

CLWSTWR CREATIVE INDUSTRIES REPORT #2

# THE MEDIA SECTOR IN THE CARDIFF CAPITAL REGION: DRIVING ECONOMIC GROWTH THROUGH AUDIOVISUAL ACTIVITIES

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## ABOUT THE REPORT

This report is part of the Clwstwr programme, a five-year project that aims to put innovation at the core of media production in South Wales - moving Cardiff's thriving screen sector from strength to leadership. Clwstwr wants to build on South Wales' success in making creative content by putting research and development (R&D) at the core of production.

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# SUMMARY

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THIS REPORT ANALYSES IN DETAIL, FOR THE FIRST TIME, THE SIZE, SCALE AND ECONOMIC CONTRIBUTION OF THE MEDIA SECTOR IN THE CARDIFF CAPITAL REGION (CCR). IT LOOKS AT THE CCR'S MEDIA SECTOR IN A UK AND INTERNATIONAL CONTEXT AND CONSIDERS STRATEGIES FOR MAINTAINING STRONG LEVELS OF GROWTH.

Cardiff now leads a cluster of cities (Glasgow, Bristol, Southampton and Brighton) with significant numbers of people employed in the motion picture and TV broadcasting sectors. *Cardiff, after Greater London and Manchester, now has the third largest film/tv cluster in the UK.* It has reached this position after a decade of strong growth. By many measures, South Wales has been the UK's best performing media cluster outside London. In terms of employment growth between 2010 to 2018, Cardiff outperformed all other UK cities outside London.

*Between 2015 to 2018. 1 in every 8 new audiovisual media jobs created in the UK were in the Cardiff Capital Region.* If we look at the growth of turnover per employee in the the motion picture and TV broadcasting sectors, Cardiff is the strongest performer in the UK, with 15.4% average year-on-year growth.

These growth trends mean that employment in the CCR's audiovisual media sector has almost doubled since 2005. There are *1,318 firms active in the CCR audiovisual media sector, generating an estimated total annual turnover of £545 million.* The sector employs 4,590 full-time employees locally, and we estimate that there are, in addition, 2,800 freelancers working in the sector, with a further 2,898 further full-time jobs created to support the media sector. In total, this means that *the media sector in the CCR engages more than 10,000 people.*

Our analysis suggests that the media sector in the CCR contributes three times as much to the local economy (£605 million) than its direct GVA (£199 million). Film and tv production and post-production is the region's most dynamic media subsector, with the largest contributions to GVA, the highest rate of GVA per employee, and with the most dynamic growth in new companies. Between 2005 and 2018, the number of firms in film/tv production has grown by 79%.

Although, since 2012, the Cardiff Capital Region has outpaced most other UK regions in terms of growth in the motion picture and TV broadcasting sectors

productivity, there *remains a significant media sector productivity gap between London as well as the rest of the UK and the CCR – one that the CCR will need to address if it is to become a recognised global player.*

TO DO THIS, THE SECTOR NEEDS TO PROMOTE SECTORAL SYNERGIES AND INVEST IN INNOVATION - ESPECIALLY IN THE POST-COVID ERA – SINCE R&D AND INNOVATION IS CLOSELY LINKED TO PRODUCTIVITY GROWTH. THE BENEFITS OF THIS WILL BE CONSIDERABLE. IF THE CCR WERE ABLE TO MATCH UK AVERAGE PRODUCTIVITY GROWTH, WE ESTIMATE THAT THIS WOULD CREATE AN ADDITIONAL £255 MILLION OF TURNOVER GENERATED AND AN ADDITIONAL £236 MILLION OF DIRECT AND INDIRECT GVA. PRODUCTIVITY INCREASES ALONE WOULD CREATE AN ADDITIONAL 7,720 NEW JOBS IN THE CCR.

#### DISCLAIMER: COVID-19

The data for this report was collected before the COVID-19 pandemic. It paints a picture of the audiovisual media sector in the CCR before the disruption caused by COVID-19, which has had a profound impact on many creative businesses and freelancers, many of whom face significant losses in revenue. This report provides a baseline that will enable us, in the future, to make a detailed assessment of the impact of COVID-19 on the relevant companies in the medium and longer term.

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## Introduction

### Boosting growth: The international and UK's audiovisual media sector

The global TV and film sectors account for about \$540 billion of annual revenue, with \$140 billion going to new content production across TV and film each year.<sup>1</sup> The sector has an above average growth rate, and *is likely to become an even more important contributor to local economies and employment*. PwC estimated that global entertainment and media revenue had a solid 4.7% average year-on-year growth in 2019.<sup>2</sup> The global audiovisual sector *is highly clustered in specific local agglomerations in regional production hubs. The UK is one of the six most important film producers in the world* (following India, US, Japan, China in the number of feature films produced per year).<sup>3</sup> The UK is also the largest audiovisual market in Europe, both in terms of revenue and Gross Value Added (GVA), the latter being 20% larger than Germany and 50% larger than France.<sup>4</sup>

*Spend on film and high-end television production in the UK was the highest ever recorded in 2019, hitting £3.62 billion (\$4.7 billion), an increase of 16%*, according to British Film Institute figures. The growth was driven by high levels of international production investment in the UK, which topped the £3 billion (\$3.9 billion) mark for the first time in 2019.<sup>5</sup> The audiovisual media sector is part of *the wider creative sector in the UK, which grows at five times the rate of the wider economy, employing over 2 million people, and contributing £111.7 billion*— more than the automotive, aerospace, life sciences and oil and gas industries combined (data from 2019).<sup>6</sup>

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<sup>1</sup> See <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

<sup>2</sup> <https://www.pwc.com/gx/en/industries/tmt/media/outlook/segment-findings.html>

<sup>3</sup> See <https://unesdoc.unesco.org/ark:/48223/pf0000217137>

<sup>4</sup> See <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

<sup>5</sup> See <https://variety.com/2020/film/global/film-high-end-tv-production-in-the-u-k-rises-16-to-hit-record-4-7-million-1203486610/>

<sup>6</sup> See <https://www.ukscreenalliance.co.uk/news/creative-industries-projected-to-be-hit-twice-as-hard-as-wider-economy-by-drop-in-revenue-due-to-pandemic/>

A study by independent economists Oliver & Ohlbaum Associates in 2018 estimated that the audiovisual sector's value added contribution to the UK economy grows at 5% to 8% a year, with employment growing by similar levels.<sup>7</sup> This suggests that the *UK can enhance its position as a leading international hub for the audiovisual sector in the next decade*. Future growth is based on:

- a growing international market for media content – with predicted yearly growth in global spending of 5-6% in the next five years - pushed by demand for high-end content, a burgeoning games industry, web TV, OTT/SVoD, and premium TV channels (e.g. Netflix, Amazon);
- above-average growth in the UK media market, the largest in Europe; and;
- a growing trade surplus of the audiovisual market in the UK (£1.1 billion in 2012 to £1.9 billion in 2016).

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## The Cardiff Capital Region's position in a global media market

After decades of industrial decline, the *Cardiff Capital Region (CCR) is one of the most deprived parts of the UK*: 24% earn below the Living Wage<sup>8</sup>, with a majority of the communities identified in the Welsh Index of Multiple Deprivation. The region generates only 80% (per capita) of the UK average GVA per head.<sup>9</sup> At the same time, the CCR has become a key driver of the Welsh economy, with 49% of Welsh employment and producing 48% of its GDP.<sup>10</sup>

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<sup>7</sup> See [https://www.coba.org.uk/coba\\_latest/report-av-sector-could-lead-the-world/](https://www.coba.org.uk/coba_latest/report-av-sector-could-lead-the-world/)

<sup>8</sup> See <http://www.cynnalcyrmru.com/the-local-living-wage-dividend-report/>

<sup>9</sup> See <https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation>

<sup>10</sup> We estimate that total employment in the CCR was 1,071,000 persons in 2018. Total employment in Wales was 2,121,000. This is based on population statistics from the ONS (see <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018>) and on employment rates of 69.9% published by Cardiff Council (see [https://www.cardiff.gov.uk/ENG/Your-Council/Have-your-say/Ask%20Cardiff%20Library/The%20Cardiff%20Economy%20and%20Labour%20Market\\_Apr%2017\\_Mar%2018.pdf](https://www.cardiff.gov.uk/ENG/Your-Council/Have-your-say/Ask%20Cardiff%20Library/The%20Cardiff%20Economy%20and%20Labour%20Market_Apr%2017_Mar%2018.pdf)). We apply self-employment to total-employment ratios, as reported by NOMIS (see <https://www.nomisweb.co.uk/reports/lmp/la/1946157397/report.aspx>) and conclude that of the

One of the reasons is the *upsurge of creative industry activities in Cardiff – 16.5% of its businesses are now creative enterprises* (which is well above the UK average of 11%).<sup>11</sup> The local creative industries are driven by a developing film and TV cluster in the CCR, which has gained increasing recognition in the UK and by local governments. In 2017, *the Bazalgette Review identified Cardiff as one of the UK's largest media production centres*.<sup>12</sup>

Data from the Welsh Government suggested that *the GVA of motion picture, video and TV programme production in Wales increased by 334%* between 2006 and 2016.<sup>13</sup> The region has produced a number of notable recent film and TV productions, including *Doctor Who*, *Sherlock*, *Keeping Faith*, *Hinterland*, *Hidden*, *A Discovery of Witches*, *His Dark Materials* and *Sex Education*, as well as long running TV series like *Casualty* (BBC1), *Only Connect* (BBC2), and *Find It, Fix It, Flog IT* (Channel 4).

THIS REPORT AIMS TO PROVIDE DETAILED INSIGHT INTO THE SIZE, COMPOSITION AND STRUCTURE OF THE CCR'S AUDIOVISUAL MEDIA SECTOR. USING MICRO-BUSINESS DATA FROM FAME (SEE METHODOLOGY), WE EXAMINE KEY ECONOMIC VARIABLES (PART 1), THE SECTOR'S DIRECT AND INDIRECT ECONOMIC CONTRIBUTION (PART 2) AND ATTEMPT TO ESTIMATE THE GROWTH POTENTIAL OF THE LOCAL AUDIOVISUAL MEDIA SECTOR (PART 3). FINALLY, WE INVESTIGATE THE OPPORTUNITIES AND CHALLENGES FACED BY THE CCR'S MEDIA SECTOR AND HOW IT CAN BEST BENEFIT FROM THE INTERNATIONAL GROWTH TRENDS (CONCLUSION).

The questions this report aims to answer are:

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1,071,000 persons in employment in the CCR in 2018, 149,500 were self-employed and 921,500 were private- or public-sector employees.

We have obtained total GDP statistics for the CCR and Wales from ONS, available at <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018>. According to these figures, total GDP in the CCR was roughly £38 billion in the CCR in 2018 and roughly £73 billion in the entire nation.

<sup>11</sup> See [https://clwstwr.org.uk/sites/default/files/2020-05/Creative%20Industries%20Report%20No%201\\_Final\\_compressed.pdf](https://clwstwr.org.uk/sites/default/files/2020-05/Creative%20Industries%20Report%20No%201_Final_compressed.pdf)

<sup>12</sup> See [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/649980/Independent\\_Review\\_of\\_the\\_Creative\\_Industries.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/649980/Independent_Review_of_the_Creative_Industries.pdf)

<sup>13</sup> See <https://seneddresearch.blog/2018/06/14/film-and-major-television-production-is-the-welsh-government-doing-enough-to-grow-the-domestic-screen-industry/>



- What does the CCR's audiovisual media sector look like today?
- What growth potential exists?
- Can the CCR's economy benefit through investment and support into the sector?

## Methodology

### Data

This study is based on information about 165,176 businesses entities extracted from FAME (a database on UK companies published by Bureau van Dijk, built on Companies House data). The data was enriched with sector statistics from public resources. We cleaned and harmonised the data, eliminating errors. Because of the time lag in data collection, most current data reflects estimations for 2018.

*For more information on the methodology, data cleaning and harmonisation process, please see Annex.*

#### DISCLAIMER

The findings are estimations of the overall population and economic impact. We took a prudent methodological approach, presenting numbers rather at the lower end taking into consideration data limitations (and other reported report data). The data has been cleaned manually, checked against expert input to best reflect the audiovisual media sector in the Cardiff Capital Region.

### The scale and scope of the research

The research focusses on the *Cardiff Capital Region (CCR)*, which represents the ten local authorities in South East Wales (Bridgend, Vale of Glamorgan, Rhondda Cynon Taff, Merthyr Tydfil, Caerphilly, Blaenau Gwent, Torfaen, Monmouthshire, Newport, and Cardiff).

The focus of the study is on the media sector (specifically the audiovisual sector), based on the *Department for Digital, Culture, Media and Sports (DCMS), definition of the audiovisual sector*, complemented with entertainment software programming and distribution (the video games sector).<sup>14</sup> The full list of SIC codes used is as follows:

- ✓ 59.11 - Motion picture, video and television programme production activities
- ✓ 59.12 - Motion picture, video and television programme post-production activities
- ✓ 59.13 - Motion picture, video and television programme distribution activities
- ✓ 59.2 - Sound recording and music publishing activities
- ✓ 60.1 - Radio broadcasting
- ✓ 60.2 - Television programming and broadcasting activities
- ✓ 63.91 - News agency activities
- ✓ 63.99 - Other information service activities n.e.c.
- ✓ 77.22 - Renting of video tapes and disks
- ✓ 77.4 - Leasing of intellectual property and similar products, except copyrighted works
- ✓ 58.21 - Publishing of Computer Games
- ✓ 62.01/1 - Ready-made interactive leisure and entertainment software development

We use the term audiovisual media (or the shorthand 'media') sector to describe these businesses, as well as focusing on those most clearly identified with film/tv programme production (isolating SIC codes for motion picture and tv programming). The media sector is often seen as broader than this, being part of and working with the wider creative industry and digital sectors. We reflect this in our analysis where appropriate.

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<sup>14</sup> See [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/829114/DCMS\\_Sectors\\_Economic\\_Estimates\\_-\\_Methodology.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/829114/DCMS_Sectors_Economic_Estimates_-_Methodology.pdf)

## Part 1: Key figures

### The Cardiff Capital Region's audiovisual media sector

- > 1,300** audiovisual media firms in the CCR, generating
- £545 million** in total annual turnover, with a further
- £ 606 million** in gross value added produced directly and indirectly;
- > 10,000** people work directly/indirectly for the sector, with
- > 4,500** full time employed by the sector.

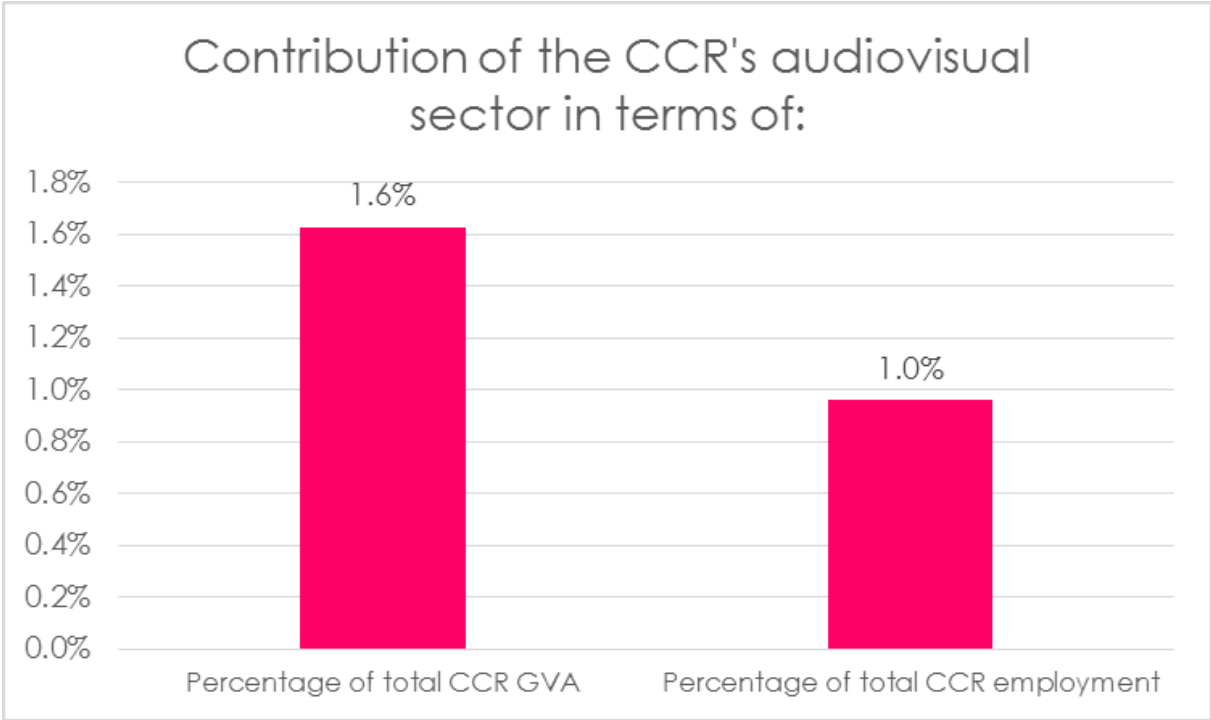
The audiovisual media sector in the Cardiff Capital Region has become an indispensable part of the local economy. In 2005, it engaged about 2,600 full-time workers, a figure that has almost doubled over the last 10 years to about 4,500. The sector's performance reflects the CCR's structural shift towards a knowledge-based economy.

According to our data, there are 1,318 firms active in the audiovisual media sector in the CCR. These firms together generated an estimated total annual turnover of £545 million. The sector employs 4,590 full-time employees locally, and we estimate that there are, in addition, 2,800 freelancers working in the sector,<sup>15</sup> and that the media sector in the CCR is directly responsible for sustaining another 2,898 further full-time jobs in the local economy. These are employees of its direct suppliers (discussed further in the section devoted to local economic impact). In total, this means that the media sector in the CCR engages more than 10,000 people. According to official employment

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<sup>15</sup> Our estimate is based on Eurostat's official statistics on cultural employment. See [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Culture\\_statistics\\_-\\_cultural\\_employment#Self-employment](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Culture_statistics_-_cultural_employment#Self-employment) for more details. In calculating the number of freelancers in the CCR, we took the UK average of freelance employment in the cultural sector. This represents 32% of all persons engaged in the sector.

statistics, this accounts for *1 in every 143 CCR employees and 1 in every 28 freelancers*.<sup>16</sup>



**Figure 1: The audiovisual media sector's local contribution to the CCR's GVA and employment.**

A conservative estimate of the GVA (gross value added) shows that the *sector directly produces £199,240,000*. We estimate that Indirect GVA production - through surplus generated by the suppliers and direct local customers of the CCR's media sector - amounted to a total of £406,774,000, bringing *total GVA contribution to £606,014,000* (we discuss this further in detail in the local economic impact section below). Based on publicly available statistics, we estimate that the audiovisual media sector produces

<sup>16</sup> We estimate that total employment in the CCR was 1,071,000 persons in 2018. This is based on population statistics from the ONS (see <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018>) and on employment rates of 69.9% published by Cardiff Council (see [https://www.cardiff.gov.uk/ENG/Your-Council/Have-your-say/Ask%20Cardiff%20Library/The%20Cardiff%20Economy%20and%20Labour%20Market\\_Apr%2017\\_Mar%2018.pdf](https://www.cardiff.gov.uk/ENG/Your-Council/Have-your-say/Ask%20Cardiff%20Library/The%20Cardiff%20Economy%20and%20Labour%20Market_Apr%2017_Mar%2018.pdf)). We apply self-employment to total-employment ratios for Cardiff, as reported by NOMIS (see <https://www.nomisweb.co.uk/reports/lmp/la/1946157397/report.aspx>) and conclude that of the 1,071,000 persons in employment in the CCR in 2018, 149,500 were self-employed and 921,500 were private- or public-sector employees.

1.6% of the CCR's total GVA and engages 1% of its total population in employment (see Figure 1 above).<sup>17</sup>

### Growth in a UK context

The audiovisual media sector has a significant presence in the CCR, but its growth in terms of employment and turnover, in comparison the UK average, could be stronger. Between 2010 and 2018, *employment in the CCR's audiovisual media sector grew by 12%*, below the UK average of 20%. Turnover grew at 23%, but this falls significantly behind the UK's 66% growth (see Figure 2).

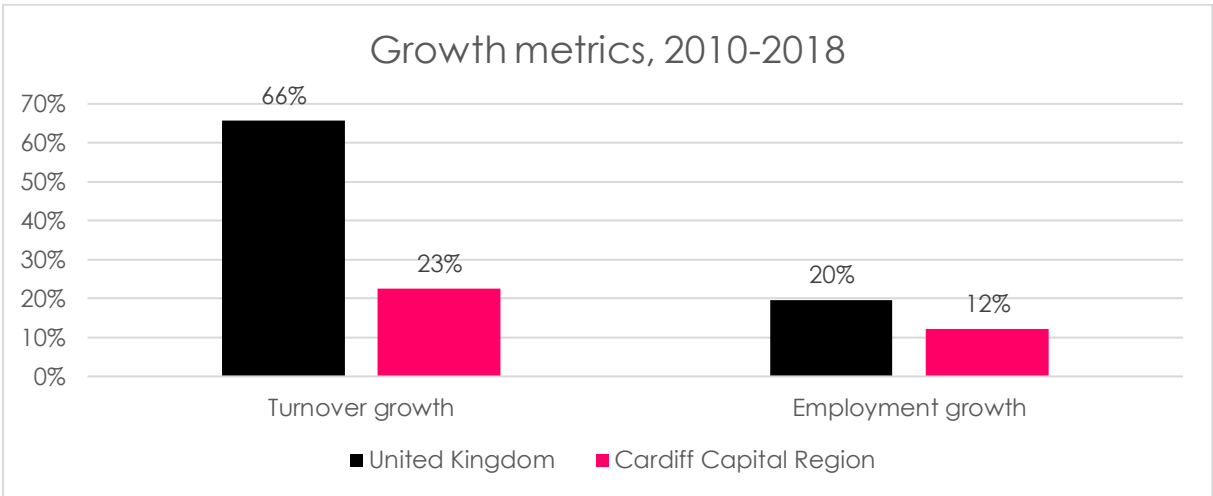


Figure 2: Comparison of the CCR's total turnover and employment growth in the media sector to national growth rates.

In comparative terms, growth in employment, at 60% of the UK average, is notably stronger than growth in turnover (only 35% of the UK average). *This suggests there is room for improvement in the audiovisual media sector in the CCR in terms of labour productivity* (often a result of lack of investment and innovation capabilities in the industry). This gap needs seen in the context of significant differences between London and the South East and the rest of the UK, which we explore in more detail in the analysis below. As we demonstrate,

<sup>17</sup> We have obtained total GDP statistics for the CCR from ONS, available at <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/regionaleconomicactivitybygrossdomesticproductuk/1998to2018>. According to these figures, total GDP in the CCR was roughly £ 38 billion in 2018.



the CCR is actually one of the strongest performing media sectors outside London and the South East: its ability to close the gap still further key will be to its success.

Within the CCR, Cardiff is a clear driver of sectoral growth, with much of the sectoral activity clustered in the Welsh capital. For a city-level comparative study of Cardiff's performance, we focus on the largest drivers of value added within the audiovisual media sector: motion picture production and TV broadcasting. As demonstrated in Figure 11 in the next section, *these subsectors generate more than 70% of total audiovisual media GVA in the Cardiff Capital Region.*

In order to compare cities with one another, we isolated the city postal code area from the rest of the CCR (we do the same with all other cities in this study). We have extracted the 20 most significant cities/regions from the FAME dataset, based on the number of employees working in the following subsector, which include activities in the motion picture and TV broadcasting sectors:

- ✓ 59.11 - Motion picture, video and television programme production activities
- ✓ 59.12 - Motion picture, video and television programme post-production activities
- ✓ 59.13 - Motion picture, video and television programme distribution activities
- ✓ 60.2 - Television programming and broadcasting activities

Geographic location	Full-time employees	Turnover (£ in thousands)	Turnover per employee (£)
London	110880	37270785	336136
Slough and Heathrow	51700	24308527	470184
Manchester	7090	913784	128884
<b>Cardiff</b>	<b>3005</b>	<b>398917</b>	<b>132751</b>
Glasgow	2966	366663	123622
Bristol	2926	226219	77313
Southampton	2870	746341	260049
Brighton	2631	154299	58647
Guildford and Aldershot	1809	226602	125264
Reading	1744	496881	284909
Birmingham	1629	87720	53849
Belfast	1597	107892	67559
Swansea	1478	362322	245144
Sheffield	1387	75606	54511
Watford	1371	160701	117214
Edinburgh	920	62125	67528
Leeds	920	50256	54626
Stockport	761	53795	70689
Plymouth	581	62282	107198
Cambridge	576	99045	171953

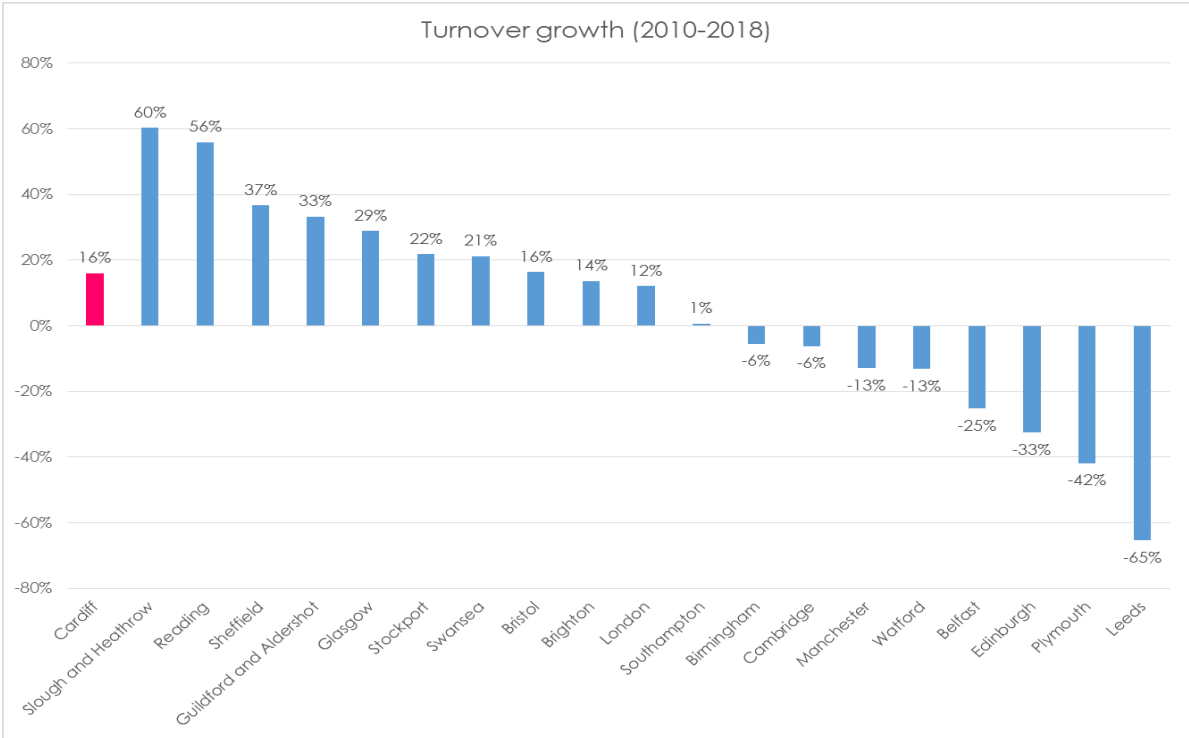
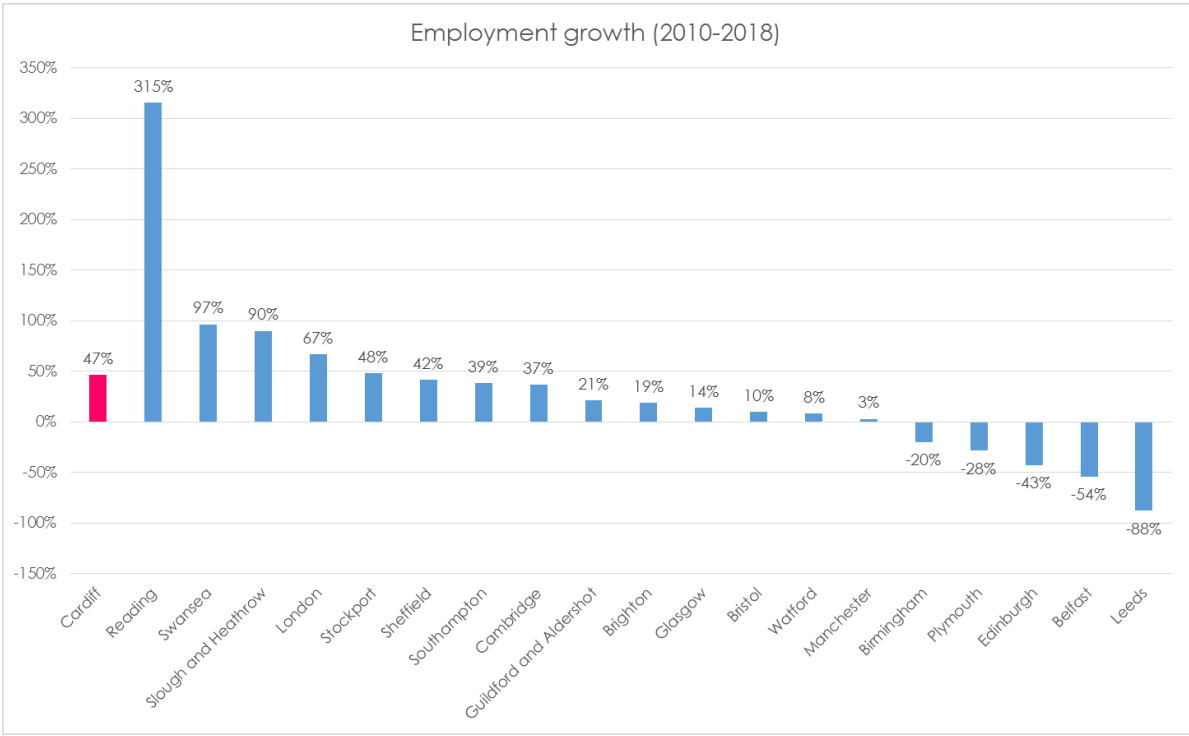
**Table 1: The top motion picture and broadcasting clusters in the UK.**

Table 1 reveals three key points. First, the table shows that despite efforts to move media production outside Greater London (London and Slough and Heathrow), *both media employment and turnover remain hugely concentrated in the UK capital*, which employs 67.31% of all workers in the industry and generates 88.99% of all turnover. The 18 next strongest cities combined have only a small fraction of the industry's total workforce (15.01%), and an even smaller fraction of its turnover (6.72%).

Second, turnover per employee rates are far higher in Greater London than elsewhere. Given sectoral concentration in the capital, this means that in terms of productivity, everywhere outside London will perform poorly against a UK average. Proximity to London is clearly a factor here, with Reading and Southampton also performing well. *Two of the best performing cities on this measure outside London and the South of England are in South Wales (Swansea 5th and Cardiff 7th).*

Third, we note the top three cities for employment in the motion picture and TV broadcasting sectors are, in order of size, Greater London, Manchester and Cardiff. Cardiff now leads a group of cities (Glasgow, Bristol, Southampton and Brighton) in this regard.

Figure 3 below shows that *South Wales is on a strong upward trajectory, with Cardiff and Swansea having strong employment growth*. Over the period spanning 2010 to 2018, Swansea comes 2<sup>nd</sup> and Cardiff 6<sup>th</sup>, outperforming all other UK cities outside London and the South East (the one outlier being Stockport, near Manchester, with around the same growth rate as Cardiff but a quarter of the size in terms of employment).

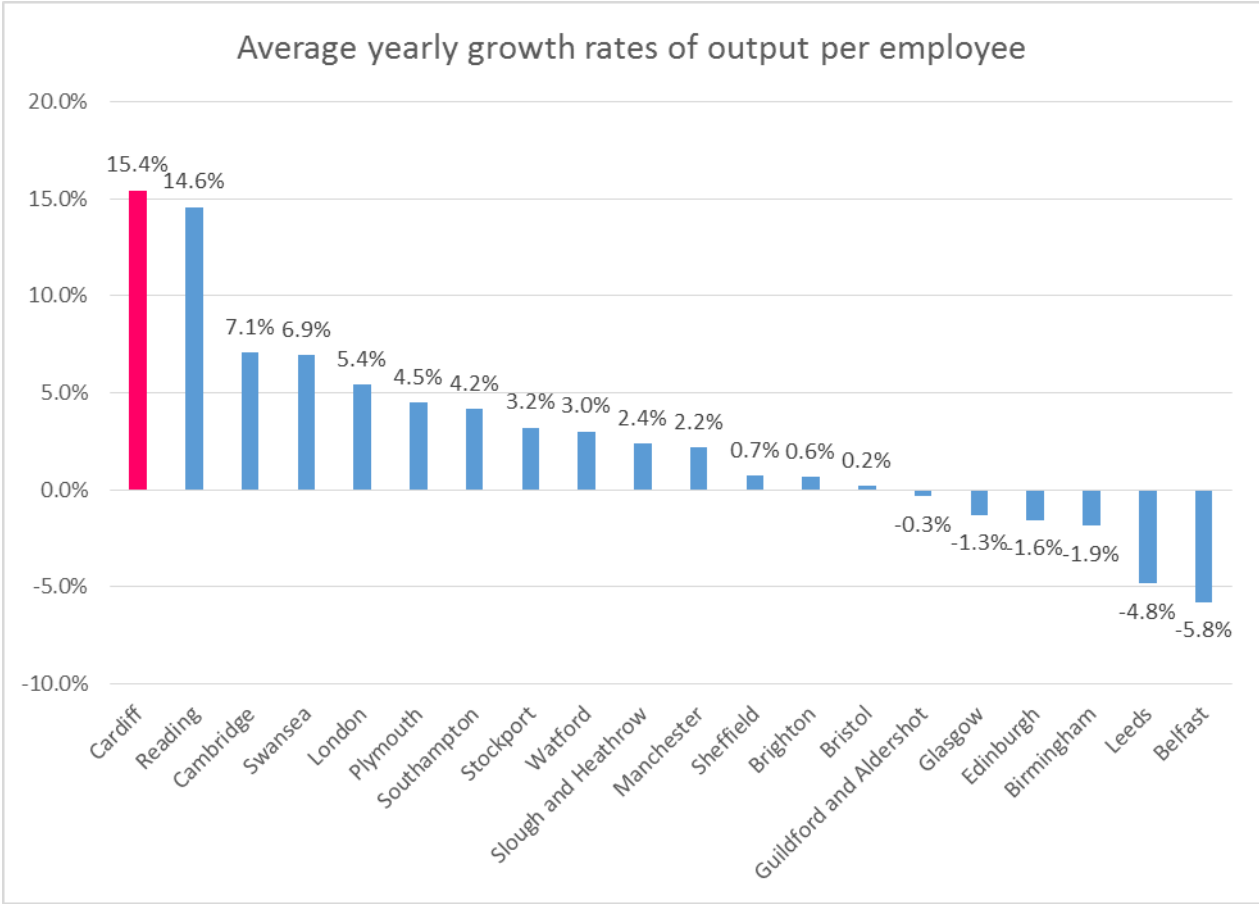


**Figure 3: Employment and turnover growth rates in motion picture and TV broadcasting sectors from 2010 to 2018.**

In terms of turnover growth, Cardiff and Swansea are a little less strong (ranked 7<sup>th</sup> and 8<sup>th</sup>). In this case, while most of the stronger performing cities are, again, in the South East (Slough and Heathrow, Reading, Guildford and

Aldershot), they include Sheffield, Glasgow, and Stockport. Interestingly, London is ranked only 11<sup>th</sup> by this measure.

If we look at the growth of turnover per employee, *Cardiff is the strongest performer in the UK, with 15.4% average year-on-year growth in the motion picture and TV broadcasting sectors*, (see Figure 4 below), with Swansea 4<sup>th</sup>. Only Reading come close to Cardiff's growth rate, which is nearly three times London's (ranked 5<sup>th</sup> overall).



**Figure 4: City- (and region)-level average year-on-year growth rates of turnover per employee in the motion picture and TV broadcasting sectors from 2010 to 2018.**

The consistency of this year-on-year incremental growth lies behind Cardiff's (and neighbouring Swansea's) emergence as a centre for UK film/TV production. The CCR has become a centre for employment growth in the

past years, attracting *1 in every 8 new audiovisual media jobs created*<sup>18</sup> in the UK from 2015 to 2018 (see Figure 5) – remarkable given overall employment in the sectors in Greater London is 50 times greater.

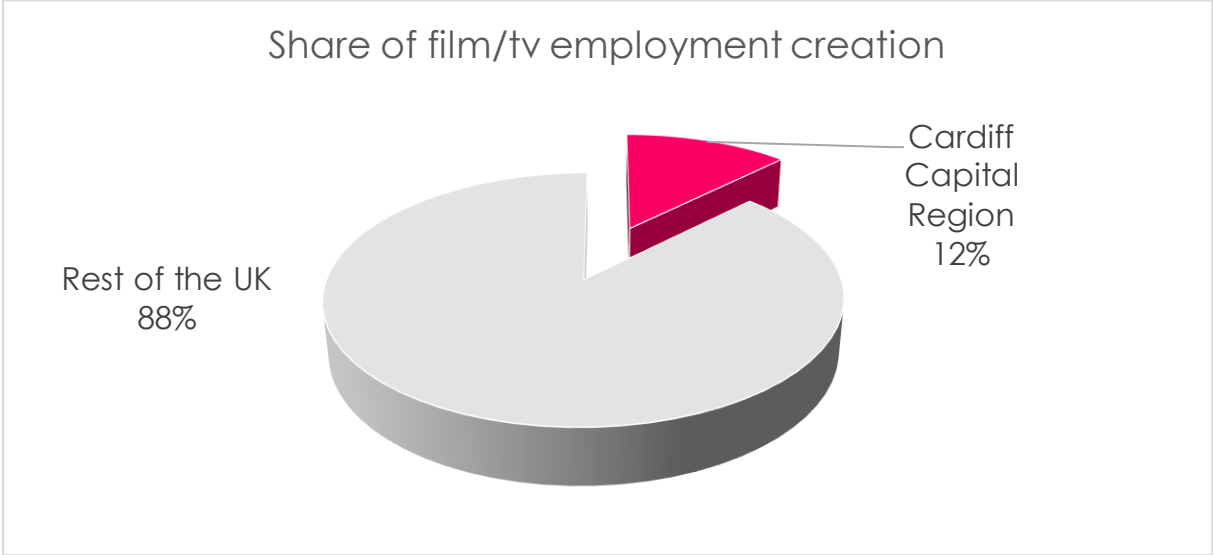


Figure 5: The CCR's share of net employment creation in the UK (2015-2018).

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<sup>18</sup> The figures refer to net job creation, i.e. the outcome of subtracting discontinued employment from total employment.



## Part 1: Summary

Over a decade of spectacular growth, Cardiff has become one of the UK's most successful centres for media production. It is now one of the largest UK clusters for film/tv production outside Greater London, with 1 in every 8 jobs in this sector in the UK created in the CCR. This has been fuelled by the fastest recent rates of employment and productivity growth in the UK.

## Implications

Increasing productivity and the pace of growth will be crucial for the CCR to attain global influence and reach.

## Part 2: Contribution to the local economy

### Direct and indirect value creation of the local audiovisual media sector

The audiovisual media sector in the CCR *directly generated a GVA of £199,244,000* (see Annex for a detailed description of GVA calculations). As we show in Part 1, this average is distorted by sectoral concentration in Greater London. As a consequence, despite the growth in the CCR media sector's, as Figure 6 shows, growth in GVA remains much lower than the UK average.

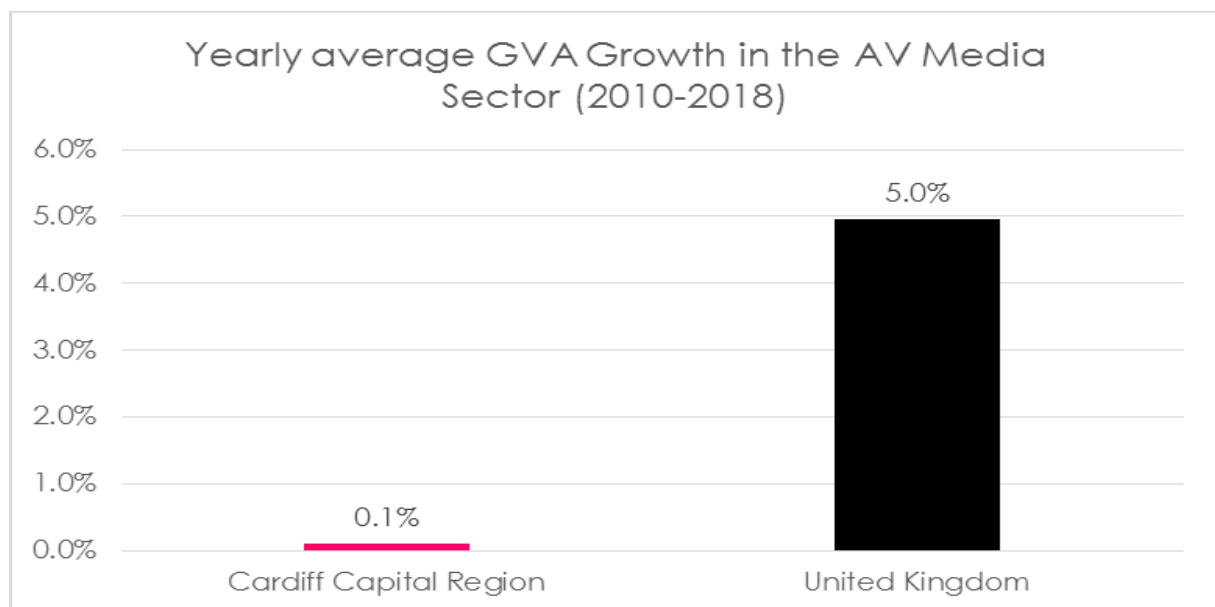


Figure 6: GVA growth in the CCR and in the UK in the media sector from 2010 to 2018, at current prices.

It is standard practice in the literature to consider indirect value creation as well, which takes two forms.<sup>19</sup> On the one hand, there are *indirect spillover effects* that ripple through the economy through the audiovisual media sector's suppliers. This includes the value added that direct suppliers generate while providing essential input to the CCR's audiovisual media sector. The second effect is the so-called induced effect. This includes the value added

<sup>19</sup> See for instance the SSE's report on calculating the economic contribution of offshore wind turbines, available at: [https://www.sse.com/media/afebwv0g/10\\_years\\_of\\_wind\\_economic\\_contribution\\_methodology.pdf](https://www.sse.com/media/afebwv0g/10_years_of_wind_economic_contribution_methodology.pdf)

that the inputs necessary to produce the goods and services that the employees of the CCR's audiovisual media sector, or those of its suppliers consume (see annex for a detailed description of how indirect value was estimated).<sup>20</sup>

Based on our data, we estimate that *indirect GVA of the CCR's audiovisual media sector is £406,774,000*. This estimate is very much in line with the general rule of thumb in the literature, which suggests that indirect GVA is at least twice as much as direct GVA and even larger than direct GVA in the audiovisual media sector.<sup>21</sup> This means that in total, we can estimate that *GVA produced by the audiovisual media sector in the CCR is roughly £605,000,000, of which £199,000,000 is direct and £406,000,000 is indirect GVA*.

It is important to note at this junction that this indirect GVA does not quantify all the benefits that the CCR's audiovisual media sector brings locally. There are less measurable spillovers that are, particularly for a sector whose outputs form part of the popular imagination: media cities - especially those seen as innovative - will attract inward investment and tourism.<sup>22</sup>

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## Indirect employment creation

The indirect and induced GVA effects necessarily create additional employment. The audiovisual media sector's direct input costs in the CCR amounted to roughly £406,000,000. This turnover is generated by a multiplicity of sectors, as indicated by the ONS.<sup>23</sup> Considering average Welsh business turnover by full-time employee, which amounted to £41,743 in 2018,<sup>24</sup> this turnover would take roughly 9,726 full-time employees to produce (if they were all Welsh workers). Nevertheless, much like for the estimation of indirect

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<sup>20</sup> Source:

[https://www.wifor.com/uploads/2019/02/WifOR\\_Novartis\\_Case\\_Study\\_Global\\_Economic\\_Impact.pdf](https://www.wifor.com/uploads/2019/02/WifOR_Novartis_Case_Study_Global_Economic_Impact.pdf)

<sup>21</sup> See for instance <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

<sup>22</sup> See for instance <https://blog.bham.ac.uk/cityredi/what-is-gross-value-added-gva/>

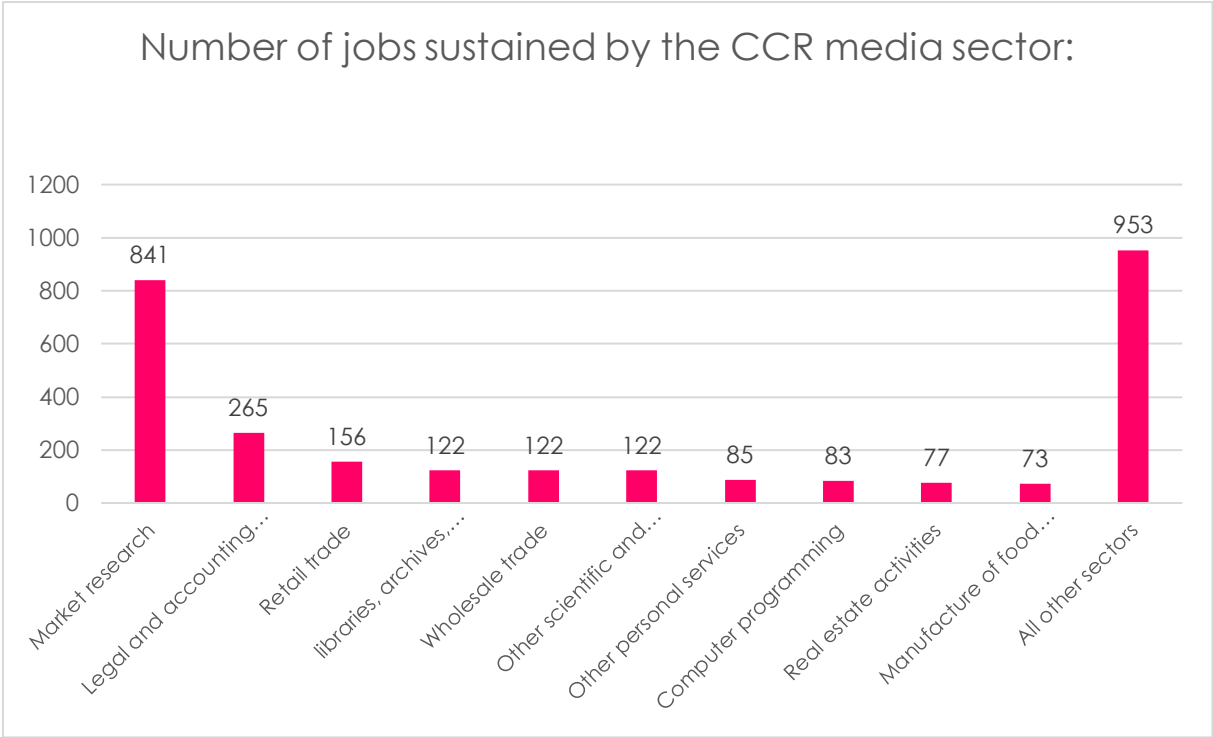
<sup>23</sup> See

<https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltables-detailed>. Since we do not possess CCR- or national estimates, we take the UK averages as the bases of our estimations.

<sup>24</sup> This figure is calculated based on Welsh employment statistics (total employment in Wales) and total business turnover in Wales. Sources: GOV.UK: Business population estimates 2019, Wales, table 21 and <https://www.nomisweb.co.uk/reports/imp/la/1946157397/report.aspx>

GVA, we conservatively assume that the CCR's audiovisual media sector only sources 20% of its inputs from local production. This leads to 1,945 full-time jobs in the CCR indirectly sustained by the audiovisual media sector.

Similarly, the household-income compensation segment of the CCR's audiovisual media sector's turnover, which amounts to £199,000,000 (direct GVA) takes 4,767 full-time employees to produce. This translates to 953 local full-time employees in miscellaneous sectors. This implies that the CCR's audiovisual media sectors *sustains 2,898 full-time jobs in addition to the employees and freelancers it directly employs*. We summarise our findings in Figure 7.



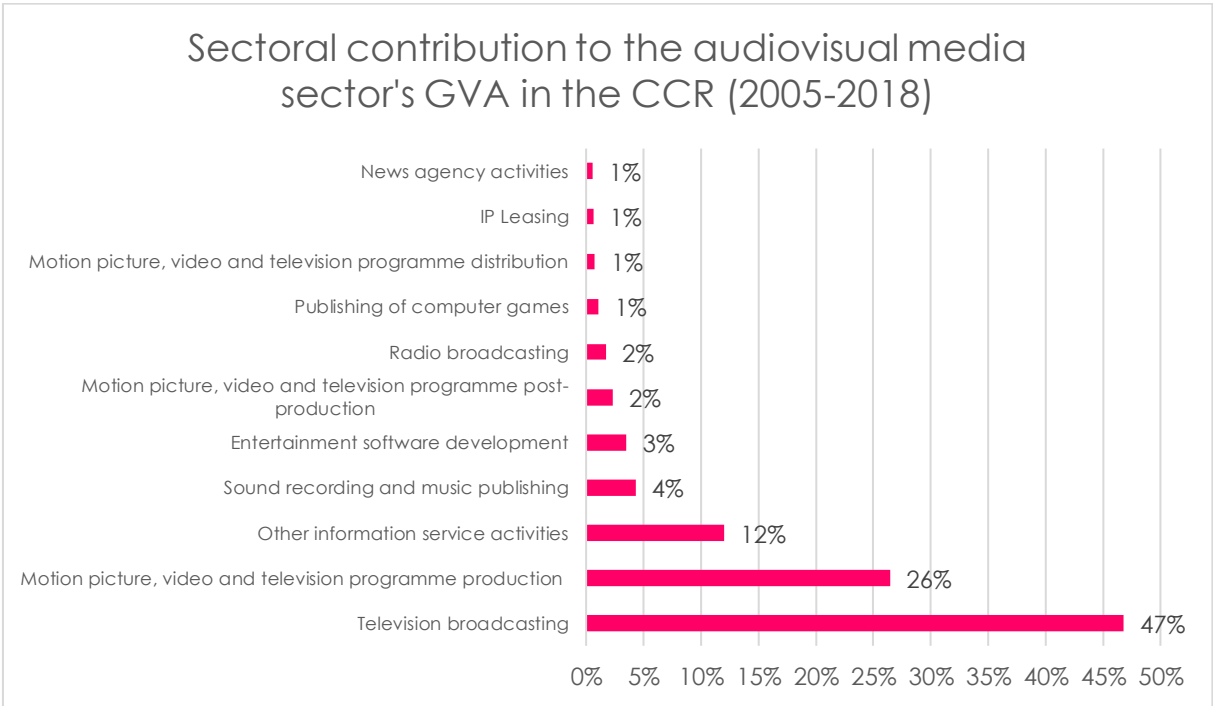
**Figure 7: Approximate number of jobs in the CCR by sector that would become redundant if audiovisual media activity ceased its operations overnight. The percentages of inputs produced for the media sector are based on the input-output matrices of the ONS.**

### Sub-sectoral contributions to GVA and firm entry dynamics

The particular strength of the CCR is in film and tv production. *A third of all GVA in the CCR is generated by motion picture, video and television programme production, post-production and distribution*. This, however, is still

below the UK average of 42%.<sup>25</sup> Nevertheless, if the growth patterns in the sector continue, this will change rapidly and the relative importance of motion picture in the CCR will overtake its prevalence in the rest of the UK.

We show the sub-sectoral contributions to GVA in Figure 8 below. By far the largest contributors are two of the region's key drivers (as established in the last section) *television broadcasting and motion picture tv/film production and post-production*.



**Figure 8: GVA shares of various subsectors within the media sector in the CCR. The figures above are the shares in total GVA produced in the region between 2005 and 2018.**

These outcomes are part of a specialization process. As a result, and as Figure 9 shows, *the number of firms in film/tv production has grown by 79% between 2005 and 2018*. Other subsectors, however, especially IT and information services have shrunk in size in the region.

<sup>25</sup> According to FAME data.



### GROWTH IN THE NUMBER OF FIRMS BY SUBCATEGORY IN THE CCR (2005-2018)

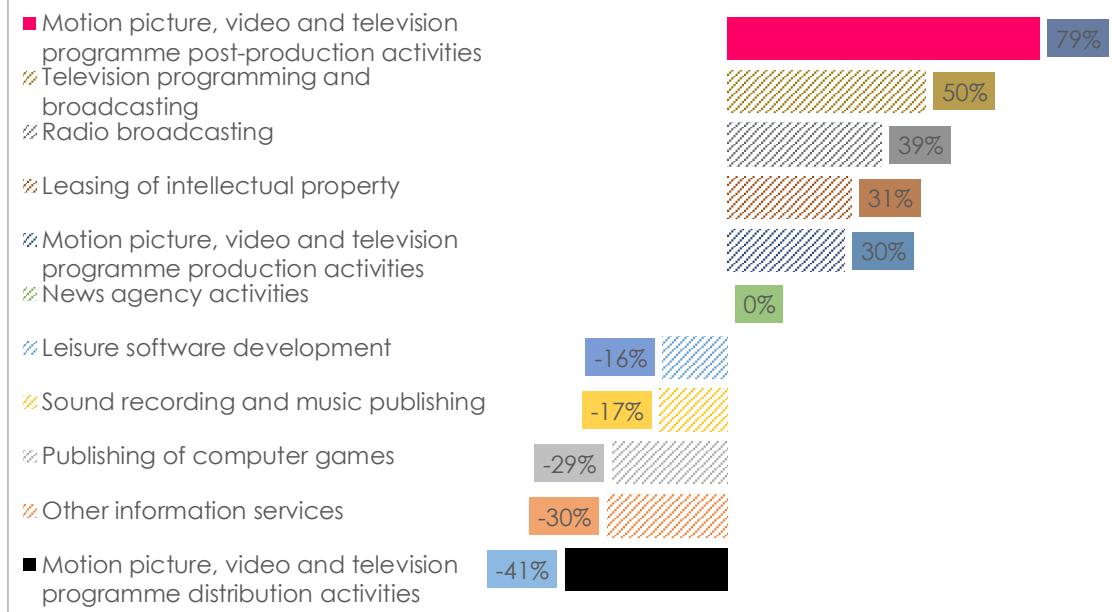


Figure 9: Growth in the number of firms in the CCR from 2005 to 2018.

## Part 2: Summary

The audiovisual media sector in the CCR contributes three times as much to the local economy (£605 million) than its direct GVA (£199 million). Television broadcasting and motion picture production are, once again, the most dynamic media subsectors in the region, with the largest contributions to GVA, the highest rate of GVA per employee, and with the most dynamic growth in new companies.

## Implications

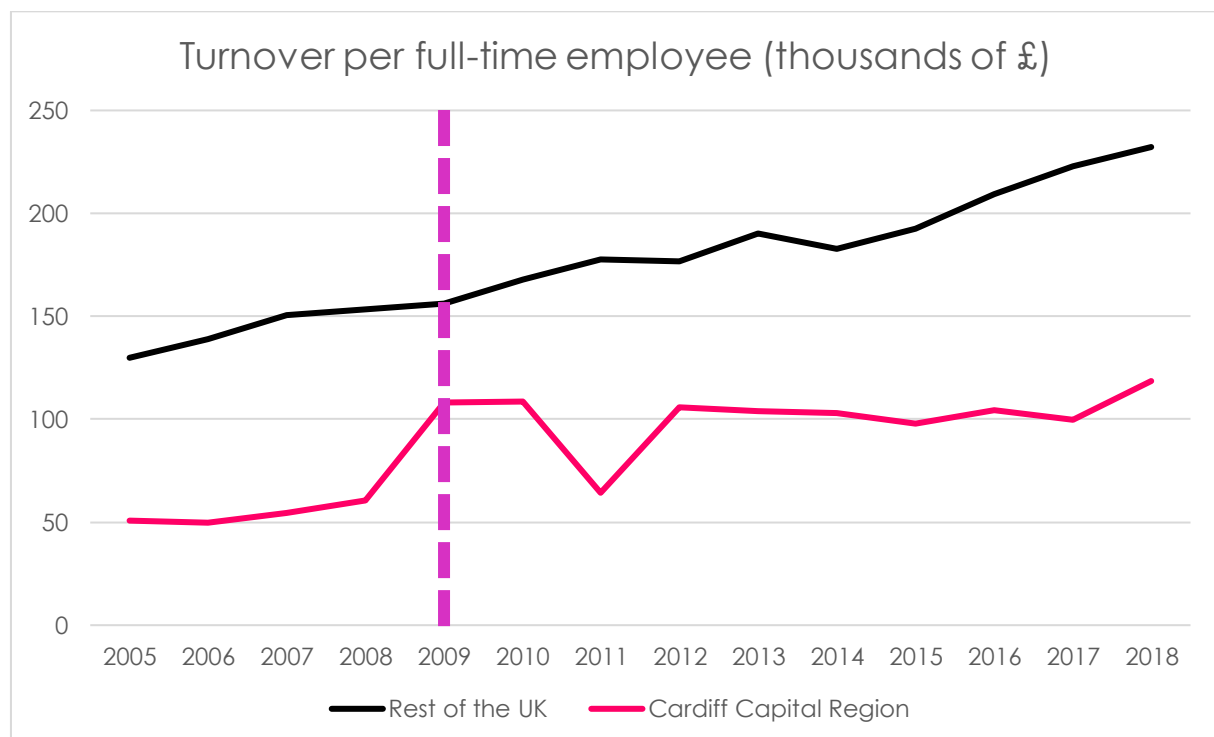
Overall GVA growth is low. This implies a potential productivity issue. Given the scope for self-reinforcing growth, support schemes improving productivity would be particularly useful for GVA growth locally.

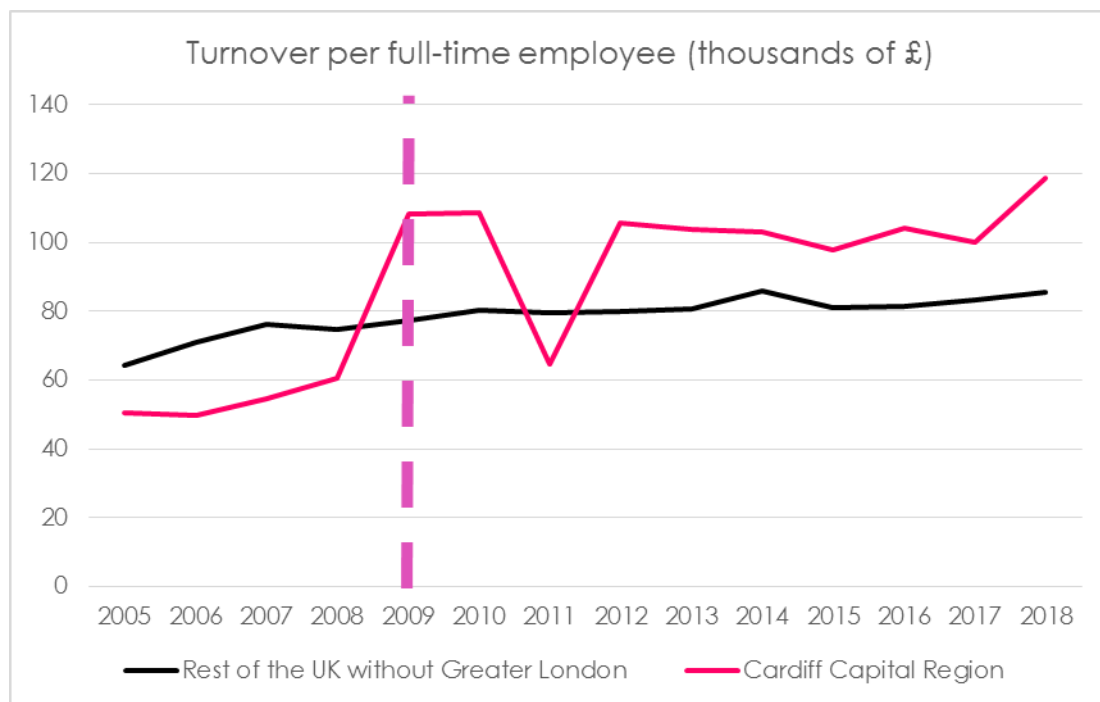
## Part 3: The CCR's media sector: quo vadis

### Productivity as a growth engine

Thus far, we have shown how a decade of growth in the CCR's media sector has enabled the region emerge as a UK leader, especially in TV and film production. Employment growth has been particularly strong, and the CCR now employs more people in this sector than anywhere outside Greater London or Manchester. This has gone alongside significant growth in productivity, with Cardiff showing the highest rate of growth of turnover per employee in the UK. Despite this growth, as Figure 10 shows, the *CCR's audiovisual media sector overall still lags behind the UK average in terms of productivity.*

As we show in Part 1, this reflects a significant gap between London and the South East and the rest of the UK. The CCR's remarkable growth has meant that the divide was proportionately higher in 2005 than it is currently (2018 data), suggesting that, in the CCR at least, the gap is beginning to narrow. Furthermore, as we show in the second panel of Figure 10, since 2012 the Cardiff Capital Region has outpaced the rest of the UK outside the Greater London Area.





**Figure 10: Turnover per employee growth rates in the audiovisual media sector.** Note: The purple dotted line shows the point in time at which we started including turnover and employee numbers of BBC Cymru and S4C in our dataset. The swift jump in turnover per worker is due to this. The sharp decrease in 2011 is due first and foremost to a 15% increase in the number of workers that year, with a slight decrease in total turnover.

The literature offers ample insight on how these growth patterns arise, explaining why catching up to the largest hubs of activity, like London, is a challenge for the CCR. For instance, Bahar (2018) states that *within-sector productivity growth may vary significantly across regions*, depending on starting points.<sup>26</sup> This happens in knowledge-intensive industries with an asymmetric dispersion of the top firms. As these grow, the diffusion of new technologies slow down across regions and the already very productive ones keep on growing faster. This is likely to be the case for the UK. As the sector's leader, London grew much faster between 2010 and 2018 than the UK average, boasting an average year-on-year growth rate of nearly 5%.

Another explanation for the patterns may be labour hoarding.<sup>27</sup> This explains the simultaneous growth in employment and lower rates of productivity

<sup>26</sup> Bahar, Dany. "The middle productivity trap: Dynamics of productivity dispersion." *Economics Letters* 167 (2018): 60-66.

<sup>27</sup> Sbordone, Argia M. "Cyclical productivity in a model of labor hoarding." *Journal of Monetary Economics* 38, no. 2 (1996): 331-361.

overall (that we observe in the CCR). As long as labour is relatively cheap and output is traded internationally, it is rational for firms to *react to economic slowdowns by limiting firing and using labour less intensively*.

The clearest way out of this productivity trap is innovation and organisational change. As Geroski (1989) observes, productivity growth has a natural tendency to decline over time due to diseconomies of scale.<sup>28</sup> Nevertheless, *process innovation has the ability to keep productivity levels at steadily increasing trends*.

Crespi et al. (2007) find, using data on UK firms, that organisational improvements within firms account for much of the productivity growth that they achieve.<sup>29</sup> In particular, while *introducing new technologies also helps increase productivity*, it is insufficient on its own. It only achieves the desired productivity outcome when it is accompanied by organisational improvements, which may generate higher growth than technological change alone.

These elements are therefore key for the CCR's audiovisual media sector in achieving productivity catch-up with London and the South East. *Support programmes that promote the use of industry synergies may help facilitate the diffusion of cutting-edge technologies that local leading firms employ*. These, in turn, generate higher levels of innovation and process improvement in the rest of the sector. These effects, together with a diffusion of best practices may also foster organisational change and productivity growth.

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## Possible growth trajectories

As we have identified, productivity growth is key to the success of the CCR's audiovisual media sector. The clearest route to growth is to boost productivity levels, with a target of productivity catching up to UK levels. To assess the value of this approach, we will *introduce a scenario in which the CCR catches up to the UK's average level of turnover per employee in 10 years' time*. Assuming a current average year-on-year growth level of 4.1% for the

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<sup>28</sup> Geroski, Paul A. "Entry, innovation and productivity growth." *The Review of Economics and Statistics* (1989): 572-578.

<sup>29</sup> Crespi, Gustavo, Chiara Criscuolo, and Jonathan Haskel. "Information technology, organisational change and productivity." (2007).



UK, the CCR would need to produce an 11% year-on-year growth to bridge the current gap.<sup>30</sup> Assuming that growth switches to this level in the UK, we are interested in what happens to GVA and to employment in the next 5 years.<sup>31 32</sup>

Our simulation has four steps.

1. The CCR catches up to UK turnover per worker growth, but the number of workers remains unchanged. The immediate effect of this is an increase in turnover.
2. As we assume only per-worker output changes, this effect will show up either in worker compensation or in gross firm earnings.
3. This generates additional GVA directly and through the induced effect. However, since we assume that only worker contributions change, the amount of inputs that they work with remains unchanged. Therefore, there will be no indirect GVA creation. Nevertheless, the induced effect (increased consumption from spending wages and firm earnings) generates employment locally.
4. While we assume that the number of workers in the audiovisual media sector stays constant and only their productivity levels increase, there will be some self-reinforcing employment generation in the sector. This is because some of the additional output from the sector in the CCR will be absorbed as input locally. We assume that this is the only source of input increase and that the sector has room to incorporate some of the additional turnover. According to ONS estimates at the UK level, this proportion is set at 31%.

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<sup>30</sup> This is a result of solving a straightforward equation,  $Te_{UK}(1 + 0.041)^{10} = Te_{CCR}(1 + g)^{10}$ , where  $Te_{UK}$  and  $Te_{CCR}$  are the current turnover per employee levels in the UK and in the CCR and where 0.041 corresponds to the current 4.1% average yearly growth rate in the UK.

<sup>31</sup> To do that, we use a methodology akin to that of Sant'Anna and Young (2007). While our strategy is straightforward, exposed to myopia and structural oversimplifications, it still sheds light on the growth potential that productivity increases may bring locally.

<sup>32</sup> Sant'Anna, A., and Carlos Eduardo Frickmann Young. "The use of input-output analysis to simulate effects of income redistribution on economic growth." [linea] <http://www.anpec.org.br/encontro2007/artigos/A07A110.pdf> (2007).

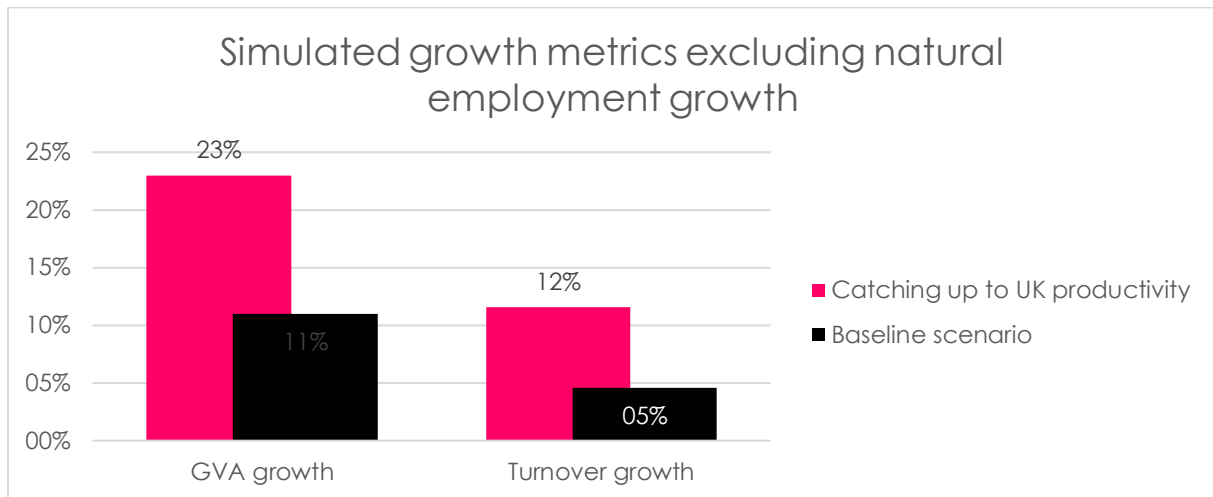
## Methodological note

Our estimation method is fundamentally based on complete *ceteris paribus* both in locally and nationally. This means that we *evaluate a scenario in which nothing changes, except average per-worker productivity, measured as turnover per worker*. This is appropriate, when we focus on one narrow geographical segment that is the CCR. On a larger scale, it would certainly be problematic to ignore the structural changes that lead to productivity growth and the factor reallocations that ensue. Our goal is not to present a structural model of the sector, but to illustrate the significant potential impact that productivity increases may bring locally. To keep our approach as simple as possible, we assume that the productivity increase scenarios are not caused by firm exit or firing (which would mechanically lead to an increase in productivity per employee). We also assume an absence of additional firm entry and we ignore all other sources of employment growth (such as a favourable demand shock).

Ignoring these effects means that our estimation is conservative. We ignore geographical production and labour reallocation that would significantly further increase both turnover and productivity. Furthermore, we ignore the organic growth of the audiovisual media companies in the CCR. Therefore, because an "overnight" substantial productivity increase is implausible, we are cautious about projecting its effects. Since we assume no organic growth of employment, the estimates below underestimate total overall growth. What is of importance, however, is the difference between the outcomes that "business-as-usual" as opposed to a full catch-up would entail.

We present our estimates in two scenarios. The first scenario is the "status quo", with turnover per worker growing steadily at the CCR's 4.6% growth rate for a period of five years. In the catch-up scenario, the sector grows its productivity for 5 years at 11%, which is the level it needs to grow at to catch up with the UK average within 10 years. We assume that growth jumps to this level immediately, without a transition period.

As we show in Figure 11 below, *over 5 years, turnover would grow 15% more if the CCR was able to emulate the UK's per-worker turnover in the audiovisual media sector*. The GVA growth differential would be even higher at 25%. This is to be expected, however, from the very nature of worker productivity. As it increases output with (almost) unchanged input levels, it increases GVA faster than turnover.



**Figure 11: GVA and turnover's possible growth trajectories, excluding organic sectoral growth**

In monetary terms, this translates to *productivity catch-up leading to an additional £255 million of turnover generated and an additional £236 million of direct and indirect GVA* (generated through induction). It is important to keep in mind that these figures are additional numbers over the baseline status-quo growth metric.

The additional GVA that productivity growth generates will lead to increased consumption and final demand from households involved with the CCR's media sector. This will also lead to employment growth in miscellaneous sectors from which workers and shareholders source their own consumption. In turn, this translates into more employment locally.

As we did for calculating induced worker growth in the local impact section of this report, we assume that average GVA per employee is roughly £41,000 in all other sectors in the CCR.<sup>33</sup> We also, conservatively, assume that only 20% of induced GVA is consumed locally. Even with these conservative assumptions, we find that *increased consumption just as a direct outcome of increasing productivity growth would create 5,756 full-time jobs locally in other sectors*.

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<sup>33</sup> This figure is calculated based on Welsh employment statistics (total employment in Wales) and total business turnover in Wales. Sources: GOV.UK: Business population estimates 2019, Wales, table 21 and <https://www.nomisweb.co.uk/reports/lmp/la/1946157397/report.aspx>

While we do not assume organic employment growth in the audiovisual media sector itself, because increased output leads to increased input into the sector, there will be some additional employment creation. This amounts to 1,964 new persons engaged by the audiovisual media sector, of which 747 would be freelancers and 1,217 full-time employees. Altogether, *this suggests that productivity increases alone would create 7,720 new jobs in the CCR.*

To reiterate, this is just the additional employment creation from increasing productivity. If employment grows organically at its average year-on-year growth rate observed between 2010 and 2018 (which is 1.51%) according to our data, then with or without additional productivity growth, this would lead to 576 new persons (employees and freelancers) engaged in the CCR's audiovisual media sector, with a further 1,964 new persons engaged through productivity increases.

### Part 3: Summary

In 2005, turnover per employee in the CCR (£51,000) was a little more than a third of its UK level (£131,000). This gap has narrowed, turnover per employee in the UK is now 90% higher than in the CCR. The literature offers labour hoarding and technological diffusion as explanations for this gap.

The CCR would need to grow its turnover per employee by 11% year-on-year to catch up with the UK in 10 years. Even halfway through the catch-up process, this type of growth could generate £255 million additional GVA and almost 2,000 additional workplaces in the audiovisual media sector.

### Implications

11% year-on-year growth is ambitious. The overall effect of this type of growth would be that the audiovisual media sector would host 1.6% of all employment in the CCR and generate 2.3% of all of its GVA.

# Conclusion

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THE AUDIOVISUAL MEDIA SECTOR IN CARDIFF CAPITAL REGION HAS ENJOYED CONSPICUOUS GROWTH OVER THE LAST DECADE, BECOMING ONE OF THE UK'S MOST IMPORTANT CENTRES FOR FILM AND TV PRODUCTION. IT HAS BECOME AN IMPORTANT CONTRIBUTOR TO THE LOCAL ECONOMY (DIRECTLY AND INDIRECTLY), CREATING A RAFT OF SUCCESSFUL MEDIA PRODUCTIONS FOR INTERNATIONAL AUDIENCES. THIS HAS CREATED MOMENTUM AND HEIGHTENED AMBITION, BOTH WITHIN THE INDUSTRY AND AMONG REGIONAL POLICY MAKERS. <sup>34</sup>

Since 2010 ,the Welsh Government's Creative Sector Team has supported key creative sectors, notably film and TV. In 2016, the Cardiff Capital Region City Deal was established by the UK and Welsh Government and the ten local authorities in South East Wales. The creative industries are one of six major target sectors of the City Deal. <sup>35</sup> In early 2020, the Welsh Government launched Creative Wales focusing on the film and TV, music and digital sectors. <sup>36</sup> And, since 2019, the Clwstwr programme, supported by UKRI and the Welsh Government, has begun a push towards the kind of research, development and innovation needed to boost productivity in the media sector.

The CCR's position as leading media production centre is boosted by the significant presence of UK broadcasters, major studios, and a strong independent production sector. The region's international market position is based on high-end TV production, with strong local supply chains. We have

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<sup>34</sup> More details and data can be found in the "Independent review by Panteia: Study on the Cardiff Capital Region screen sector report" via <https://clwstwr.org.uk/independent-review-panteia-study-cardiff-capital-region-screen-sector>

<sup>35</sup> See <https://www.cardiffcapitalregion.wales/news-post/cardiff-capital-region-industrial-and-economic-growth-plan-is-showcased-at-largest-property-exhibition-in-the-world/>

<sup>36</sup> Creative Wales published in 2020 key numbers on the creative industries in Wales (see <https://www.wales.com/creative-wales>). The numbers presented by Creative Wales differentiate from the here presented numbers as different data sources and a different harmonisation process have been applied. Creative Wales states that "The creative industries represent one of Wales' fastest-growing sectors, with an annual turnover of more than £2.2 billion, and employing over 56,000 people – 40% more than 10 years ago."

found that the audiovisual media sector has become a crucial contributor to the local economy of the CCR and for the UK, with *1 in every 8 tv and film production and post-production related jobs in the UK created in the CCR*. Behind this growth we have identified risks and opportunities:

- While Cardiff has the highest sectoral productivity growth rate in the UK, like all regions outside London, the CCR's audiovisual media sector still lags behind UK averages in productivity, **which signifies a need for innovation and investment**. Based on the findings of this report, we have seen significant additional growth, with turnover productivity rising by 4.6% per annum. While productivity growth is above average, productivity rates still remain below the UK average. This has also in impact on the overall GVA growth.
- Lack of **R&D and commercialisation capacity means the region's media sector has high business birth rates but low survival rates as shown in this report**. In order to create sustainable businesses, value comes from being an originator rather than just a content provider. Too much media production in the region is 'show and go' – creating content but holding none of the intellectual property needed for longer term sustainability and growth.
- At the same time, The **region's media sector is based on a cluster of independent SMEs and freelancers** (98% of creative companies in Wales are small, a third of the workforce are freelance).<sup>37</sup> It faces competition from highly integrated global companies with greater capacity to invest in R,D&I in a fast-moving digital media sector. This lack of capacity reduces productivity.
- The audiovisual sector and specifically the **film and TV sector has suffered above average negative impacts due to COVID-19** since the beginning of 2020. The UK film, television, video and photography industries are projected to shrink 57% and lose £36 billion in revenue in 2020 due to the effects of the coronavirus pandemic.<sup>38</sup> In a study surveying 237 freelancers in Wales' creative sectors in April 2020 (with

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<sup>37</sup> See <https://clwstwr.org.uk/clwstwr-creative-industries-report-no-1-size-and-composition-creative-industries-wales>

<sup>38</sup> See <https://www.newsbreak.com/news/1585206983348/coronavirus-could-cost-uk-film-and-tv-sector-45-billion-in-revenues-report-projects>



the majority coming from the film, TV and music sectors) 85% of the respondents reported a significant decrease in business, with a majority (60%) stating that their work has completely dried up since COVID-19.<sup>39</sup>

- Digitisation has opened the market for **new content investors with OTT platforms becoming major players in the sector**. Content spending could keep rising by 5 to 6% with the fastest growth among web TV, premium OTT/SVoD and premium TV channels (e.g. YouTube, Facebook Live, Netflix, Amazon, HBO, Disney) who will be increasingly operating as global or pan regional brands.<sup>40</sup> The CCR's audiovisual media sector's strong performance seems to be continuing in the new age of TV with both the major global OTT/SVoD services making significant use of local content production in the CCR.
- Still, **traditional players have to innovate and explore new markets as traditional revenue streams are shrinking**. Industry projections suggest that core TV revenues will continue to grow at their lower recent rate of 3.5% a year up to 2020 and then slow again to 3% in the five years up to 2025. Growth in the mature markets of North America and Europe is likely to be particularly slow (perhaps as little as 2 to 2.4% a year), while Asia Pacific is likely to remain at 5% a year.<sup>41</sup> This is due to the shrinking advertising income of broadcasters. PwC predicts that the global year-on-year TV advertising revenue declines at a rate of -11.6%. And due to COVID-19 is PwC forecasts more than -65% year-on-year decline in box office revenue for film.<sup>42</sup>
- However, **on-going digitisation gives also new opportunities for innovation** and consumer behaviour changes in content creation, distribution and consumption. For example, virtual production technologies can create a range of efficiencies in media production, while improved forms of connectivity (e.g. 5G) can improve the capacity of regional media hubs to compete globally.

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<sup>39</sup> See

<https://www.creativecardiff.org.uk/sites/default/files/Creative%20Cardiff%20study%20on%20COVID-19%20Support%20Scheme%202.4.20.pdf>

<sup>40</sup> See <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

<sup>41</sup> See <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

<sup>42</sup> See <https://www.pwc.com/us/en/industries/tmt/library/global-entertainment-media-outlook.html>

- In this context, the CCR also profits from its **region's HEIs, which are a key suppliers of ICT/ media R&D** (Cardiff University is ranked second in the UK and top 25 globally for Research Excellence in media) and training (10,000 Welsh students enrolled in media sector relevant courses - further enhanced when the National Film and TV School opens a Cardiff base in 2021).
- Despite the recent growth in employment, **CCR struggles to retain local talent**, with the Welsh student retention rate at only 62% (the lowest in the UK).<sup>43</sup> This reflects the high proportion of students in Welsh HEIs who come from outside Wales (mainly England): the challenge is to increase the 'stickiness' of cities like Cardiff so that talented graduates are encouraged to stay.
- The region is also the **UK centre for bilingual production, building on Welsh identity and culture** with recent series (*Hinterland, Hidden, Keeping Faith*) enjoying international success. The presence of strong indigenous media - telling stories about Wales, in both English and Welsh - plays an important role in defining Welsh citizenship and identity. This applies to both factual (news, sport, current affairs and culture) and fictional programming, where greater strength in media production can bolster citizenship, understanding and confidence.
- Finally, research has found that there has been an **increasing growth of globally commissioned or co-produced high-end TV and film** in just a few production hubs. There is a trend moving away from the US market to different specialised production locations. There has been a growth of dramas with a £5 million to £10 million per episode budget.<sup>44</sup> Regional hubs like the CCR can profit from this trend if they are globally competitive.

Supporting the audiovisual media sector in the CCR would have significant spill-over effects to the local economy and other related sectors. We have found that *the audiovisual media sector in the CCR contributes three times as much to the local economy (£605 million) than its direct GVA (£199 million). This sustains 2,898 further full-time jobs locally.* The largest contributors to GVA

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<sup>43</sup> See <https://clwstwr.org.uk/independent-review-panteia-study-cardiff-capital-region-screen-sector>

<sup>44</sup> See <https://www.mpa-emea.org/wp-content/uploads/2018/09/OO-UK-AV-sector-economic-contribution-report-FINAL-2018.09.21.pdf>

are the television broadcasting and motion picture sectors (47% and 30% respectively). GVA/employee is also roughly 10% higher in these subsectors than in others within the audiovisual media sector.

IF THE REGIONAL MEDIA SECTOR IS TO TAKE ADVANTAGE OF EMERGING TECHNOLOGIES AND THE INCREASED INVESTMENT IN MEDIA PRODUCTION INTO SPECIFIC LOCAL MEDIA HUBS, THE CCR NEEDS TO BECOME COMPETITIVE WITH STRATEGIC INVESTMENT IN INFRASTRUCTURE IN WAYS THAT EXPAND R&D CAPACITY FOR LOCAL COMPANIES. IN OUR SCENARIO BUILDING, WE HAVE FOUND THAT THE CCR WOULD NEED TO GROW ITS TURNOVER PER EMPLOYEE BY 11% YEAR-ON-YEAR TO CATCH UP WITH THE UK IN 10 YEARS. EVEN HALFWAY THROUGH THE CATCH-UP PROCESS, THIS TYPE OF GROWTH COULD GENERATE £255 MILLION ADDITIONAL GVA AND ALMOST 2,000 ADDITIONAL WORKPLACES IN THE AUDIOVISUAL MEDIA SECTOR. WITH THE RIGHT INVESTMENT, 11% YEAR-ON-YEAR GROWTH IS AMBITIOUS BUT POSSIBLE.

## Annex: Methodological approach and limitations

### Data collection

This study is based on information about 165,176 businesses entities extracted from FAME (a database on UK companies published by Bureau van Dijk, built on Companies House data). Standard Industrial Classification (SIC 2007) codes that the UK Government's Department of Culture Media and Sport (DCMS) use to describe the audiovisual sector have been used to extract data about businesses registered in the UK (see Methodology section above).

For all of these businesses, we have extracted information on their primary sector of activity, their geographical location, the number of employees, the turnover that they have generated, the gross earnings that they have accumulated and the wages that they have paid. We have collected this information for all years from 2005 to 2018.<sup>45</sup>

We have manually added the measures for broadcasting companies in the CCR that operate via royal charter (meaning that they do not need to submit yearly accounts for centralised statistics). These are BBC Cymru, BBC Manchester and BBC London, as well as S4C. We have obtained figures for these companies by manually inputting the figures from their publicly available yearly reports. Additionally, during our data cleaning process, we excluded three firms with a large number of reported employees, according to FAME. These are Dgonth Ltd. (3000+ employees), XceeDance (1200+ employees) and Cardiff Value Citizens' Information Bureau (roughly 100 employees) - all reportedly active in the CCR. While these companies all belong to sector code 63.99, our manual screening of the firms revealed that their activities are not intertwined with those of a typical audiovisual media company. Furthermore, in the cases of Dgonth Ltd. and XceeDance our checks cast doubt on the veracity and the precision of the data. However, we note that this makes our current estimates particularly cautious, especially in comparison with data from other regions, where a similar removal of companies from data sets has not taken place. If these companies and their reported employees are taken at

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<sup>45</sup> Subsequent years were not available for analysis, as filing for 2019 and 2020 is still incomplete for a subset of the companies.

face value (or if we assume that they were counter-balanced by under-reporting elsewhere), the sector would almost double in size. Consequently, *our findings should be interpreted as in the lower bound for the local and domestic importance of the sector.*

We have used a number of other publicly available datasets to understand the interlinkages between various sectors of activity and to make UK-wide comparisons. These include the input-output matrices from the Office of National Statistics (ONS), data from the Department for Culture, Media and Sports (DCMS), NESTA, labour statistics, etc. We identify the source of our data in the footnotes of this report. Where a data source is not expressly noted its origin is the FAME dataset from Bureau van Dijk.

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## Data harmonisation

In many instances, the businesses that we have investigated have not submitted data on key variables, such as turnover or the number of employees. In these cases, we have proceeded with cautious estimates based on existing data (replacing the missing values with national median values from the audiovisual media sector). When we encountered missing wage data specifically for the Cardiff Capital Region, we have substituted it with median wage data from the region (shielding our estimates from wage differentials that are due to localized differences in living costs).

Given our approach, it is conceivable that our results may slightly differ from previous findings regarding the sector or the region. In that case, please note that using median data as replacement for missing values underestimates the total economic impact of the sector.

We assume that missing data comes from small enterprises that are typical in this sector. It is possible that the missing values would show higher turnover and employment figures than our conservative estimates. The opposite is highly unlikely. After the completion of our data collection process, we have carried out the analysis using Stata.

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## Estimation methodologies

We detail all of our calculation and estimation (or simulation) methodologies in the body of the text, wherever relevant. We also detail all assumptions and simplifications that we make. We do, however, omit describing our Gross Value Added (GVA) calculation methodology from the body of the report.

We calculate GVA measures for each CCR firm in our dataset using the appropriate methodological guidelines.<sup>46</sup> We capture in GVA all of the remuneration of capital and labour generated through the activity of the CCR's audiovisual media sector. This entails that for each company and for each year of reporting, we multiply the number of full-time employees with our company-specific measure of wage per employee. We then add this to the gross earnings measure proxy (EBITDA – earnings before interests, taxes, depreciation and amortisation) that we extract directly from the FAME dataset.

Using this method, we create a cautious estimate of true GVA. This is because we do not include other employee compensations such as pension benefits in labour compensation. In firm earnings, we abstract from the positive effects of tax credits or other company-specific advantages or subsidies. Therefore, our measure of GVA is at a lower bound of its true value. We have chosen this methodology in order to ensure that we do not overstate the importance of the sector in any way.

In virtue of the guidance on estimating GVA,<sup>47</sup> consider that *in fine* all of the turnover that the audiovisual media sector in the CCR produces becomes turnover for other firms as well in the global economy. The input that the audiovisual sector uses is turnover produced by its suppliers that contains GVA, as well as input costs, which are in turn provided by suppliers further down the value chain.

Analogously, the rest of the turnover in the CCR's audiovisual media sector is household compensation (gross earnings and wages). A part of this becomes consumption, which also appears as turnover for final sellers that includes a GVA component. Those final suppliers of households also have their own suppliers that also generate GVA – and the cycle continues *ad infinitum*. Therefore, we calculate the indirect GVA creation of the CCR's audiovisual media sector using the formula below.

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<sup>46</sup> Scottish Enterprise Economic Impact Guidance: Gross Value Added, available online at <http://www.evaluationonline.org.uk/evaluations/Documents.do?action=download&id=802&ui=basic>

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$$\begin{aligned}
Indirect_{GVA} &= \sum l_{CCR} \cdot T_{AV,CCR} (1 + \tau_{CCR} + \tau_{CCR}^2 + \dots + \tau_{CCR}^n) - l_{CCR} \cdot T_{AV,CCR} \\
&= \frac{l_{CCR} \cdot T_{AV,CCR}}{1 - \tau_{CCR}} - l_{CCR} \cdot T_{AV,CCR} = \frac{\tau_{CCR} \cdot l_{CCR} \cdot T_{AV,CCR}}{1 - \tau_{CCR}}
\end{aligned}$$

In this equation, we take account of the fact that not all that is consumed locally is also produced locally (i.e. in the CCR). This is captured by the parameter  $l_{CCR}$ . To our knowledge, no estimates exist in the literature for this metric. Therefore, we conservatively assume that it reaches 20%.

$\tau_{CCR}$  is the GVA to turnover ratio in the entirety of the CCR. This is important, as it captures on average the GVA created indirectly at each level of the value chain feeding into the CCR's audiovisual media sector. To our knowledge, no estimates exist for the GVA to turnover ratio in the CCR specifically. Therefore, we used the 2018 Welsh level of this parameter, which amounts to 0.71.<sup>48</sup>

Finally,  $T_{AV,CCR}$  is the total turnover of the CCR's audiovisual media sector. In 2018, this was £ 545 000 000, according to FAME. One simplifying assumption that we make is that all of the household income (wages and gross earnings) are consumed.

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## Methodological limitations

Our research process has some inevitable limitations. First, the creative industries involve complex structures and is strongly impacted by converging technology advances. The demarcation of the creative industries through classification systems (like SIC) as applied in this study is neither exclusive nor exhaustive. Additionally, irregularities can be encountered between attributed codes and actual business activity.

Second, working with industry statistics means that there are constraints in data availability. Financial data on firms have many constraints. In particular, the UK does not have any obligatory filing requirements for freelancers, and small companies do not file financial figures in detail. Only about 5% of creative enterprises extracted from FAME include numbers on employees. The

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<sup>48</sup> Total turnover in Wales was roughly £ 91 billion according to Welsh Government: GOV.UK: Business population estimates 2019, Wales, table 21. Total GVA in Wales was approximately £65 billion according to StatsWales: <https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/Regional-Accounts/Gross-Value-Added-GDP/gvainwales-by-industry>.

remaining 95% have been harmonised using calculations based on median and average values per year. BBC Wales – the largest media employer in Wales - was also not included in the database due to filing requirements (information was added in the research process). Other unavailable data cells due to reporting requirements and time constraints needed to be harmonized.

Third, the available data does not allow us to distinguish directly between trading addresses, addresses for filing purposes and subsidiaries. *Only companies registered at one of the analysed locations are included in the analysis.* The data does not allow us to see where employees are located and therefore where exactly economic activities are taking place. We are aware of a number of media companies operating in the CCR who are *not* included in the database because their trading address is elsewhere. We took the decision not to add these companies, since doing so would be on an ad hoc basis, although this does mean we are likely to have underestimated the size of the sector. Consolidated accounts have been used, meaning if subsidiaries are working at different locations, the turnover and number of employees are still designated to one location.





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