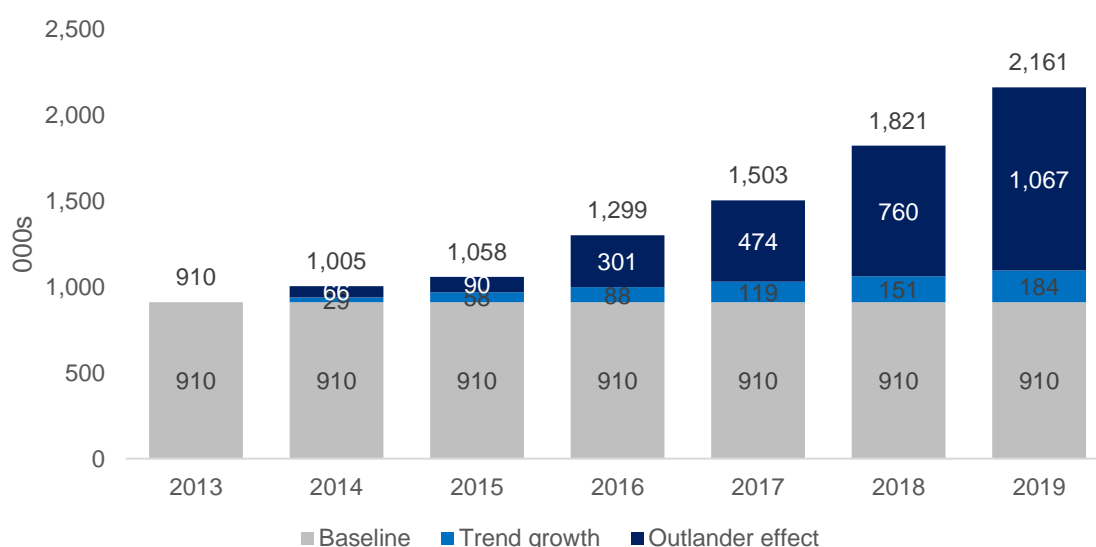
The following Appendix provides a detailed description of the data sources, assumptions and calculations used to derive the estimate of attributable screen tourism spending.

### 1. Growth in visits to *Outlander* sites

To assess the annual number of screen tourists<sup>32</sup> influenced by *Outlander*, we updated a simple difference-in-difference analysis first set out by VisitScotland. Many of Scotland’s castles and historic monuments feature as locations in *Outlander* episodes. These 23 *Outlander* sites accounted for just under 2.2 million visits in 2019, or 3.9% of the over 55 million visits to 597 historic sites across Scotland.<sup>33</sup>

The first season of *Outlander* aired in 2014 and 2015; so, 2013 provides a baseline measurement of pre-*Outlander* visits. By 2019, total visits to all 23 sites reached just under 2.2 million. After removing the trend rate of growth in annual visits to historic sites – as indicated by the overall number of visits to non-*Outlander* historic sites between 2014 and 2019 – we conclude that *Outlander* led to 1,067,000 additional visits to these historic sites in 2019 in relation to 2013 – i.e. before the first airing of *Outlander* (Figure A - 1).

**Figure A - 1 Annual visits to historic sites featured in *Outlander***



Source: Saffery Champness / Nordicity analysis based on data from the Moffat Centre for Travel & Tourism Business Development (2021)

Since VisitScotland’s Scotland Visitor Survey provided an estimate of screen tourists in 2016 (525,000), we used this analysis of visits to *Outlander* sites to derive estimates of the increase in visits to *Outlander* sites since 2016. So, while there were an estimated 1,067,000 additional visits to *Outlander* sites in 2019, once one removes the additional visits already achieved by 2016 (301,000), the net increase in visits to *Outlander* sites vs. 2016 was 766,000 (Table A - 2).

<sup>32</sup> In this study, ‘screen tourist’ refer to tourists who, as part of their visit to Scotland, visited a site in Scotland that was either a filming location or a setting for a film or TV programme. These site visits may not have been the prime motivation for that person’s visit to Scotland.

<sup>33</sup> Moffat Centre for Travel & Tourism Business Development (2021).



**Table A - 2 Calculation of additional visits to *Outlander* sites since 2016**

	2016	2017	2018	2019
Total additional visits to <i>Outlander</i> sites (vs. 2013)	301,000	474,000	760,000	1,067,000
Additional visits to <i>Outlander</i> sites in 2016 (baseline year)	301,000	301,000	301,000	301,000
Additional visits to <i>Outlander</i> sites (vs. 2016)	0	173,000	459,000	766,000

Source: Saffery Champness / Nordicity estimates based on data from the Moffat Centre for Travel & Tourism Business Development (2021)

## 2. Conversion of visits to estimates of unique individuals

A review of web sites for *Outlander* tour operators indicated that most single-day multi-site location tours took in three castles. Based on this, we assumed that each visitor visited an average of three sites and used this average to convert the estimates of additional 'visitors' to *Outlander* sites to estimates of unique individuals visiting *Outlander* sites (Table A - 3).

**Table A - 3 Calculation of additional number of unique visitors to *Outlander* sites**

	2016	2017	2018	2019
Additional visits to <i>Outlander</i> sites (vs. 2016)	0	173,000	459,000	766,000
Average number of sites visited per visitor	3.0	3.0	3.0	3.0
Estimated number of additional <i>Outlander</i> visitors (vs. 2016)	0	58,000	153,000	255,000

Source: Saffery Champness / Nordicity estimates based on data from the Moffat Centre for Travel & Tourism Business Development (2021)

## 3. Origin breakdown of unique overnight visitors

Given the similarity of *Outlander* castle sites to historic attractions, data from DC Research<sup>34</sup> and research conducted by Saffery Champness and Nordicity<sup>35</sup> for Historic Houses for the origin of visitors to historic houses and gardens in the UK was used to prepare a breakdown of unique visitors by geographic origin (Table A - 4).

<sup>34</sup> DC Research (2015). The Economic and Social Contribution of Independently Owned Historic Houses and Gardens. Prepared for Historic Houses. P. 35.

<sup>35</sup> Saffery Champness and Nordicity (2018). Changes to the tax treatment of heritage maintenance funds: a cost benefit analysis. Prepared for Historic Houses. P. 18.

**Table A - 4 Geographic origin of number of unique visitors to Outlander sites**

	2016	2017	2018	2019
Estimated number of additional Outlander visitors (vs. 2016)	0	58,000	153,000	255,000
International (13%)	0	8,000	20,000	33,000
Domestic overnight (15%)	0	9,000	23,000	38,000
Domestic daytrip (72%)	0	41,000	110,000	184,000

Source: Saffery Champness / Nordicity estimates based on data from Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

#### 4. Estimate of additional overnight *Outlander* visitors

The estimated number of international and domestic overnight visitors was summed to arrive at estimates of the additional overnight visitors to *Outlander* sites.

**Table A - 5 Calculation of additional number of unique overnight visitors to *Outlander* sites**

	2016	2017	2018	2019
International visitors	0	8,000	20,000	33,000
Domestic overnight visitors	0	9,000	23,000	38,000
Additional overnight visitors to <i>Outlander</i> sites (vs. 2016)	0	17,000	43,000	71,000

Source: Saffery Champness / Nordicity estimates based on data from Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

#### 5. Total additional overnight screen tourists

The VisitScotland website contains a variety of individual pages promoting tourism related to different TV programmes and films, including *Outlander*. Website metrics provided by VisitScotland indicated that web site visits or sessions to the *Outlander* pages accounted for 54% of all sessions in 2019. The share of website sessions was used as a proxy for *Outlander's* ultimate share of screen tourists in Scotland. So, for example, in 2019, our estimate of 71,000 additional (vs. 2016) overnight tourists visiting *Outlander* locations would imply that all film and TV locations in Scotland likely attracted 131,000 overnight tourists ( $71,000 \div 54\% = 131,000$ ) (Table A - 6).

**Table A - 6 Estimate of total screen tourists in Scotland (domestic overnight and overseas visitors)**

	2016	2017	2018	2019
Additional overnight visitors to <i>Outlander</i> sites (vs. 2016)	0	17,000	43,000	71,000
<i>Outlander</i> share of web site traffic to VisitScotland screen tourism pages	--	51%	55%	54%
Estimated total number of additional overnight screen tourists in Scotland (vs. 2016)	0	33,000	78,000	131,000

Source: Saffery Champness / Nordicity estimates based on data from VisitScotland, Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

## 6. Estimated number of overnight screen tourists in 2019

The estimates of the total annual number of additional screen tourists were added to the baseline figures of 525,000 overnight screen tourists in 2016, as per VisitScotland's Visitor Survey to arrive at an estimate of the overall number of overnight screen tourists (656,000) in Scotland in 2019 (Table A - 7).

**Table A - 7 Estimate of total screen tourists in Scotland (domestic overnight and overseas visitors)**

	2016	2017	2018	2019
Baseline number of screen tourists (2016)	525,000	525,000	525,000	525,000
Estimated total number of additional overnight screen tourists in Scotland (vs. 2016)	0	33,000	78,000	131,000
Estimated total number of overnight screen tourists in Scotland	0	558,000	603,000	656,000

Source: Saffery Champness / Nordicity estimates based on data from VisitScotland, Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

## 7. Domestic-international split in screen tourists

An analysis of data contained in VisitScotland's Scotland Visitor Survey 2015 & 2016: TV and Film Extract indicated that overnight screen tourists in Scotland were split approximately 50-50 in terms of domestic vs. international visitors (Table A - 8).

According to VisitScotland, international visits to Scotland fell from 3,460,100 in 2019 to 479,000 in 2021.<sup>36</sup> In other words, international tourism was 86% lower in 2021 compared to 2019. Applying the general trend in international visits to Scotland implies that the number of international screen tourists fell from an estimated 328,000 in 2019 to 45,000 in 2021. The same trend in international tourism was used to estimate the trend in domestic overnight screen tourism – 45,000 in 2021.

**Table A - 8 Estimate of total screen tourists in Scotland (domestic overnight and overseas visitors)**

	2016	2017	2018	2019	2020	2021
Estimated total number of overnight screen tourists in Scotland	0	558,000	603,000	656,000	-- <sup>1</sup>	90,000
Domestic (50%)	0	279,000	301,500	328,000	-- <sup>1</sup>	45,000
International (50%)	0	279,000	301,500	328,000	-- <sup>1</sup>	45,000

Source: Saffery Champness / Nordicity estimates based on data from VisitScotland, Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

1. No estimates due to pandemic

## 8. Estimation of total spending by screen tourists

Data published by VisitScotland indicate that domestic overnight visitors in Scotland spent an average of £232 per trip in 2019, whilst international overnight visitors spent an average of £733.<sup>37</sup> These amounts were multiplied by the visitor estimates for 2019 to arrive at an overall estimate of tourism spending (Table A - 10).

**Table A - 9 Estimate of total screen tourists in Scotland (domestic overnight and overseas visitors), 2019**

<sup>36</sup> <https://www.visitscotland.org/research-insights/about-our-visitors/international/annual-performance-report>

<sup>37</sup> VisitScotland (2020). [Key Facts on Tourism in Scotland 2019](#). p. 5.

## Economic Value of the Screen Sector in Scotland 2021

	Number of screen tourists	Average spend per trip (£)	Total spend (£m)
Domestic overnight	328,000	232	76.1
International	328,000	733	240.4
<b>Total</b>	<b>656,000</b>	<b>--</b>	<b>316.5</b>

Source: Saffery Champness / Nordicity estimates based on data from VisitBritain, VisitScotland, GBTS/NISRA/IPS, Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

VisitScotland statistics also indicate that total spending by international visitors to Scotland was £459 million in 2021, or 82% lower than in 2019.<sup>38</sup> That is, average spending per international visitor increased from £734 in 2019 to £958 in 2021. If domestic overnight tourists' average spending increased at the same rate, then it would have rose from £232 in 2019 to £303 in 2021 (Table A - 10).

**Table A - 10 Estimate of total screen tourists in Scotland (domestic overnight and overseas visitors), 2021**

	Number of screen tourists	Average spend per trip (£)	Total spend (£m)
Domestic overnight	45,000	330	13.6
International	45,000	958	43.1
<b>Total</b>	<b>90,000</b>	<b>--</b>	<b>56.8</b>

Source: Saffery Champness / Nordicity estimates based on data from VisitBritain, VisitScotland, GBTS/NISRA/IPS, Saffery Champness / Nordicity (2018), DC Research (2015) and the Moffat Centre for Travel & Tourism Business Development (2021)

### 9. Attributable spending

VisitBritain's model for estimating the portion of total tourist spending attributable spending attributable to individual activities was used to attribute spending to screen tourism, i.e. visiting film and TV locations. Under VisitBritain's attribution model, tourists are asked to rate the importance of different activities as motivators for their decision to take a short break or holiday in the UK. These ratings are then used in the following manner to apportion total trip spending.<sup>39</sup>

- **Sole reason:** Percentage response is multiplied by total spending. For example, if 20% of respondents selected this rating for a particular activity, then total trip spending, say £1000, is multiplied by 20% and £200 is attributed to the particular activity.
- **Very important reason:** Percentage response is multiplied by total spending and then divided by the average number of total activities undertaken on a trip. For example, if 30% of respondents selected this rating for a particular activity and then also undertook an average of 10 different activities, then total trip spending, say £1,000, is multiplied by 30% and £300 and divided by 10 so that £30 is attributed to the particular activity.
- **Fairly important reason:** Treated in the same manner as 'Very important reason'.
- **Only a small reason:** 0% attribution.
- **Of no importance at all:** 0% attribution.

With regards to the activity of visiting film and TV locations, this type of ratings data was only available for research commissioned by VisitBritain for the UK in 2015.<sup>40</sup> The results of that research (summarised in Table A - 11) was applied to Scotland for 2021.

The results indicated that a spending attribution rate of 22.4% could be applied to screen tourism. In other words, out of the estimated total trip spending of £56.8 million made by screen tourists, £12.7

<sup>38</sup> <https://www.visitscotland.org/research-insights/about-our-visitors/international/annual-performance-report>

<sup>39</sup> TNS (2015). Valuing Activities: Final Report. Prepared for VisitScotland, VisitEngland and Visit Wales. 7 October 2015.

<sup>40</sup> TNS (2015). Valuing Activities: Final Report. Prepared for VisitScotland, VisitEngland and Visit Wales. 7 October 2015.

million (i.e. 22.4%) could be attributed to screen tourism as a motivator in relation to other trip motivators (Table A - 11).

**Table A - 11 Derivation of trip spend attribution rate for visiting film or TV locations in the UK**

	Share of responses (UK, 2015) <sup>1</sup>	Average number of activities undertaken during trip <sup>2</sup>	Attribution rate
Sole reason	16%	7.8	16.0%
Very important reason	23%	7.8	2.9% <sup>3</sup>
Fairly important reason	27%	7.8	3.5% <sup>3</sup>
Only a small reason	23%	7.8	0.0%
Of no importance at all	12%	7.8	0.0%
<b>Total</b>	<b>100%</b>	<b>7.8</b>	<b>22.4%</b>

Source: Saffery Champness / Nordicity calculations based on data from TNS (2015)

1. Response to the following question: 'Thinking about the most recent UK holidays or short breaks when you took part in these activities, how important was being able to undertake 'Visiting location of TV series, etc.' in your decision to take the holiday or short break?

2. Average number of activities for domestic holidays and short breaks by British residents in 2015

3. Share of responses divided by average number of activities undertaken during trip.

## 10. Allocation of attributable spending

Before analysing the economic impact generated by attributable screen tourism spending, the spending estimate was allocated across tourism-spending categories. This allocation was done in accordance with observed spending patterns published by VisitBritain for domestic tourists in Scotland (Table A - 12).<sup>41</sup>

**Table A - 12 Allocation of attributable screen tourism spending, 2021**

	Share of total spending	Allocation (£m)
Accommodation	39.0%	5.0
Food and beverage	20.0%	2.5
Culture	6.0%	0.8
Retail and other	18.0%	2.3
Transport (earned in Scotland) <sup>1</sup>	8.5%	1.1
<b>Scotland total</b>	<b>91.5%</b>	<b>11.6</b>
Transport (earned outside Scotland) <sup>1</sup>	8.5%	1.1
<b>Global total</b>	<b>100.0%</b>	<b>12.7</b>

Source: Saffery Champness / Nordicity calculations based on data from TNS (2015) and Kantar (2020)

1. 50% of the total allocated transport spending has been allocated to businesses in Scotland (eg. car hire, public transport), with the other 50% allocated to businesses (eg. airlines) located outside Scotland.

<sup>41</sup> Kantar (2020). The GB Tourist: 2019 Annual Report. Prepared for VisitScotland, VisitEngland, Cymru Wales. P. 93.

## Appendix C: MyEIA™ Model

### Indirect impact

Indirect impacts were estimated using Nordicity's MyEIA™ Model. This model utilises the 2019 input-output tables published by the Scottish Government, along with other economic data (e.g. median wages) to estimate how increased purchases of goods and services translate into incremental employment, COE and GVA.

#### *Construction of input-purchases vector*

Data collected through primary and secondary research was used to prepare a profile of input purchases. After removing expenditures on sources of value added (i.e. COE, mixed income), the remaining expenditures were mapped to a 98 x 1 vector ( $x$ ) of industries (corresponding with the industries listed in the 2019 input-output tables published by the Scottish Government).

#### *Estimation of indirect output*

The 2019 Leontief inverse matrix ( $L$ ) for the UK economy was derived from the 2019 input-output tables published by the Scottish Government. The following formula was then used to estimate a 1 x 98 vector ( $y$ ) containing the changes in output,  $y_i$ , in each industry as a result of the input purchases arising from each sector.

$$y = x'L$$

Where:

$y$  is a 1 x 98 vector of changes in output ( $y_i$ )

$x$  is 98 x 1 vector of input-purchase expenditures (by receiving industry)

$L$  is the 98 x 98 Leontief inverse matrix

#### *Calculation of indirect GVA*

The GVA ratio ( $a_i$ ) was calculated for each of the 98 industries listed in the ONS input-output tables and  $L$ . These ratios were calculated as:

$$a_i = GVA_i / z_i$$

where:

$GVA_i$  is the value of GVA generated in industry  $i$  as per the 2019 input-output tables

$z_i$  is the total value of output in industry  $i$  as per the 2019 input-output tables

The total indirect GVA impact across all industries ( $g^*$ ) was calculated in the following manner:

$$g^* = a'y$$

Where:

$a$  is a 98 x 1 vector of  $a_i$

$y$  is a 98 x 1 vector of  $y_i$

#### *Calculation of indirect COE*

The COE ratio ( $b_i$ ) was calculated for each of the 98 industries listed in the ONS input-output tables. These ratios were calculated as:

$$b_i = COE_i / z_i$$

where:

$COE_i$  is the value of COE generated in industry  $i$  as per the 2019 input-output tables

$z_i$  is the total value of output in industry  $i$  as per the 2019 input-output tables

The total indirect COE impact across all industries ( $w^*$ ) was calculated in the following manner:

$$w^* = b'y$$

Where:

$b$  is a  $98 \times 1$  vector of  $b_i$

$y$  is a  $98 \times 1$  vector of  $y_i$

### *Estimation of indirect employment*

The number of indirect jobs (measured in FTEs) was estimated by dividing the COE impact in each industry ( $w_i$ ) by the average FTE cost in each industry ( $m_i$ ).

$$q_i = w_i / m_i$$

where:

$w_i$  is the total wage impact in industry  $i$

$m_i$  is the average FTE cost in industry  $i$

Total indirect employment ( $q^*$ ) was arrived at by summing the employment impacts ( $q_i$ ) across the 64 industries.

$$q^* = \sum_i q_i$$

### **Induced impact**

Nordicity's MyEIA™ Model also provides estimates of induced impacts. These estimates are based on the Leontief Type II tables published by the Scottish Government for 2019.

### *Estimation of induced output*

The values of direct and indirect output were summed to arrive at an estimate of Type I output.

$$y_{\text{TYPE I}} = y_{\text{DIRECT}} + y_{\text{INDIRECT}}$$

The Type I output was then multiplied by the Type II ratios implied by the Scottish Government Leontief Type II tables.

$$y_{\text{TYPE II}} = \text{Type II multiplier} \cdot (y_{\text{TYPE I}})$$

For impacts at the regional level, lower multipliers were used.

### *Estimation of induced GVA*

The total value of induced impact GVA was estimated by multiplying the economy-wide GVA-to-output ratio (as per the 2019 input-output tables) by the estimate of Type II output.

$$g_{\text{INDUCED}} = (a^*) \cdot (y_{\text{TYPE II}})$$

Where:

$a^*$  is the GVA-to-output ratio across all industries (0.53)



### *Estimation of induced COE*

The total value of induced impact COE was estimated by multiplying the economy-wide COE-to-output ratio (as per the 2019 input-output tables) by the estimate of Type II output.

$$W_{\text{INDUCED}} = (b^*) \cdot (y_{\text{TYPE II}})$$

Where:

$b^*$  is the COE-to-output ratio across all industries.

### *Estimation of induced employment*

The number of induced impact FTEs ( $q_{\text{INDUCED}}$ ) was estimated by dividing the estimate of induced COE ( $W_{\text{INDUCED}}$ ) by the average FTE cost across the UK economy ( $m^*$ ).

$$q_{\text{INDUCED}} = W_{\text{INDUCED}} / m^*$$

Where:

$m^*$  is the average FTE cost in the UK economy in 2019.

## **Total economic impact**

The total economic impact in terms of GVA, COE and employment was arrived at by summing the estimates of the direct, indirect and induced impacts.

## **Regional and local economic impacts**

The MyEIA™ Model can also be used to generate estimates of direct, indirect and induced impacts in terms of employment, COE and GVA for NUTS1, NUTS2 and local authorities within England, Scotland and Wales. This regionalisation of the model is based on location quotients (LQs) published by ONS.

The LQs are used to derive regional-supply ratios ( $\lambda$ ) for a given geographic jurisdiction. Where  $\lambda > 1$ , it is set equal to 1.

These regional-supply ratios are used to adjust the input purchase expenditures vector ( $x$ ) to approximate the portion of input purchases met by suppliers located within a given geographic jurisdiction.

$$X_{\text{REGIONAL}} = x_i \cdot \lambda_i$$

Where

$x_i$  input-purchase expenditures (by receiving industry  $i$ )

$\lambda_i$  is the supply ratio for industry  $i$ .

The regional-supply ratios are also used to create a regionalised Leontief inverse matrix ( $L_{\text{REGIONAL}}$ ) in the following manner:

$$L_{\text{REGIONAL}} = (\lambda' A)^{-1}$$

Where:

$\lambda$  is a 98 x 98 diagonal matrix of regional-supply ratios

$A$  is a 98 x 98 matrix of input-output coefficients

The regionalised Leontief inverse matrix is then used to calculate the indirect output vector.

$$y_{\text{REGIONAL}} = x' L_{\text{REGIONAL}}$$

## Economic Value of the Screen Sector in Scotland 2021

Where:

$y_{REGIONAL}$  is a 1 x 98 vector of changes in output ( $y_i$ ) in a given geographic jurisdiction

$x$  is 98 x 1 vector of input-purchase expenditures (by receiving industry)

$L_{REGIONAL}$  is the 98 x 98 regionalised Leontief inverse matrix