OXFORD ECONOMICS

THE ECONOMIC IMPACT OF PUBLIC RADIO'S MUSIC ACTIVITIES

JULY 2020

EBU

OPERATING EUROVISION AND EURORADIO


SLOPER

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Cover image: Karina Canellakis, Chief Conductor of the Netherlands Radio Philharmonic Orchestra.
Left: The Snuts at the Hooghoudt Barn during Eurosonic Noorderslag 2020 in Groningen.

PUBLIC MUSIC RADIO'S IMPACTS ACROSS EUROPE

EBU MEMBERSHIP IS MADE UP OF...

116 public service broadcasting organisations, of which...

60 undertake music radio operations across...

48 European countries. This accounts for

46% of total radio programming hours.

EBU's music radio organisations run:

276 inter/national terrestrial channels

301 regional/local terrestrial channels

244 online streams

56 orchestras

47 choirs

24 ensembles

EUROPE-WIDE ECONOMIC IMPACT

In 2018, these operations supported:

DIRECT IMPACT:

€1.08 billion of GDP

17,000+ jobs

... including **5,800** musicians in orchestras/choirs/ensembles that directly generated

€354 million of GDP

TOTAL IMPACT:

€3.15 billion of GDP

50,000+ jobs

... including "knock-on impacts" from supply chain links and staff spending

For every **€1** worth of work undertaken in these radio operations...

... a further **€1.90** is generated in other sectors.

For every job in these radio operations, a further two roles are supported elsewhere in the European economy.

ECONOMIC IMPACT WITHIN EU-27

In the EU-27, EBU's music radio organisations run:

170 inter/national terrestrial channels

232 regional/local terrestrial channels

226 online streams

40 orchestras

34 choirs

10 ensembles

In 2018, these EU-27 operations supported:

DIRECT IMPACT:

€0.85 billion of GDP

12,000+ jobs

... including **4,320** musicians in orchestras/choirs/ensembles that directly generated **€294 million** of GDP.

TOTAL IMPACT:

€2.36 billion of GDP

34,000+ jobs

... including "knock-on impacts" from supply chain links and staff spending.

The average EU-27 worker in public service music radio contributed **€69,200** to GDP in 2018, 19% higher than the average for all EU-27 workers.

Together, these operations and their suppliers account for almost **one fifth** of all jobs and GDP in the EU-27's music and radio services sector*

*Once adjusted to a 'like-for-like' basis

EXECUTIVE SUMMARY

This study assesses the impact on the European economy of the music radio activities of organisations belonging to the European Broadcasting Union (EBU), the international association for public service broadcasters. Of the EBU's total membership of 116 public service broadcasting organisations, 60 undertake music radio operations across 48 European countries, and these activities form the basis of our analysis.

50,000 jobs

Total contribution to European employment in 2018, taking three types of spending-related impact into account.

The ultimate aims of public service music radio are to provide cultural, educational, well-being, and entertainment benefits to listeners from all sections of society—and in doing so, to strengthen and deepen the cultural landscape of the country concerned.

This is achieved by broadcasting a wide range of music content—both live and recorded—to a large and diverse share of the population. While news, current affairs, regional, arts, educational, and sports programmes form an essential part of the public service delivery mix, music is the most important genre offered by EBU members' radio operations, accounting for some 46% of total programming hours. The organisations covered by this study run a total of 276 national or international terrestrial radio channels, 301 regional or local terrestrial services, and 244 online streams. They also organise 56 orchestras, 47 choirs, and 24 ensembles.

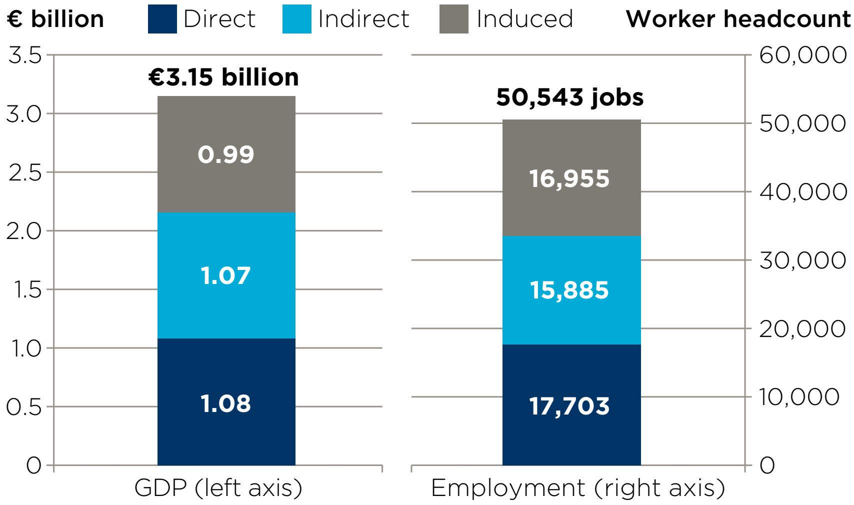
€3.1 billion

Total contribution to Europe's GDP in 2018 as a result of that work.

THE ECONOMIC IMPACT OF EBU MEMBERS' MUSIC RADIO ACTIVITY

Throughout the 48 European countries in which they operate, we calculate that these public service music radio operations supported over 50,000 jobs in 2018, and contributed more than €3.1 billion to Europe's GDP (the standard measure of a region's economic output). The three spending-related components of these totals—known as the "direct", "indirect", and "induced" impacts—are detailed in Fig. 1.

Fig. 1: Total economic impact of EBU members' music radio in 2018



Source: Oxford Economics

Figures may not sum due to rounding

33%

Proportion of directly-employed staff engaged in orchestras, choirs, and ensembles.

THE SECTOR'S OWN (DIRECT) ECONOMIC CONTRIBUTION

In 2018, some 17,700 staff were directly employed in these music radio operations, and the value of that work—the *direct* contribution to European GDP—was worth €1.1 billion. **This includes 5,800 musicians—a third of all staff—employed in orchestras, choirs, and ensembles**, directly generating €354 million of GDP.

A clear majority of this activity takes place within the EU-27. Across those countries, 38 operations run 170 national and international radio channels, 232 regional and local channels, 226 online streams, 40 orchestras, 34 choirs, and 10 ensembles. These organisations employed some 12,320 individuals in 2018, associated with €853 million of direct GDP. This includes 4,320 musicians engaged in orchestras, choirs, and ensembles, directly generating €294 million of GDP**.**

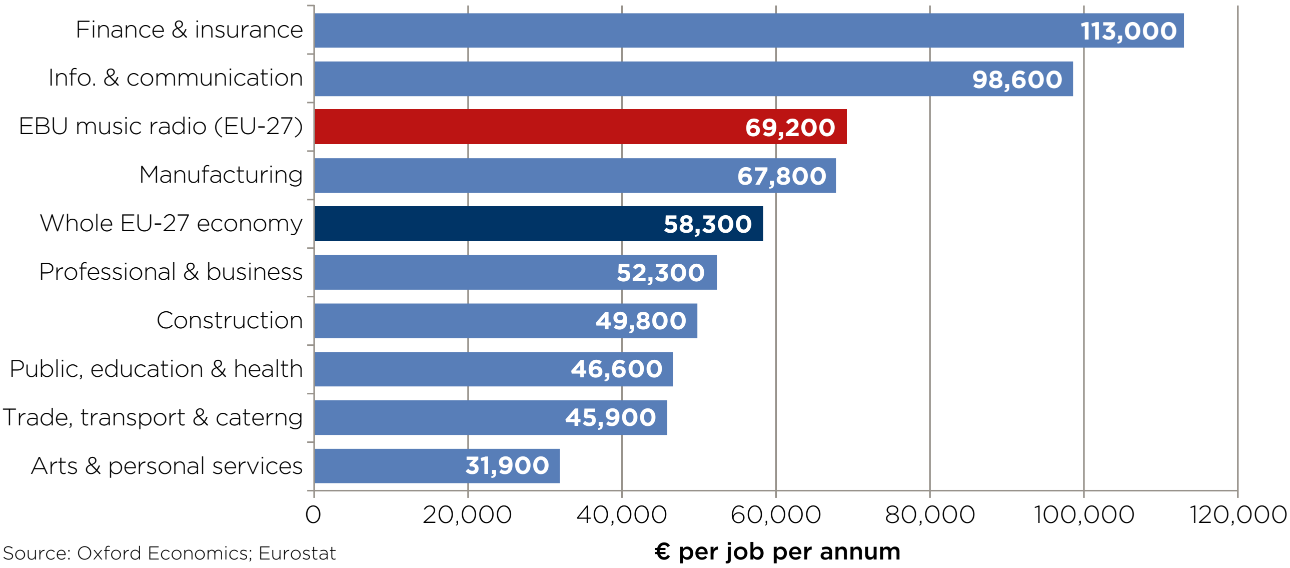
The average worker in public service music radio in the EU made a €69,200 contribution to GDP in 2018, 19% higher than across the EU economy as a whole. This productivity level is also higher than in most of the major EU industrial sectors, including manufacturing, construction, and professional and business support services (see Fig. 2). It is indicative of the **high level of skills, knowledge, experience and talent involved in delivering this output,** and the consequent rewards for those working in the sector.

Across all of the 48 countries of study, GDP per job was €61,100, which is a third higher than the Europe-wide economy average.

€69,200

Sector's direct GDP per job in the EU. This is 19% higher than the EU economy-wide average.

Fig. 2: GDP per job in the EU-27 in 2018



Source: Oxford Economics; Eurostat

The total contribution of public radio's music activities to European jobs is three times the number of staff working in the sector itself.

SUPPORT FOR ACTIVITY ACROSS THE WIDER EUROPEAN ECONOMY

The operations' total economic contribution is not, however, confined to the direct impact. As well as employing highly-skilled staff, public service music radio operators purchase inputs of goods and services from third parties, stimulating economic activity along their European supply chain (known as the indirect impact). In addition, their wage payments fund employee spending in shops and other parts of the consumer economy, supporting GDP and jobs (known as the induced impact).

These "knock-on" indirect and induced effects mean that, for every job in public service music radio, another two roles are supported elsewhere in the European economy. Put another way, the "employment multiplier"—the ratio of the total jobs impact to direct employment alone—is broadly three.

Public service music radio's knock-on impacts support employment across a wide range of industries. But many of these jobs can be found in closely-related sectors. In fact **almost 7,300 roles are supported in other parts of the music- and radio-related field**. The significant amount of work supported directly and indirectly in this high-productivity sector, some 25,000 jobs in total, is helped by the commitment of public service radio providers to live music, both by running orchestras and choirs, and by purchasing the rights to broadcast other live events.

In the EU-27 alone, the total contribution to GDP in 2018 was €2.4 billion, associated with 34,440 jobs. **Of the EU-based total, 17,280 direct and indirect jobs were supported in music and radio services, accounting for 19% of all estimated jobs across that sector** (once adjusted to a 'like for like' basis). The associated €1.3 billion of GDP is equivalent to around 18% of the estimated GDP of the entire EU-based industry.

ADDITIONAL BENEFITS OF EBU MEMBERS' MUSIC RADIO ACTIVITY

While the measured economic contribution described above is significant, it does not capture in full the benefits provided to society by public service music radio. Two additional effects are worth highlighting here.

Public service music radio is typically delivered free at the point of use, resulting in significant benefits for listeners which cannot easily be measured. These benefits form an important part of the rationale for public funding of this medium, but they cannot be quantified in a study such as this.

The benefits of the varied musical selection carried by public service media are also felt by the music industry. Listeners who hear new types of music through public service radio may subsequently go on to purchase, stream or download it, benefiting artists and other music industry participants. In this particular case, independent and fledgling music labels, and hitherto-undiscovered artists, often stand to benefit the most. These benefits will also be additional to the values captured in our analysis.

19%

Share of all EU music and radio services jobs supported by EBU members' music radio activity, directly and indirectly.

Radio Wave studio at Czech Radio’s headquarters in Prague.


PTZ Optics

1. INTRODUCTION

This study assesses the impact on the European economy of the music radio activities of organisations belonging to the European Broadcasting Union (EBU), the international association for public service broadcasters.

1.1 PUBLIC SERVICE MUSIC RADIO IN EUROPE

For decades, public service radio has engaged millions of listeners across Europe, providing entertainment and broadening horizons. The 60 European public service radio operations covered by this study run 276 national or international terrestrial radio channels, 301 regional or local terrestrial services, and 244 online streams between them (see Fig. 3 and Fig. 4).

Typically, the output of European public service radio broadcasters is within technical reach of virtually 100% of the population in their targeted markets, and despite the plethora of commercial radio stations that now also operate in these fields, their audience share remains strong, at 38.2% in 2018.[1] A public service radio station is the market leader, in terms of audience share, in 17 of the 32 markets covered by that particular piece of EBU analysis.

A broad range of music and other services is provided by these operators, with news and current affairs accounting for 20% of programme hours in 2019, regional and local content for 13%, arts, culture, education and science for 9%, and sports programmes for 7%. But music is the largest single genre, accounting for 46% of output on this basis.[2]

Furthermore, the music output of these operations is very varied. Unlike their commercial counterparts, there is a strong emphasis on live music, with the organisations covered by this study running 56 orchestras, 47 choirs, and 24 ensembles between them, as well as broadcasting other live musical events.

The breadth and depth of these activities reflects the unique role of public service media operators in Europe. Their output is aimed at individuals from every part of society, and usually provided free at the point of use with the help of public funds.[3] Their goals can be summed up by six principles set out in a key declaration by the European Broadcasting Union (EBU):[4]

- **Universality**, with relevant content offered to all segments of society.
- **Independence** from political, commercial and other influences and ideologies.
- **Excellence**, with high standards of integrity, professionalism and quality pursued.
- **Diversity** in programming and views expressed, to reflect the different generations, cultures and religions that their audiences comprise.
- **Accountability** to their audiences, by being transparent and subjecting themselves to constant public scrutiny.
- **Innovation**, with an aim to enrich the media environment of the countries and regions in which they operate.

[1] EBU, *Audience Trends, Radio 2019, Public Version*, July 2019.
[2] EBU, *How Public Service Media Deliver Value*, January 2020. Music also accounted for 46% of hours on 2018.
[3] In 2018, public funding (comprising license fees and state grants) accounted for 77.7% of all public service broadcasters' income, across TV, radio and other services (EBU, *Funding of Public Service Media 2019, Public Version*, December 2019). The figure for radio operations alone is believed by the EBU to be higher than that.
[4] EBU, *Empowering Society: A Declaration on the Core Values of Public Service Media*, October 2012.

Fig. 3: Scope of the analysis: EU-27

Country	Organisation	Linear terrestrial radio channels		Online streams	Orchestras	Choirs	Ensembles
		National & international	Regional & local				
Austria	ORF	3	9	1	1	0	0
Belgium	RTBF	8	0	22	0	0	0
	VRT	8	0	3	0	0	0
Bulgaria	BNR	2	9	8	2	3	1
Croatia	HRT	3	8	2	2	1	1
Cyprus	CYBC	4	0	0	0	0	0
Czech Rep.	ČRo	9	12	2	2	1	1
Denmark	DR	9	0	0	1	3	1
Estonia	ERR	4	1	0	0	0	0
Finland	Yle	5	3	2	1	0	0
France	Radio France	6	44	16	2	2	0
Germany	ARD/BR	0	10	0	2	1	0
	ARD/HR	0	6	3	1	0	1
	ARD/MDR	0	9	11	1	2	0
	ARD/NDR	0	11	20	2	1	1
	ARD/RB	0	4	10	0	0	0
	ARD/RBB	0	6	3	0	0	0
	ARD/SR	0	5	7	1	0	0
	ARD/SWR	0	8	17	1	1	1
	ARD/WDR	0	10	19	2	2	1
	Dradio	4	0	0	0	0	0
	ROC	0	0	0	2	2	0
Greece	ERT	6	21	0	2	1	0
Hungary	MTVA	6	0	1	1	2	0
Ireland	RTÉ	9	0	0	2	3	0
Italy	RAI	12	2	0	1	0	0
Latvia	LR	5	1	8	0	1	0
Lithuania	LRT	3	0	0	0	0	0
Luxembourg	ERSL	1	0	0	0	0	0
Malta	PBS	3	0	0	0	0	0
Netherlands	NPO	11	0	2	1	1	0
Poland	PR	10	0	47	2	0	0
Portugal	RTP	5	3	8	0	0	0
Romania	ROR	9	13	10	3	2	1
Slovakia	RTVS	7	3	1	2	1	0
Slovenia	RTVSLO	4	4	1	1	2	1
Spain	RTVE	5	1	0	1	1	0
Sweden	SR	9	29	2	1	1	0
EU-27	**38**	**170**	**232**	**226**	**40**	**34**	**10**

Fig. 4: Scope of the analysis: Rest of Europe and Total Europe

Country	Organisation	Linear terrestrial radio channels		Online streams	Orchestras	Choirs	Ensembles
		National & international	Regional & local				
Albania	RTSH	5	4	0	1	0	0
Andorra	RTVA	2	0	0	0	0	0
Armenia	AMPR	2	1	0	0	0	4
Azerbaijan	ICTI/ITV	1	0	0	0	0	0
Belarus	BTRC	5	7	0	1	1	1
Bosnia-Herz.	BHRT	1	0	6	1	0	0
Georgia	GPB	1	1	1	0	0	0
Iceland	RÚV	3	0	2	0	0	0
Israel	IPBC	9	0	2	0	0	0
Moldova	TRM	2	0	1	1	0	0
Montenegro	RTCG	2	0	0	0	0	0
N. Macedonia	MKRTV	4	0	0	0	0	0
Norway	NRK	14	0	3	1	0	0
Russian Federation	Radio Orpheus	1	0	0	2	2	4
	RTR	4	0	1	0	0	0
San Marino	SMRTV	2	0	0	0	0	0
Serbia	RTS	4	0	0	2	3	2
Switzerland	SRG SSR	17	0	0	0	1	1
Turkey	TRT	11	6	1	0	1	1
Ukraine	UA:PBC	4	3	1	2	2	1
UK	BBC	11	47	0	5	3	0
Vatican	RV	1	0	0	0	0	0
Non-EU: 21	22	106	69	18	16	13	14
Europe: 48	**60**	**276**	**301**	**244**	**56**	**47**	**24**

1.2 THE SCOPE OF THIS STUDY

This study, carried out by the global research consultancy Oxford Economics, assesses the total economic contribution of music radio operations run by EBU members. Of the EBU's total membership of 116 public service broadcasting organisations, 60 undertake music radio operations across 48 European countries, and these activities form the basis of our analysis.

The study, commissioned by the EBU, is underpinned by a bespoke survey of its music radio members' financial and employment performance, designed and carried out by Oxford Economics, plus a range of official data—including an OECD dataset concerned with the pattern of transactions between sectors of industry across the European region. The geographical scope of the exercise, and the operations covered, are illustrated in Fig. 3 and Fig. 4.[5]

[5] References to 'Europe' and 'European' in this report relate to the area covered by the 48 countries of study. References to the 'European Union' or 'EU' relate to the present 27-member composition, excluding the UK. The EBU has members in eight further countries (Algeria, Egypt, Jordan, Lebanon, Libya, Monaco, Morocco, and Tunisia), but these are outside the scope of this study. The radio operations run by EBU members FMM (France), DW (Germany) and UR (Sweden) are also excluded as the music content of their output is very limited.

This report is mainly concerned with assessing the quantifiable impact of these EBU members' music radio activities on the European economy in 2018, as a result of the spending incurred by running these operations. (Note: this includes impacts on other European countries' economies due to cross-border transactions.) It does not capture some additional benefits—to listeners and the music industry, and to societies as a result—which are briefly described below.

1.3 ADDITIONAL BENEFITS OF PUBLIC SERVICE MUSIC RADIO

A common aim of many EBU music broadcasters is to provide content for a wider range of musical tastes than catered for by commercial radio. This helps to build a richer and more varied culture in which creativity is allowed to flourish. Stations such as France Musique (run by Radio France) provide easy public access to classical, jazz, film and contemporary music, supporting broader awareness of these genres and introducing new, regular listeners.

Indeed, one of the primary objectives of many public service broadcasters is to preserve and promote a country's diverse cultures—and music radio can be central to this goal. The benefits of this more varied music selection are felt both by the listening population, and by the music industry.

As the services are typically provided free at the point of use, the net benefits to listeners—in terms of culture, education, well-being, and entertainment—are potentially very significant. But they cannot easily be measured, and are not captured in this study's results.

Furthermore, listeners who hear new types of music through public service radio may go on to become private consumers, benefiting artists and other music industry participants. This is an example of a "positive spillover effect", whereby investment by a particular entity ultimately creates a monetary return that accrues to others. In this case, independent and fledgling music labels, and hitherto-undiscovered artists, often stand to benefit the most, as opposed to already commercially successful labels and artists.

EBU members' music radio offerings also extend beyond simple broadcasting. Live orchestras, ensembles, and choirs have been longstanding features of many members, while free or low-cost off-air events are regularly held for the public. The delivery of valuable digital services, such as online radio and on-demand recorded programmes, including podcasts, has been important in the last two decades or so. And charitable causes are also promoted.[6]

1.4 THE STRUCTURE OF THIS REPORT

Chapter 2 describes the income, spending, and employment of EBU members' music operations, and the consequent "direct" economic impact of the sector.

Chapter 3 assesses the support provided to other parts of the European economy as a result of their spending on procurement and wages—i.e. the EBU music radio sector's "indirect" and "induced" impacts across Europe.

Chapter 4 analyses this sector's total economic footprint in Europe, by summing the direct, indirect and induced channels (for a more detailed explanation of this methodology, see Box 1, overleaf).

Chapter 5 concludes.

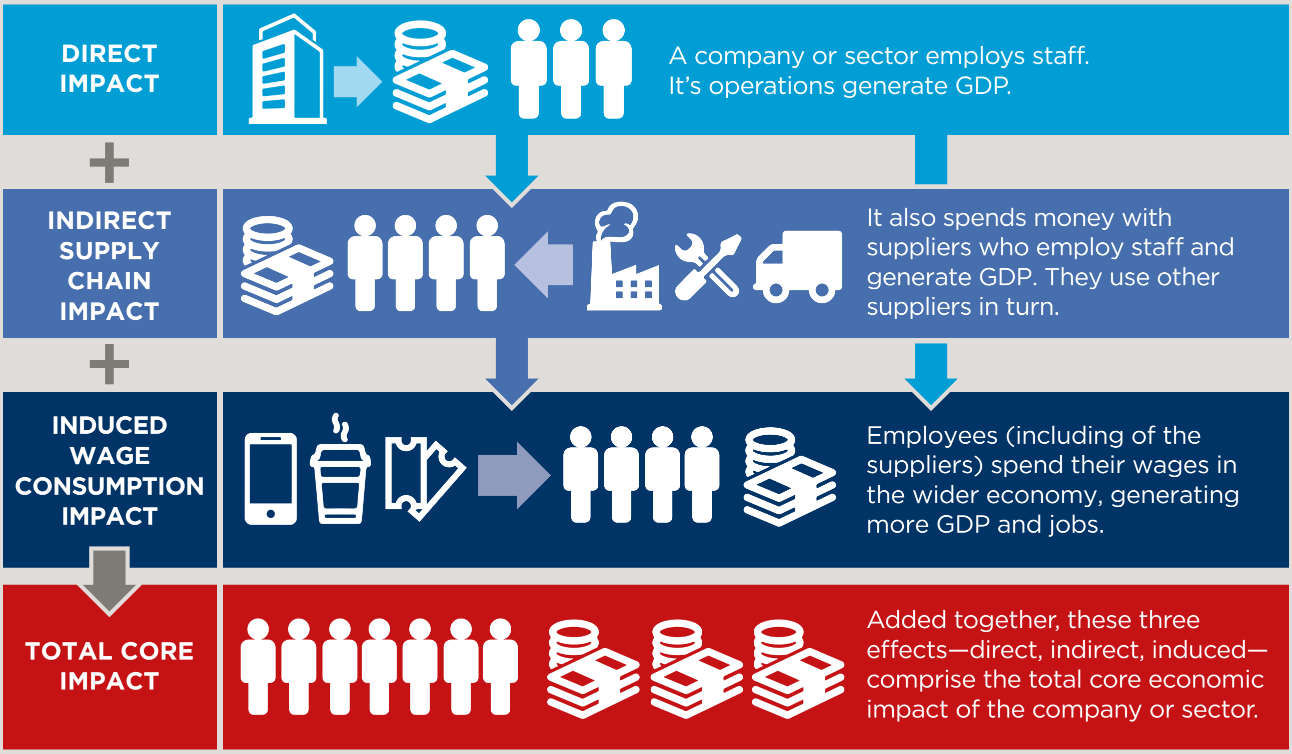
[6] For example, Serious Request fundraising events for the International Red Cross, typically hosted by radio stations ahead of Christmas, and started in 2004 by the Dutch public service music radio station NPO 3FM.

AN INTRODUCTION TO OUR ECONOMIC IMPACT ASSESSMENT

The impact of EBU members' music radio operations across Europe is assessed using a standard means of analysis called an economic impact assessment. This involves quantifying the value of the work undertaken by the operators, plus the knock-on effects of their spending on business supplies and wages in the course of undertaking those activities. Three "channels of impact" are therefore captured, as follows (and as also summarised in Fig. 5, below):

- The **direct impact** relates to the value of the activity undertaken by the organisations themselves, and to the associated employment at their sites across the 48 countries covered by the study.
- The **indirect impact** refers to the economic activity and employment stimulated along the European supply chain, by the radio operators' procurement of inputs of goods and services from suppliers based in their home market, in neighbouring countries, and beyond.
- The **induced impact** comprises the wider economic benefits that arise from the payment of wages by the radio operators, and the firms in their supply chain, to employees—who spend these earnings in retail, leisure and other outlets. This channel of impact also includes the activity stimulated in these outlets' supply chains, and that supported by the spending of those working in these consumer-facing industries.

Fig. 5: The contribution of EBU members' music radio to the European economy



The **total economic impact** or contribution (or "wider economic footprint") is simply the sum of these three impacts.

The economic impact of EBU members' music radio activities is measured in two dimensions:

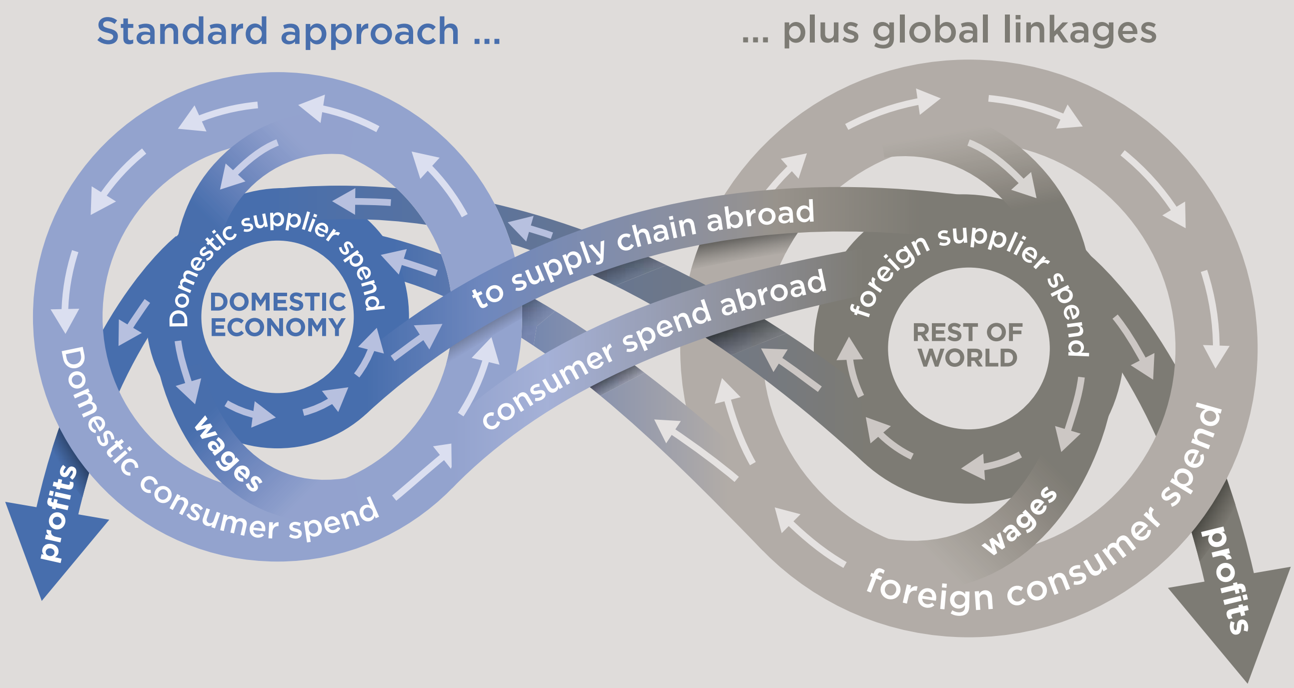
- the contribution to European GDP;[7] and
- the employment headcount supported.

Our results are presented on a gross basis. They therefore ignore any displacement of activity from potential competitors or other firms. Nor do they consider what the resources currently used by the operators, or by their suppliers, could produce instead, in the absence of EBU members' activity.

Note: while most economic impact studies assess these effects based only on transactions between organisations within the same country, this report goes further by including the impact of EBU members' spending on the economies of each other's countries. This is a more comprehensive approach that is better suited to studies of an international nature such as this (as illustrated in Fig. 6).

It should also be remembered that this report only assesses the value of the relevant work undertaken by these EBU members, and the value of work supported elsewhere in the European economy as a result. We make no attempt to place a monetary value on the cultural, educational, well-being and entertainment benefits to the listeners and society at large, or the "spillover benefits" for musicians and the music industry, as a result of these public services being delivered.

Fig. 6: Our Global Impact Model captures how EBU members' contributions spread across each other's economies



[7] Gross Domestic Product or GDP is the standard measure of the value of goods and services produced in an economy in a given period (typically a year). For the reasons set out in Appendix 2, the direct contribution of this sector to European GDP is taken to be the sum of its employment costs and capital depreciation, while the indirect and induced GDP impacts are calculated as the sales revenues of the suppliers concerned (excluding sales taxes such as VAT), minus the cost of their purchases of goods and services from other firms.

2. THE DIRECT IMPACT OF EBU MEMBERS' MUSIC RADIO ACTIVITY

This chapter explores the activities of EBU members' music radio operations. We look firstly at the total value of those activities—as measured by the monetary costs incurred in delivering that output—and at how the activity is financed. We then turn to the consequent direct contribution of these operations to European GDP and employment. Finally, we describe the specific impact of orchestras, choirs, and ensembles run by the organisations, which are included in the scope of 'music radio activity' in this study.

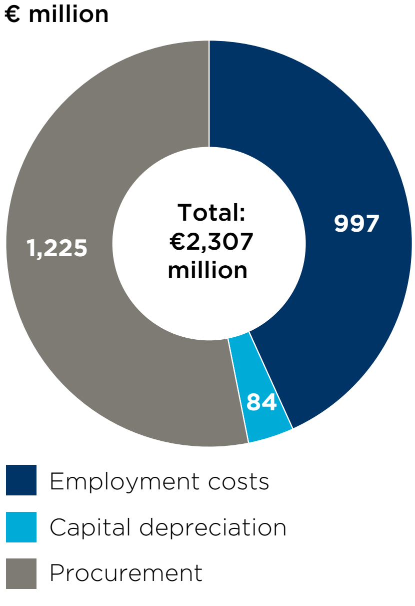
2.1 VALUE OF PRODUCTION AND FUNDING

In 2018, the total cost of delivering EBU members' music radio services across the European region amounted to €2.3 billion (see Fig. 7).[8] The organisations' own employment costs related to these activities amounted to €1.0 billion, and their capital costs to €0.1 billion. Payments to outside businesses and other third parties for goods and services supplied ("procurement") account for the remaining €1.2 billion. This will include, for example, payments for technical supplies and rental of equipment, and payments to publishers, rights organisations, and independent artists.

Almost four-fifths of this activity by value (78%) took place in the EU-27 (see Fig. 8), with the remaining 21 countries covered by the study accounting for 22%.

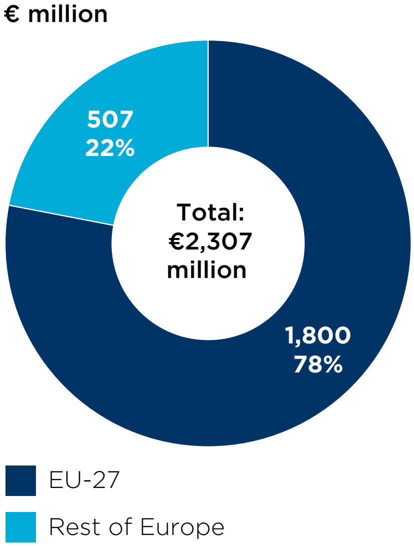
The vast majority of this activity—some 80%—is funded by the public purse, mainly through government grants or compulsory licence fees (see Fig. 9).[9] Advertising revenue and other commercial income account for most of the remainder—covering 17% of all operating costs—but with payments for the programme output itself negligible.

Fig. 7: Total value of production by type of cost



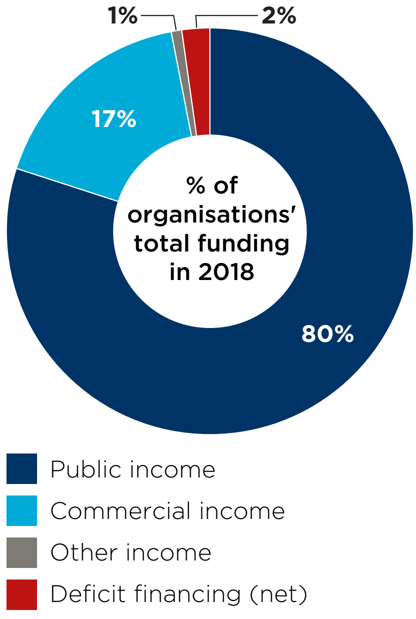
Source: EBU and its members; Oxford Economics

Fig. 8: Total value of production by country grouping



Source: EBU and its members; Oxford Economics

Fig. 9: Sources of funding for EBU members with music radio operations



Source: EBU and its members; Oxford Economics

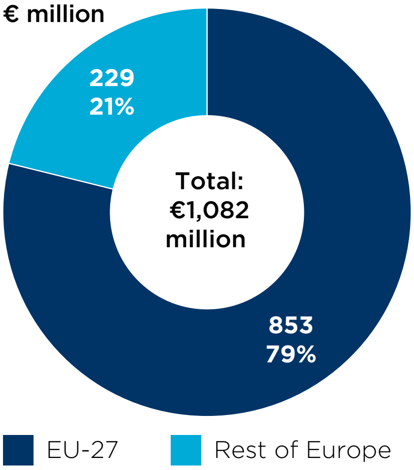
[8] Where the precise figures in this and other charts do not sum to the total shown, this is due to rounding.
[9] These percentages relate to the entire TV and radio activity of the organisations covered by this study, rather than their music radio operations specifically. They are based on separate data provided by the EBU, rather than the member survey.

2.2 DIRECT CONTRIBUTION TO EUROPEAN GDP AND EMPLOYMENT

As explained in Appendix 2, the contribution of public service activities to GDP is calculated by summing two of the three cost components making up the value of production—namely in-house employment costs and capital depreciation. On this basis, the activities' direct GDP impact was €1.1 billion in 2018. The geographical distribution of this impact was similar to that of the production value, with the EU-27 accounting for almost four-fifths (see Fig. 10).

Fig. 10: Direct GDP by country grouping

€ million

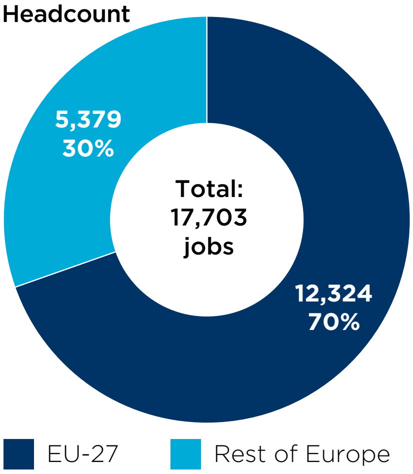


Source: Oxford Economics

EBU members employed some 17,700 people in 2018 in order to deliver these music-related radio outputs (see Fig. 11). Here, the pattern of employment by country is rather different to that of the direct contribution to GDP, with the EU countries accounting for 70% of all direct jobs, compared with 79% of all direct GDP.

Fig. 11: Direct employment by country grouping

Headcount



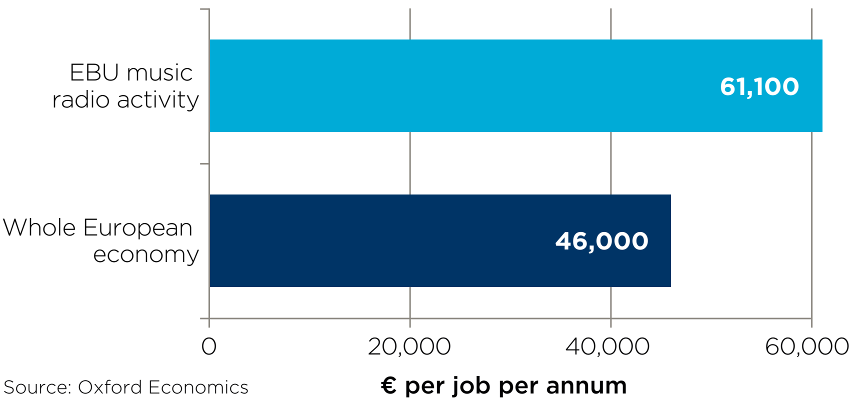
Source: EBU and its members; Oxford Economics

Taking the results for direct GDP and employment together, average GDP per job across the European region's public service music radio activities—a crude measure of productivity—works out at €61,100 (see Fig. 12). That is a third higher than the equivalent GDP-per-job ratio for the European economy as a whole.

This partly reflects the relative concentration of the industry in higher-income economies. But the relatively high rewards earned by workers in the industry are also important, with these in turn reflecting the high level of skills, knowledge, experience and talent involved in delivering this output.

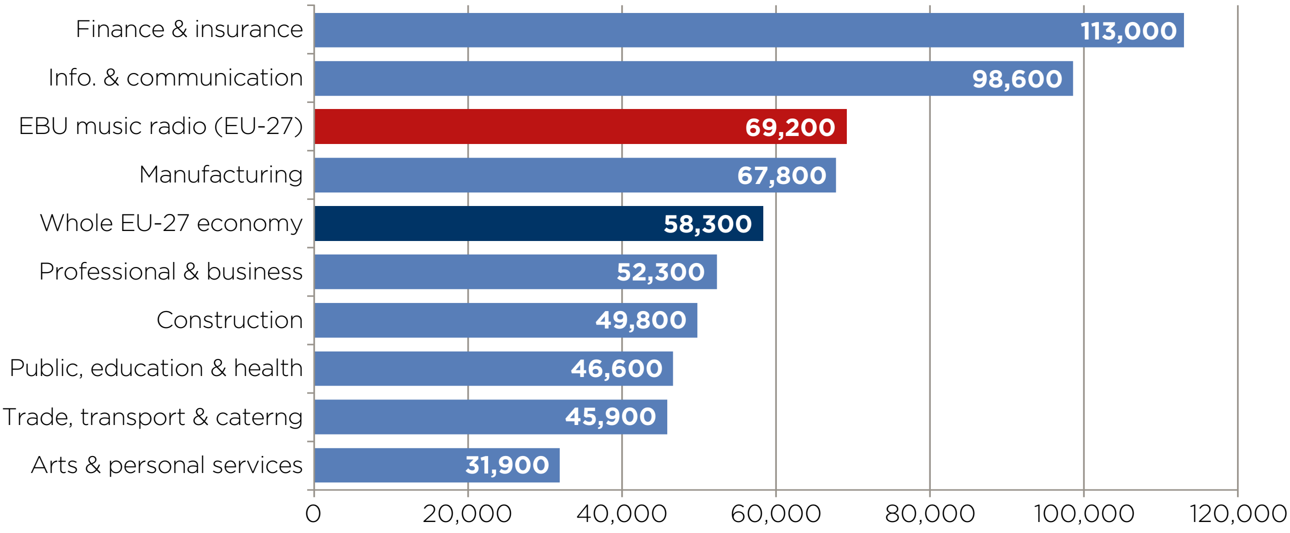
Across the EU-27 countries alone, the sector's GDP per job averaged €69,200 in 2018, some 19% higher than the level for the EU-27 economy as a whole, of €58,300 (see Fig. 13). This value is also higher than average GDP per job in most of the major broad industrial sectors of the EU-27 economy, including manufacturing, construction, and professional and business support services.

Fig. 12: Direct GDP per job in context: Europe-wide



Source: Oxford Economics

Fig. 13: Direct GDP per job in context: EU-27



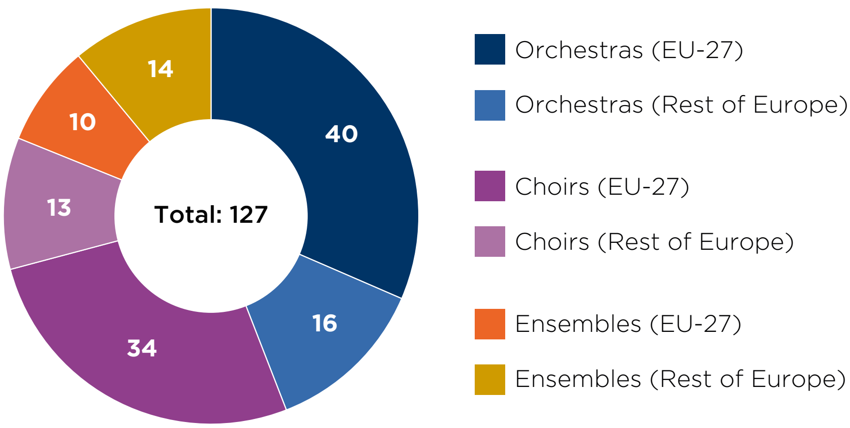
Source: Oxford Economics; Eurostat

2.3 ORCHESTRAS, CHOIRS, AND ENSEMBLES

As set out in the introduction, many EBU members run orchestras, choirs, and music ensembles, and these account for an important part of the sector's activity, reflecting the commitment to promote live music in all its forms. In fact, these organisations run 56 orchestras, 47 choirs, and 24 ensembles (including big bands) between them.[10]

Of these, 40 orchestras, 34 choirs, and 10 ensembles are based in the EU-27 (see Fig. 14). They include many world-famous examples, such as the BBC Symphony Orchestra, the Bavarian Radio Symphony Orchestra, the Leipzig-based MDR Symphony Orchestra, the Danish National Symphony Orchestra, and the Vienna Radio Symphony Orchestra.

Fig. 14: EBU members' orchestras, choirs, and ensembles



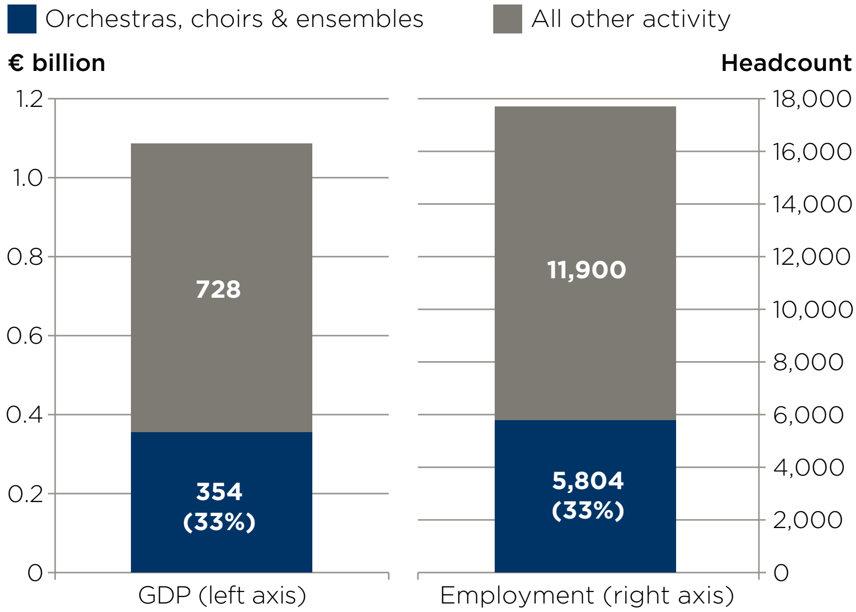
Source: EBU; Oxford Economics

[10] As recorded by the EBU in June 2020.

In 2018, the total value of production associated with these activities was €425 million, or 18% of all production covered by this study. But as orchestras and choirs are highly dependent on their directly-employed workforces, with comparatively little spending on inputs from third parties, the share of these activities in direct GDP and employment was significantly higher still, at 33% in each case (see Fig. 15). Here, some 5,800 employed musicians generated €354 million of GDP across the 48 countries studied.

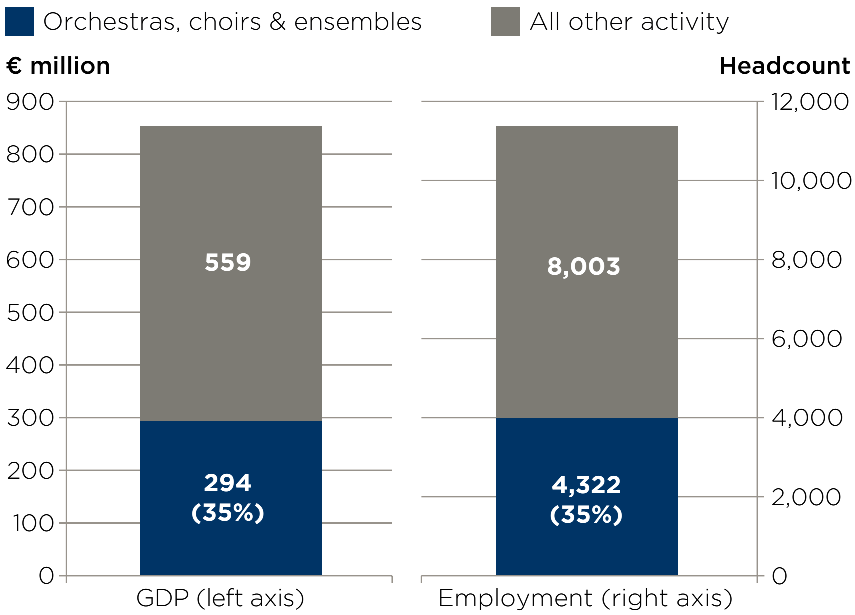
Some €354 million of the total production value was associated with orchestras, choirs and other musical groups within the EU-27, or 20% of all EU-27 production included in this report. In this case, some 4,320 employed musicians generated €294 million of direct GDP. These activities therefore account for 35% of all direct employment and GDP generated in the EU area by EBU members' music radio operations (see Fig. 16).

Fig. 15: Direct economic impact by type of activity: Europe



Source: Oxford Economics

Fig. 16: Direct economic impact by type of activity: EU-27



Source: Oxford Economics

The Radio France Philharmonic Orchestra at Radio France Auditorium in Paris.

3. THE KNOCK-ON EFFECTS OF THE SECTOR'S ACTIVITY

This chapter describes two key knock-on effects of the public service music radio sector's activity for the rest of the European economy.

The first of these is the so-called indirect effect, whereby the music radio operations' purchases of goods and services from third parties support production and employment in a wide range of other industries—and in some cases, activity in other European locations, outside of the procuring radio station's country of domicile.

The second channel of impact considered here is the so-called induced impact, whereby the wages paid by the radio operations, and by businesses in their supply chain, effectively fund household expenditure by the workers concerned. That spending in turn supports activity and jobs in a further range of industries right across the continent.

3.1 INDIRECT EFFECTS DUE TO SPENDING ON SUPPLIES

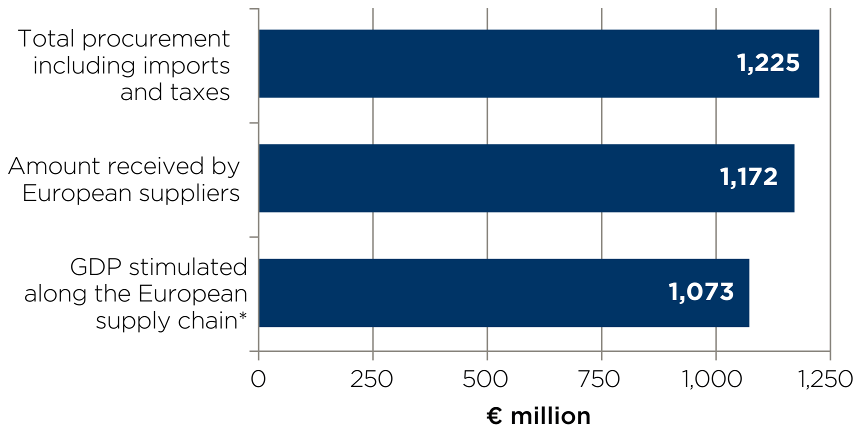
EBU members spent just over €1.2 billion on inputs of goods and services from third parties, in total, in 2018, in order to deliver their music radio outputs (see Fig. 17).[11] Of this, a small amount went to suppliers based outside of Europe, and to various tax authorities, but the vast majority—just under €1.2 billion—was received by suppliers of goods and services based within Europe.

Taking into account further 'rounds' of transactions, including cross-border activity within Europe, and between Europe and the rest of the world (in both directions), this procurement ultimately stimulated €1.1 billion of GDP in the European supply chain in that year. And this activity in turn supported 15,880 jobs right across Europe. These values form the indirect contribution of EBU members' music radio operations to European GDP and employment.

3.1.1 Indirect GDP impacts

By country of the music radio operator supporting the supply chain activity, the EU-27 accounts for 78% of the indirect GDP impact, and non-EU nations for 22% (see Fig. 18), broadly reflecting the pattern of procurement by country of purchaser. But cross-border trade means that some supply chain activity supported by the purchases of EU operations takes place in the rest of Europe, and vice versa. Taking the net impact of these cross-border flows into account, the EU-27 states account for 76% of indirect GDP by country of supplier—some 819 million—and the rest of Europe for 24%.[12]

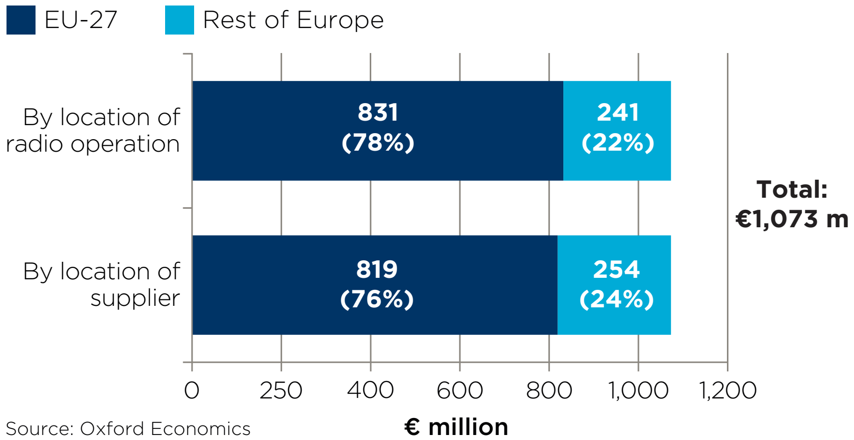
Fig. 17: Procurement of inputs for EBU members' music radio operations



*This is the indirect GDP of EBU members' music radio operations
Source: Oxford Economics

[11] This includes the cost of outsourced activity, freelance work, and employment agency staff, and an appropriate share of the organisations' purchases relating to general administrative and overhead functions.
[12] Details of the impact of EU music radio operations on non-EU European economies, and vice versa, can be found in the tables in Appendix 1.

Fig. 18: Indirect GDP by location of radio operation and supplier



Source: Oxford Economics

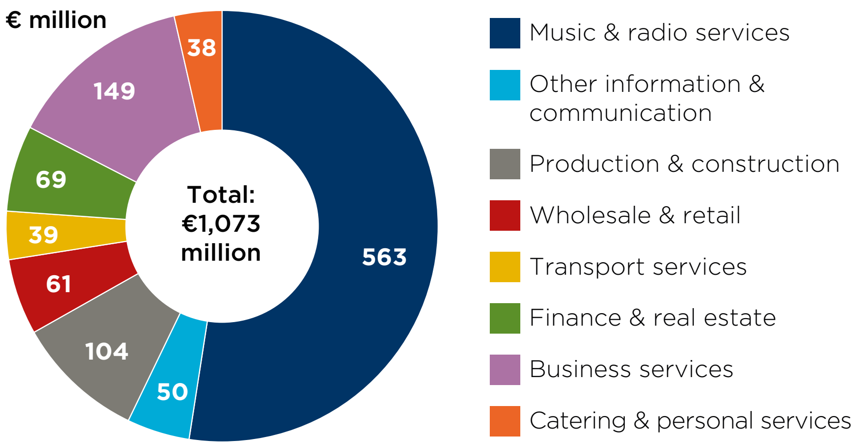
By broad industry of supplier, other businesses and individuals in the music and radio services sector account for 52% of the GDP stimulated by EBU members' procurement, in relation to their music radio activities (see Fig. 19).[13] In absolute value terms, this means that these EBU member operations support over €580 million worth of work amongst other providers of music-related and radio-related services.

Looking at this music- and radio-related part of the supply chain specifically, suppliers in the EU-27 account for €429 million of the €563 million Europe-wide GDP total for that sector. So taking the direct and indirect channels together, the music radio operations of EBU members, and their suppliers of music products and radio services, account for some €1.3 billion of EU-27 GDP.

For comparison, the total GDP of the EU music and radio services sector is estimated to have been €6.9 billion in 2018, excluding freelance musicians[14]—on which basis the figure for EBU members and their suppliers was €1.2 billion (see Fig. 20). The operations covered by this study can, therefore, be said to account directly or indirectly for 18% of the wider sector's GDP in the EU.

However, as the effect of EBU members' procurement spending ripples through several supply chain 'layers', many other types of work—outside of the radio and music production industries—are also supported. So as Fig. 19 also indicates, business services account for 14% of total supply chain GDP across Europe, with the remainder spread across a wide range of other production and service activities.

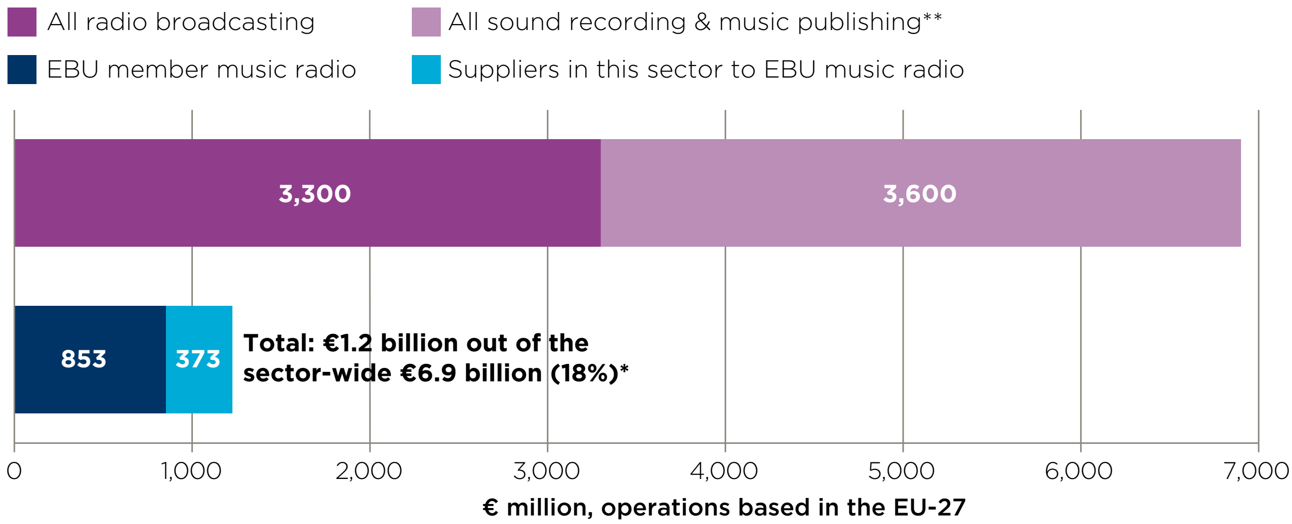
Fig. 19: Indirect GDP by industry of supplier



Source: Oxford Economics

[13] In terms of the official industry data, this sector comprises three groups: sound recording and music publishing; radio broadcasting; and the activities of musicians and composers, etc, working on their own account. A full description of the activities included in the eight industry groupings can be found in Appendix 3.
[14] Oxford Economics estimate based on Eurostat national accounts and structural business statistics. The relevant economy-wide data does not identify the work of freelance musicians separately.

Fig. 20: Sector contribution to radio- and music-related GDP in the EU

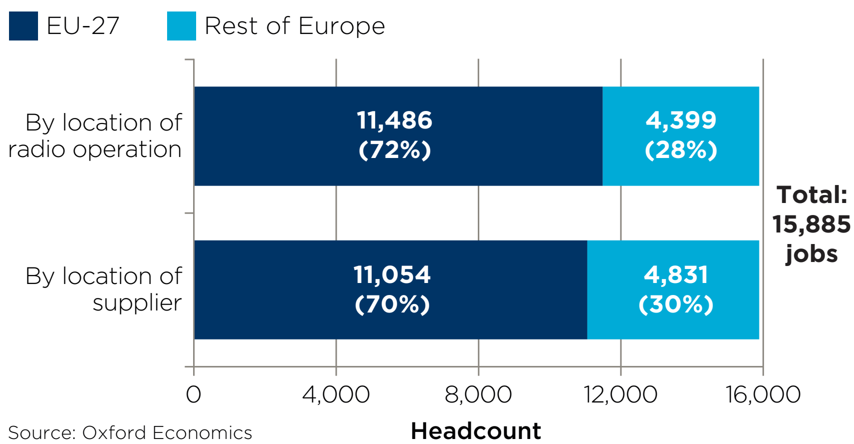


*All figures exclude freelance musicians (EBU suppliers: €56 million) **Includes radio recording studios & taped radio programme making
Source: Oxford Economics

3.1.2 Indirect employment impacts

Turning to indirect employment, the countries that benefit from supply chain jobs are rather different to those benefiting in terms of GDP (see Fig. 21), reflecting differences in productivity levels between the various nations. In this case, the 27 EU countries account for 72% of indirect jobs by location of the procuring radio operation, and for 70% of supply chain employment by location of production.

Fig. 21: Indirect jobs by location of radio operation and supplier

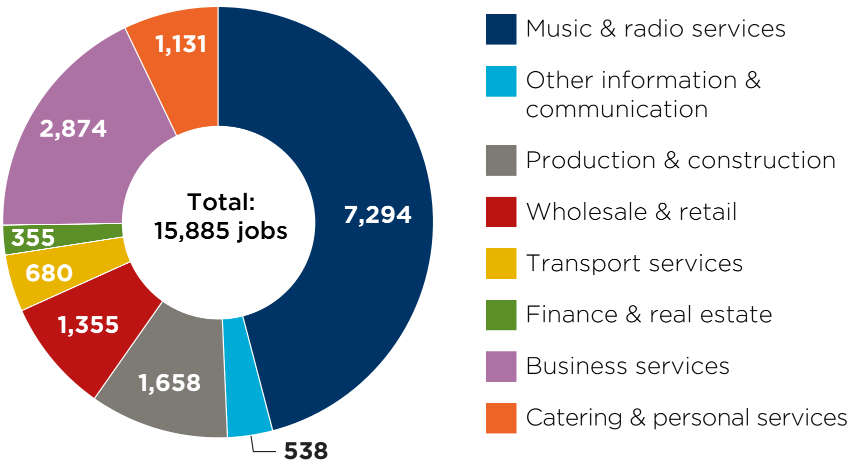


Source: Oxford Economics

The industries that benefit from supply chain jobs are also rather different to those that benefit in terms of GDP, reflecting significant differences in productivity between sectors (see Fig. 22). Consequently, finance, real estate, information and communication (excluding music and radio) account for only 6% of indirect jobs between them, compared with 11% of indirect GDP. By contrast, wholesale, retail, catering and personal services account for 16% of indirect jobs in aggregate, compared with their 9% share of indirect GDP.

Fig. 22: Indirect jobs by industry of supplier

Headcount, thousands



Source: Oxford Economics

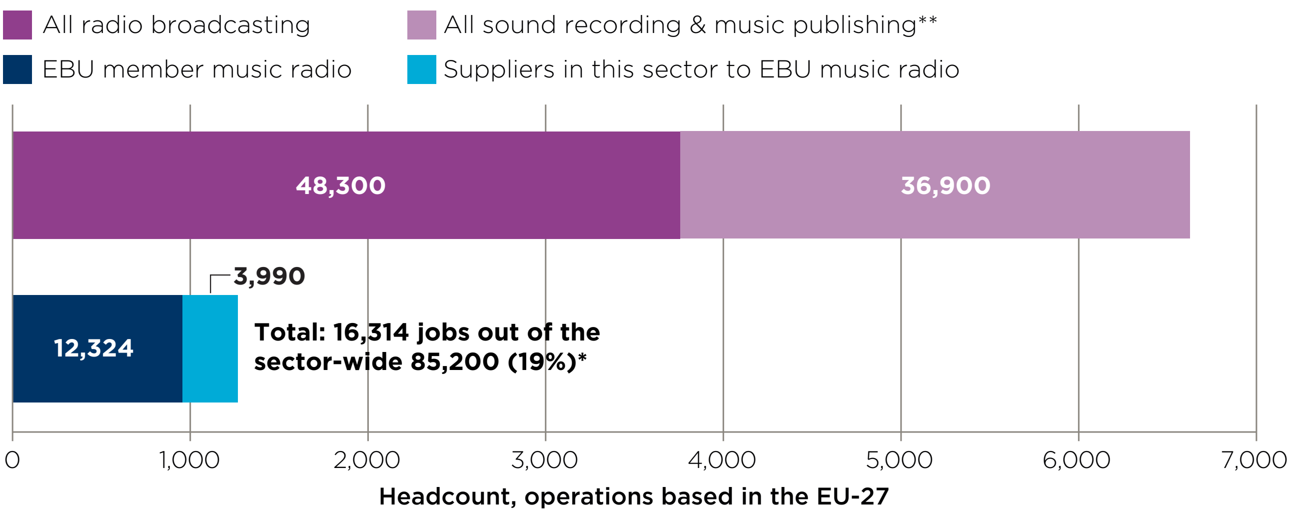
Some 48% of indirect jobs across Europe are in the music and radio services sector, compared with this sector's 52% share of indirect GDP. Looking solely at these activities in the EU, and taking the direct and indirect channels into account, EBU members' music radio divisions, and firms and individuals in their supply chain, accounted for some 17,280 jobs in 2018. On a like-for-like basis, the figure excluding freelance musicians (around 16,310) accounted for broadly 19% of all EU-based employment in those fields in that year (see Fig. 23).

3.1.3 GDP per job in the indirect channel

Taking GDP and jobs together, we find that labour productivity in the indirect channel is well above the overall European average, as it is in the direct channel. More precisely, GDP per job throughout the European supply chain is €67,500, some 47% above the region-wide average.

For the EU-27 area alone (by location of supplier), GDP per job works out at €74,100, which is 27% above the overall EU average (see Fig. 24). This largely reflects the importance in the total supply chain of comparatively high-productivity radio-related and music production roles.

Fig. 23: Sector contribution to radio- and music-related jobs in the EU

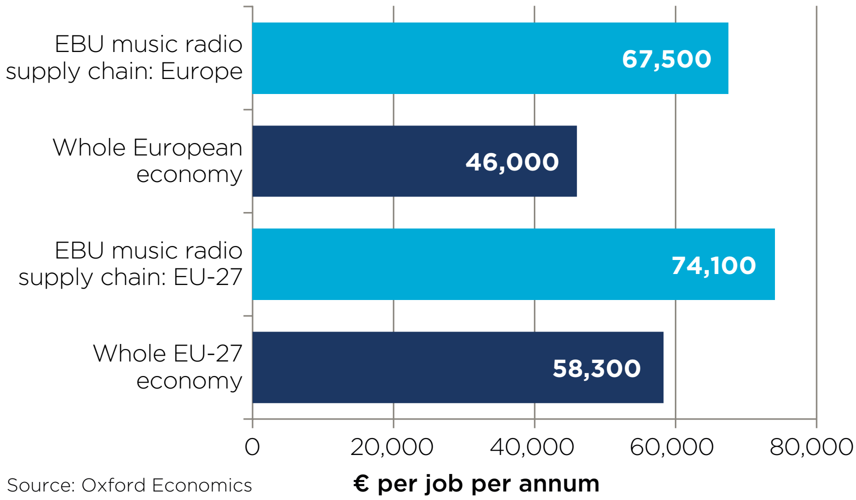


*All figures exclude freelance musicians (EBU suppliers: 963 jobs)

**Includes radio recording studios & taped radio programme making

Source: Oxford Economics

Fig. 24: GDP per job in the indirect channel, in context



Source: Oxford Economics

3.2 INDUCED EFFECTS DUE TO SPENDING ON WAGES

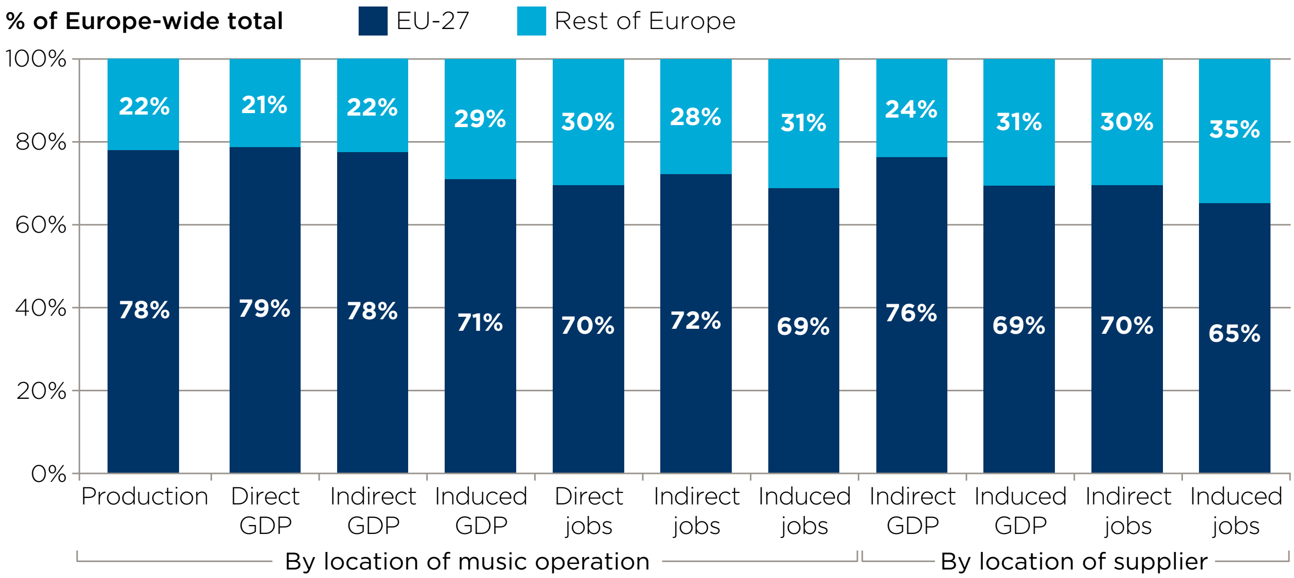
So-called induced effects capture the knock-on impact of the music radio operations' spending on wages, as this effectively funds purchases by their staff in the consumer economy—in retail and leisure outlets for example.

At the same time, some of the operations' spending on supplies is used to fund the earnings of those working in the supply chain, and those earnings too will help to fund some consumer spending. And all of this household spending supports GDP and jobs in a wide range of consumer-facing sectors, and in the various industries supplying those businesses—and those supplying their workers.

Taking all of these factors into account, the induced GDP impact of the music radio operations is estimated to have been €1.0 billion in 2018, with this activity supporting 16,950 jobs.

Looking at the geographical pattern, the share of the EU-27 in each of these wage-funded induced impacts is somewhat lower than the bloc's share of each corresponding direct and indirect impact (see Fig. 25). By location of supplier, the induced GDP impact in the EU-27 is €689 million, and the associated induced employment impact in that region, some 11,060 jobs.

Fig. 25: Geographical pattern of the direct, indirect and induced impacts



Source: Oxford Economics

These divergences reflect a range of factors including differences between countries in taxes on labour income and consumer spending, and the influence of cross-border trade. Differences in productivity—between different industries in the same country, and between the same industry in different countries—also affect the geographical pattern of induced employment.

3.2.1 Induced GDP impact

By industry of supplier, the pattern of this consumer-driven activity is—not surprisingly—very different to the pattern of activity supported in the radio operations' own business-to-business supply chain (illustrated earlier in section 3.1). So, for example, wholesale, retail, catering and personal services account for 34% of the total induced GDP impact (see Fig. 26), compared with those sectors' 9% share of indirect GDP. Finance and real estate is also an important component of the wage-funded GDP effect, mainly reflecting household spending on property rental.

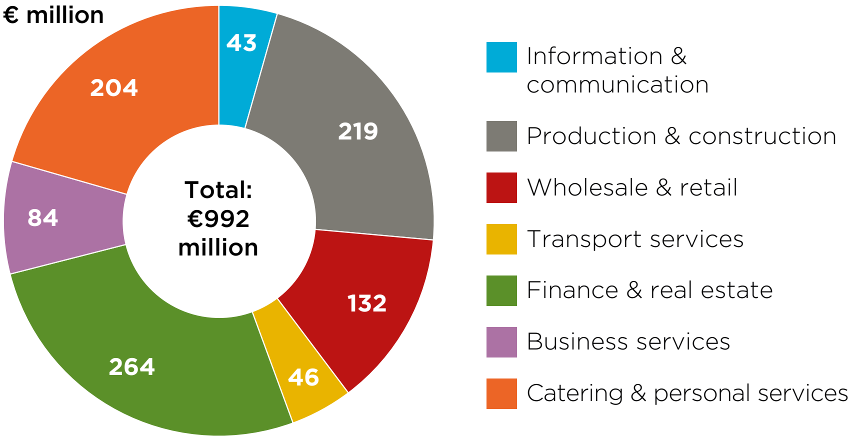
3.2.2 Induced employment impact

The distribution of jobs by industry is even more skewed towards wholesale, retail, catering and personal services activities, where GDP per job tends to be lower than the economy-wide average. Indeed, in 2018 these sectors are estimated to have accounted for 52% of the total employment induced by the wage payments of public service music radio operators and their suppliers (see Fig. 27). That contrasts with those sectors' 34% share of induced GDP.

By contrast, finance and real estate contribute just 6% of induced jobs, compared with 27% of induced GDP. This divergence is largely driven by the role of property rental, which forms an important part of most countries' GDP but generates little by way of employment.

Fig. 26: Induced GDP by industry of supplier

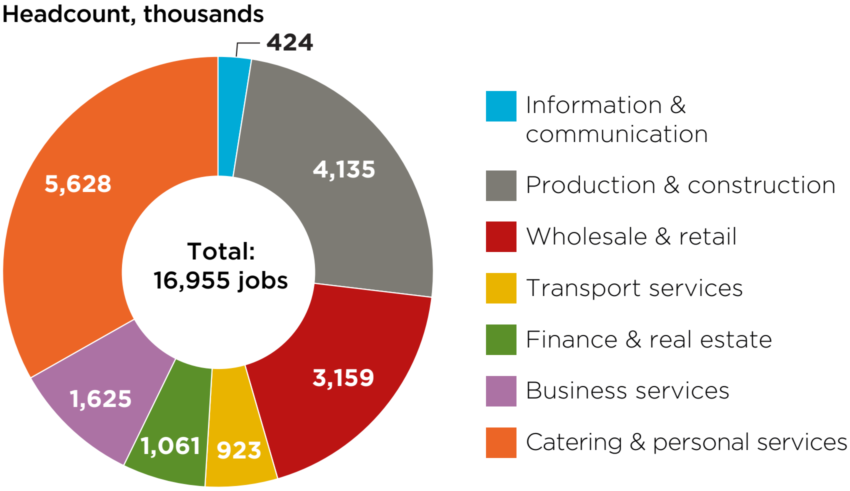
€ million



Source: Oxford Economics

Fig. 27: Induced jobs by industry of supplier

Headcount, thousands



Source: Oxford Economics

4. THE INDUSTRY'S TOTAL ECONOMIC FOOTPRINT

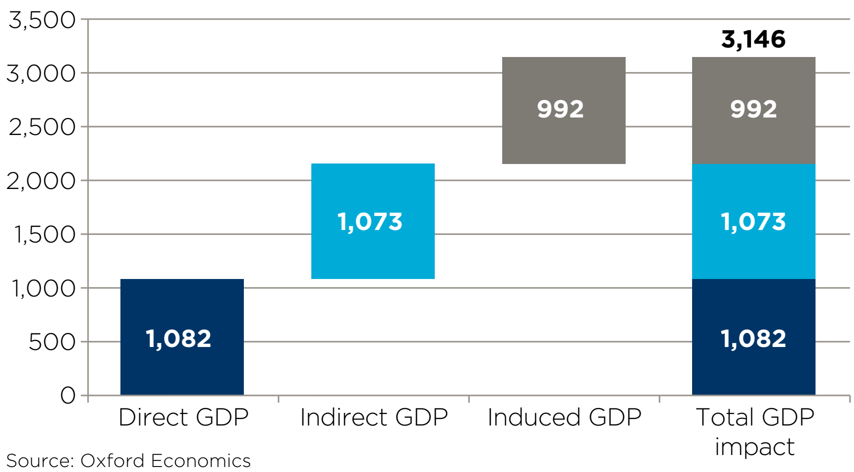
This chapter looks at the total economic footprint of EBU members' music radio operations, taking the direct, indirect and induced channels altogether.

4.1 OVERVIEW OF THE TOTAL ECONOMIC IMPACT

In 2018, the total contribution of EBU member's music radio operations to Europe-wide GDP is put at €3.1 billion, with the direct, indirect and induced channels each accounting, in broad terms, for a third of that value (see Fig. 28).

Fig. 28: The total GDP impact of EBU members' music radio operations in 2018

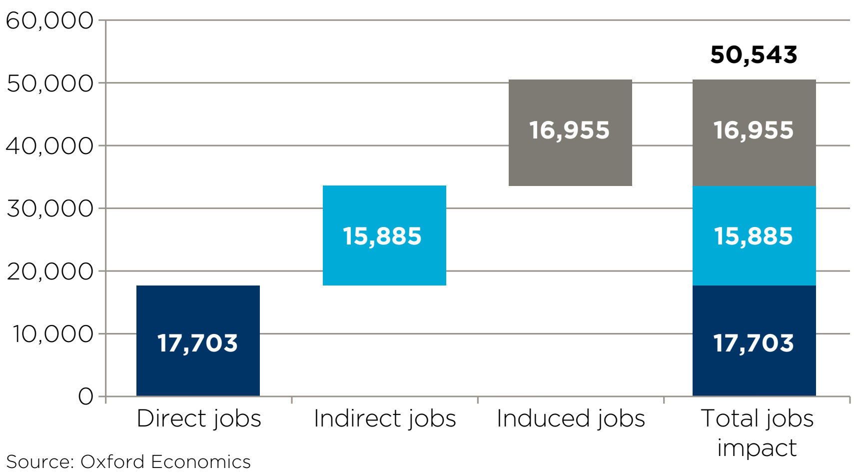
€ million



Source: Oxford Economics

Fig. 29: The total jobs impact of EBU members' music radio operations in 2018

Headcount



Source: Oxford Economics

This means that, for every €1 of added value generated by the activities of the radio operations, a further €2 worth of work is supported elsewhere in the European economy, due to the operations' spending on supplies and wages. Or put another way, the GDP 'multiplier'—the ratio of the total GDP contribution to direct GDP alone—is around three.

Associated with this, the total jobs impact is around 50,540, with the direct, indirect and induced impacts once again each accounting for around a third of the total contribution (see Fig. 29).

So for every individual directly employed by the EBU members, either in their music radio divisions or in activities supporting those functions, a further two roles are supported elsewhere in the European economy, due to the sector's knock-on effects on the demand for goods and services. The sector's employment 'multiplier' is, therefore, also close to three.

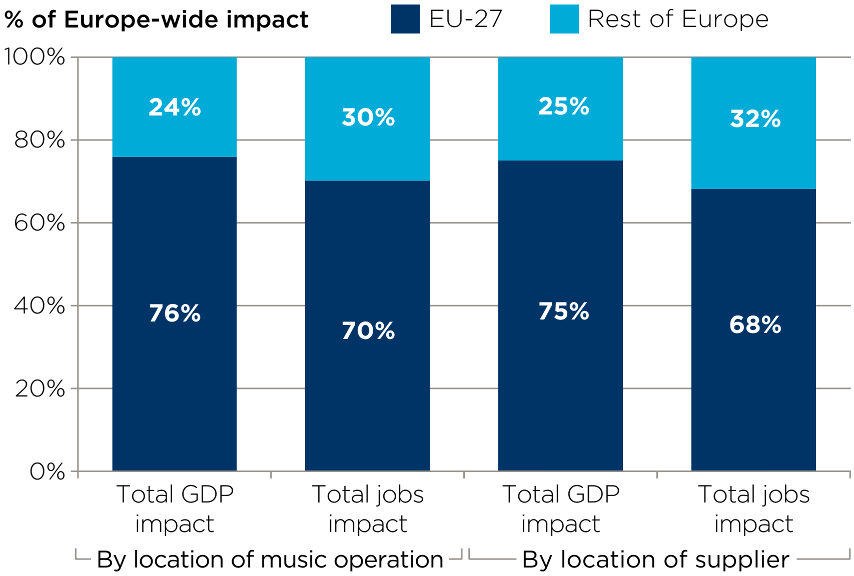
4.2 TOTAL IMPACT BY COUNTRY GROUPING

Taking the direct, indirect and induced channels together, radio operations based in the 27 EU countries account for 76% of the sector's total Europe-wide GDP impact (see Fig. 30). The EU-27 economy's share of that impact by location of supplier is marginally lower, at 75%—reflecting the net impact of cross-border activity in the indirect and induced channels. (For the direct impacts, the country of radio operation and supplier are, by definition, one and the same.)

The EU-27's share of the total employment impact, by place of work, is clearly lower than that, at 68%, reflecting the generally higher level of productivity (GDP per job) within the bloc compared to outside.

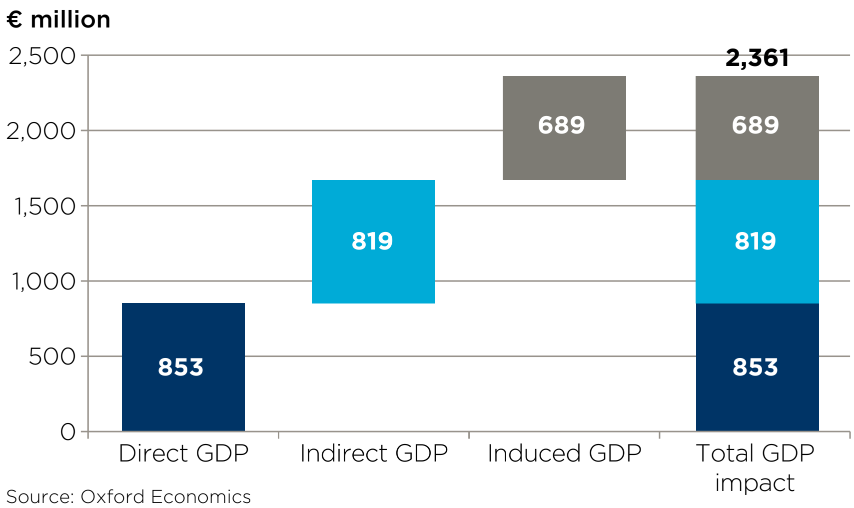
This means that, in absolute terms, the total impact of EBU members' music radio activities on the GDP of the EU-27 amounted to just under €2.4 billion in 2018 (see Fig. 31). (This relates to the total impact by location of supplier.[15]) The direct and indirect impacts each accounted for just over a third of the total, and the induced impact for just under a third.

Fig. 30: The geographical pattern of total impacts



Source: Oxford Economics

Fig. 31: Total impact of EBU members' music radio on EU-27 GDP in 2018

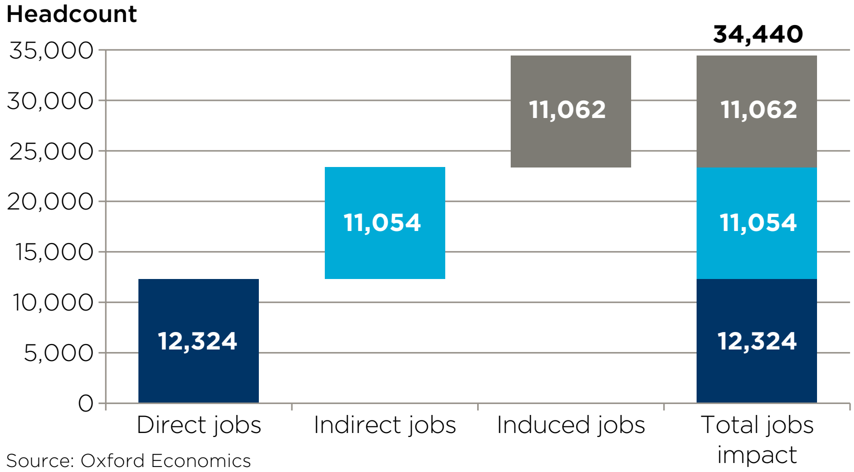


Source: Oxford Economics

[15] The indirect and induced impacts here include the effect of non-EU-based EBU members on businesses in the EU. However, the vast majority of the total impact in the EU (97%) is due to EBU members located within the EU.

The total impact on employment across the EU-27 amounted to 34,400 jobs in that year (see Fig. 32). (This relates to the total impact by location of workplace.) Here, the direct impact accounted for just over a third of the total, and each of the indirect and induced impacts for just under a third.

Fig. 32: Total impact of EBU members' music radio on EU-27 jobs in 2018



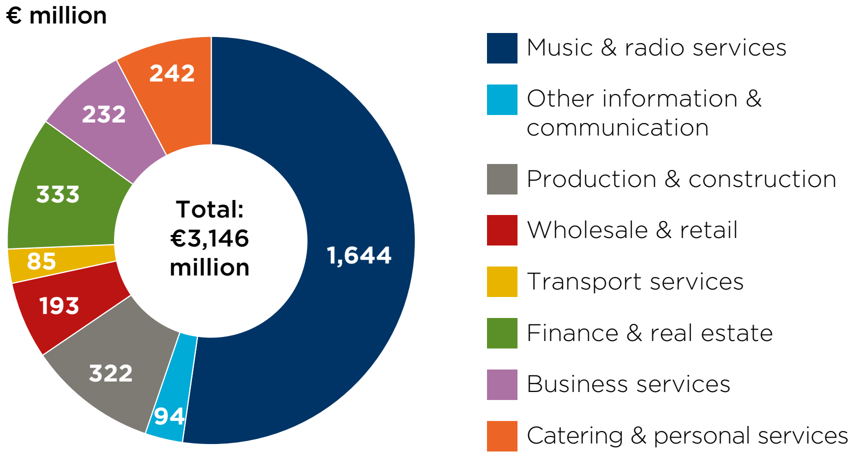
Source: Oxford Economics

4.3 TOTAL IMPACT BY INDUSTRY

By industry, music and radio services account for 52% of the total GDP impact right across Europe (see Fig. 33), including the 34% share accounted for by the EBU members' own activity (i.e. the direct impact). But the benefits of the operations' work spread well beyond these closely related activities, supporting activity in European enterprises of all kinds.

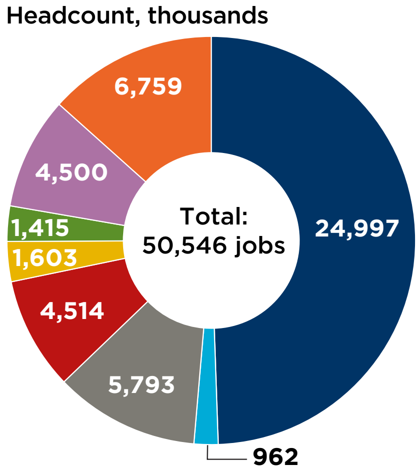
In terms of employment, music and radio services account for 49% of the total (see Fig. 34). But one in seven of the jobs supported can be found in catering and personal services, and around one in ten in each of the production and construction, wholesale and retail, and business services industry groups.

Fig. 33: Total GDP impact by industry of supplier



Source: Oxford Economics

Fig. 34: Total jobs impact by industry of supplier



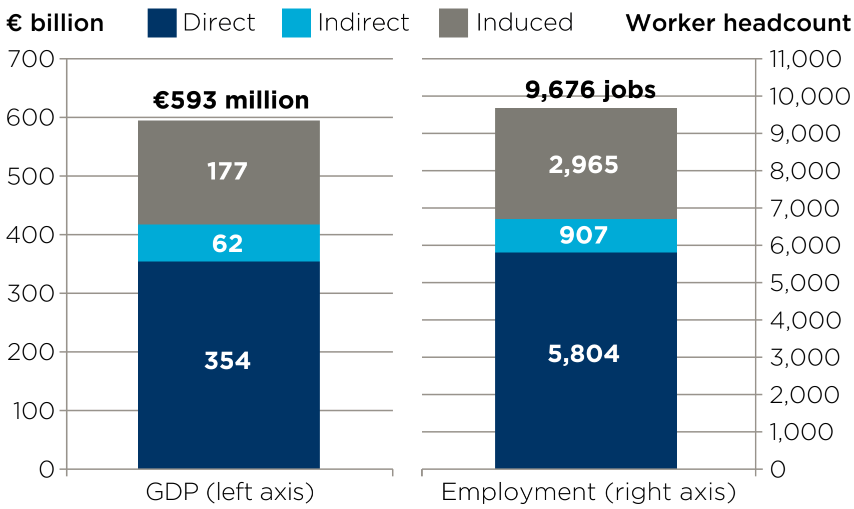
Source: Oxford Economics

4.4 TOTAL IMPACT OF ORCHESTRAS, CHOIRS, AND ENSEMBLES

The total economic impact of the orchestras, choirs, and ensembles is estimated to have been €593 million in 2018, associated with over 9,670 jobs (see Fig. 35). Relative to the pattern of impacts for the public service music radio sector as a whole, indirect contributions are modest, due to the limited reliance on supplies from third parties. By contrast, induced effects are buoyed by the high share of total spending accruing to the musicians employed.

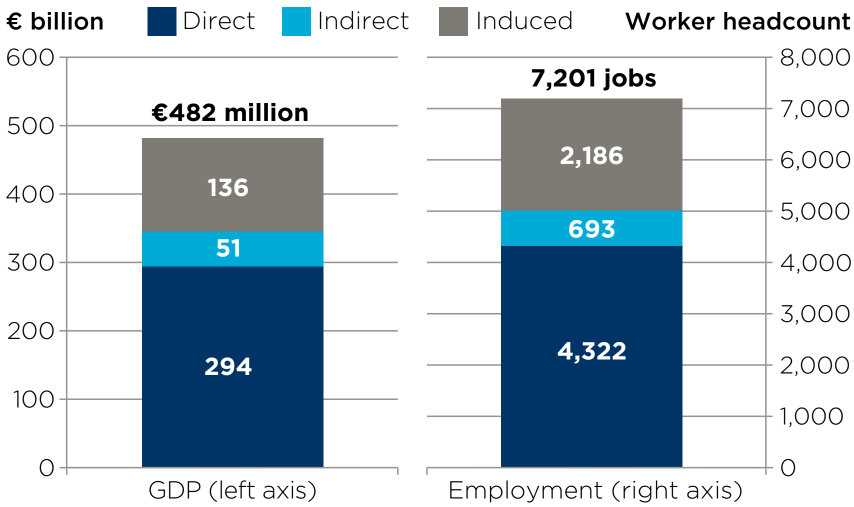
In the EU-27, €482 million of GDP was supported in 2018 by the work of EBU members' orchestras, choirs, and ensembles, taking the direct, supply chain and wage-funded spending impacts into account (see Fig. 36). This was associated with some 7,200 jobs.

Fig. 35: Total impact of orchestras, choirs, and ensembles: Europe



Source: Oxford Economics

Fig. 36: Total impact of orchestras, choirs, and ensembles: EU-27



Source: Oxford Economics

Beatmakers at Tarmac studio, RTBF in Brussels.

5. CONCLUSION

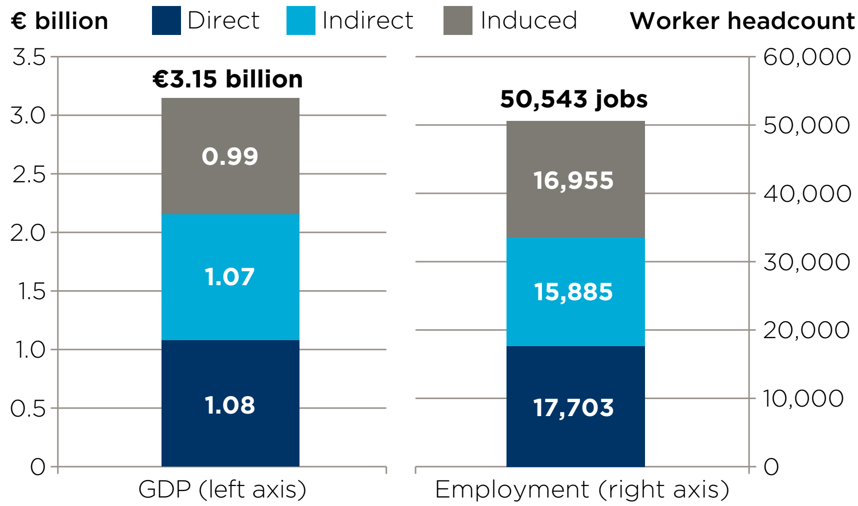
The ultimate aims of public service music radio are to provide cultural, educational, well-being and entertainment benefits to listeners from all sections of society and, associated with that, to strengthen and deepen the cultural landscape of the country concerned, and benefit society at large. This is achieved by broadcasting a wide range of music content—live as well as recorded—to a large and diverse share of the population.

5.1 IMPACT ACROSS 48 EUROPEAN COUNTRIES

Across Europe, public service music radio services are provided by 60 EBU members in 48 countries. These operators run 276 national or international radio channels, 301 regional or local services, and 244 online streams. They also organise 56 orchestras, 47 choirs, and 24 ensembles. Some 46% of all public service radio output is accounted for by music, in terms of programme hours, and, despite competition from commercial operators, the public service share of Europe's radio audiences remains close to 40%.

Although some forms of music programming can be provided relatively cheaply, spending by public service music operations is boosted by their focus on live performances—including payments for broadcasting rights as well as outlays associated with running orchestras and choirs. And this spending, in turn, supports jobs and economic activity in the music operations themselves, in other parts of the music industry, and across the wider European economy.

Fig. 37: Economic impact of EBU members' music radio activity: Europe



Source: Oxford Economics

Figures may not sum due to rounding

As a result, 17,700 people across Europe work for EBU members in music radio-focused roles, including 5,800 members of orchestras, choirs, and ensembles. Another 15,890 jobs are supported in other parts of the economy, due to purchases from third party suppliers. And a further 16,950 roles are supported across a wide range of businesses, due to the wage-funded spending of EBU music radio staff, and that of supply chain staff.

So the sector's total contribution to European employment, across these so-called direct, indirect and induced channels of impact, was 50,540 jobs in 2018 (see Fig. 37). The associated total impact on European GDP was €3.1 billion. Within that, direct GDP was worth €1.1 billion, including €354 million directly generated by the activities of orchestras, choirs and other musical groups.

€1.90

GDP generated in other sectors for every €1 worth of work undertaken by EBU music radio operations.

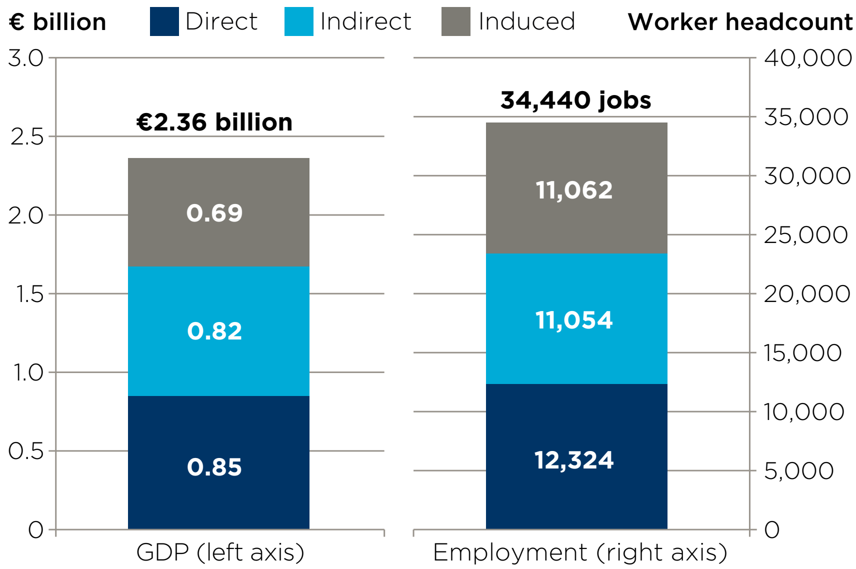
5.2 IMPACT ON THE EU-27 ECONOMIES

Across the EU, public service music radio services are provided by 38 EBU members in all 27 countries. These organisations operate 170 national or international radio channels, 232 regional or local services, and 226 online streams. They also run 40 orchestras, 34 choirs, and 10 ensembles.

Consequently, 12,320 EU-based individuals work for EBU members in music radio-related roles, including 4,320 employees in orchestras, choirs, and ensembles. Another 11,060 jobs are supported in other sectors in the EU-27, due to supply chain links with EBU member music radio operations. And the employment of a further 11,060 staff is supported across this region, due to the wage-funded spending of EBU music radio personnel, and that of supply chain workers.

So the sector's total contribution to employment in the EU-27, across the direct, indirect and induced channels, was 33,440 jobs in 2018 (see Fig. 38). The associated total impact on EU-27 GDP was €2.4 billion. Within that, direct GDP amounted to €0.9 billion, including €294 million directly generated by the activities of orchestras, choirs and other musical groups.

Fig. 38: Economic impact of EBU members' music radio activity: EU-27



Source: Oxford Economics

Figures may not sum due to rounding

APPENDIX 1: RESULTS TABLES

Fig. 39: Direct impacts by location of radio operation and type of activity

Total direct impact in 2018 (€ million / headcount)	Value of production	Procurement	Direct GDP	Direct jobs
EU-27	1,800	947	853	12,324
Rest of Europe	507	278	229	5,379
Total Europe	**2,307**	**1,225**	**1,082**	**17,703**
Of which (1): orchestras, choirs, and ensembles				
EU-27	354	60	294	4,322
Rest of Europe	71	11	60	1,482
Total Europe	**425**	**71**	**354**	**5,804**
Of which (2): other music radio activity				
EU-27	1,446	887	559	8,003
Rest of Europe	436	267	169	3,897
Total Europe	**1,882**	**1,154**	**728**	**11,900**

Fig. 40: Total GDP impact by channel, location of radio operation and location of supplier

Impact of EBU members' music radio operations in:	EU-27	Rest of Europe	Total Europe
… on the GDP (in €m) of:			
EU-27	2,297	64	2,361
Rest of Europe	93	692	785
Total Europe	**2,390**	**756**	**3,146**
Of which:			
Direct impact			
EU-27	853	-	853
Rest of Europe	-	229	229
Total Europe	**853**	**229**	**1,082**
Indirect impact			
EU-27	801	18	819
Rest of Europe	31	223	254
Total Europe	**831**	**241**	**1,073**
Induced impact			
EU-27	643	46	689
Rest of Europe	63	240	303
Total Europe	**705**	**286**	**992**

Fig. 41: Total GDP impact by channel and industry of supplier

€ million, 2018	Direct GDP	Indirect GDP	Induced GDP	Total impact
Music & radio services	1,082	563	0	1,644
Other info. & communication	-	50	43	94
Production & construction	-	104	219	322
Wholesale & retail	-	61	132	193
Transport services	-	39	46	85
Finance & real estate	-	69	264	333
Business services	-	149	84	232
Catering & personal services	-	38	204	242
Total Europe	**1,082**	**1,073**	**992**	**3,146**

Fig. 42: Total jobs impact by channel, location of radio operation and location of supplier

Impact of EBU members' music radio operations in:	EU-27	Rest of Europe	Total Europe
... on the number of jobs in:			
EU-27	33,466	974	34,440
Rest of Europe	2,028	14,075	16,103
Total Europe	**35,494**	**15,049**	**50,543**
Of which:			
Direct impact			
EU-27	12,324	-	12,324
Rest of Europe	-	5,379	5,379
Total Europe	**12,324**	**5,379**	**17,703**
Indirect impact			
EU-27	10,802	252	11,054
Rest of Europe	684	4,147	4,831
Total Europe	**11,486**	**4,399**	**15,885**
Induced impact			
EU-27	10,339	722	11,062
Rest of Europe	1,344	4,549	5,893
Total Europe	**11,684**	**5,271**	**16,955**

Fig. 43: Total jobs impact by channel and industry of supplier

Average headcount in 2018	Direct jobs	Indirect jobs	Induced jobs	Total impact
Music & radio services	17,703	7,294	0	24,997
Other info. & communication	-	538	424	962
Production & construction	-	1,658	4,135	5,793
Wholesale & retail	-	1,355	3,159	4,514
Transport services	-	680	923	1,603
Finance & real estate	-	355	1,061	1,415
Business services	-	2,874	1,625	4,500
Catering & personal services	-	1,131	5,628	6,759
Total Europe	**17,703**	**15,885**	**16,955**	**50,543**

APPENDIX 2: METHODOLOGY

MEASURING THE VALUE OF PRODUCTION AND CONTRIBUTION TO GDP

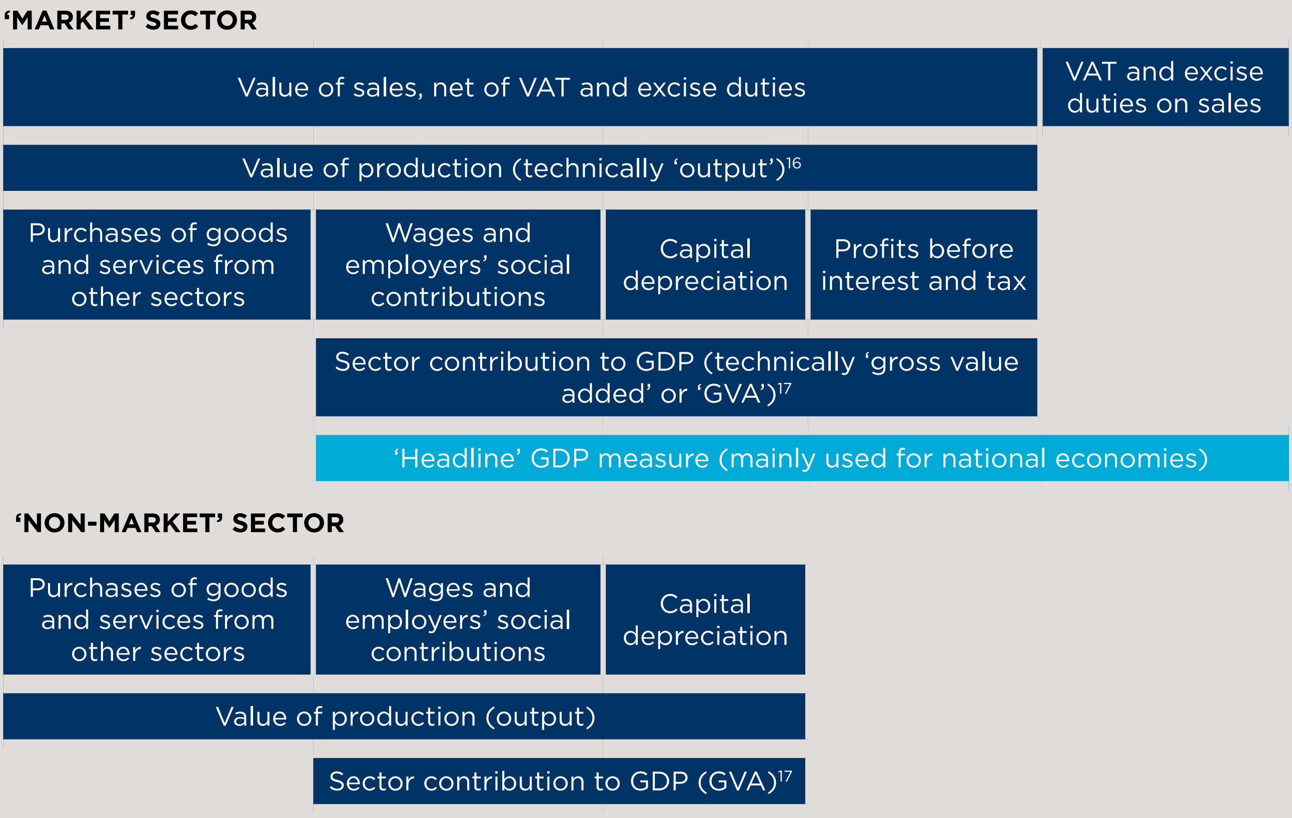
Gross Domestic Product or GDP is the standard measure of the value of goods and services produced in an economy in a given time period. The basic concept involves summing up the value of all businesses' sales revenues, including taxes on those sales (such as VAT), and then deducting purchases of inputs from other firms—to avoid 'double counting' of value and exclude import content.

In this 'basic' world, the contribution of an individual industry to GDP is measured in the same way, but with taxes on sales excluded. This measure—technically known as 'Gross Value Added' or GVA—is equal to the sum of employment costs and gross profits (before deducting capital depreciation), and is the approach taken to measuring the indirect and induced GDP contributions in this study. Here, the value of an industry's production—technically its 'output'—is equal to its net-of-tax sales revenues.

However, for 'non-market' sectors such as public service media, production and GDP cannot be valued in this way, as most output is delivered on a 'free-at-the-point-of-use' basis, rather than being sold. The contribution of non-market industries to GDP is therefore measured by simply summing up employment costs and capital depreciation, with net profits, losses and financing issues ignored. This is the approach taken to measuring direct GDP in this assessment.

Fig. 44 illustrates these different approaches to GDP. It also highlights some further complexities in the measurement of these values, which our modelling takes into account too.

Fig. 44: Measuring production and GDP: 'market' and 'non-market' sectors



[16] For goods producers, production is equal to net-of-tax sales revenues adjusted for any stockbuilding, and for any production of capital items for the firm's own use.

[17] For the market sector, GVA also includes business payments of property taxes, but these are relatively minor. These taxes are excluded from GVA in the case of the non-market sector.

ESTIMATING THE DIRECT GDP AND EMPLOYMENT IMPACTS

Oxford Economics designed a bespoke survey for EBU members with music radio operations, which was distributed to all 60 relevant organisations or divisions in the 48 countries of study. This included questions on income from public and commercial sources, use of that income by major cost and profit category—employment costs, purchases of inputs of goods and services, capital depreciation, and any net operating surplus or loss—and employment.

Members had the option to answer in terms of their total operations, or in terms of the music-related activities of their radio operations specifically.[18] An introductory section also asked them to state total income, operating costs and employment for their whole organisation, together with the approximate share of those values accounted for by their music radio operations.

As these organisations are public service providers, the total value of their production was calculated on the standard basis for 'non-market' output. This meant adding up the major cost categories of employment costs, capital depreciation, and purchases of inputs from other firms. The direct contribution to GDP was calculated as the sum of employment costs and capital depreciation only.

Although the survey asked about the employment of freelance and contract workers, and about full-time, part-time and temporary work, the direct employment contribution was taken to be the total number of employees, on average during 2018. Work time dimensions are therefore ignored, while freelance and contract workers are excluded from the direct jobs impact. These workers are, however, included in the 'indirect' (supply chain) employment estimates.

All of the results in this study should relate only to the EBU members' music radio operations. Where respondents answered in terms of the values for their total organisation, Oxford Economics estimated the value for relevant activity by reference to the indicative share of costs or employment accounted for by those activities, as reported in the introductory section of the member survey.

Missing survey data points were then estimated by Oxford Economics, taking into account:

- Data found in the organisations' annual reports, and other information in the public domain.
- Data provided by the EBU on members' total expenditure and employment, their programme expenditure and transmission costs by medium (i.e. radio versus TV), and their radio programme hours by type of output (music versus news, etc).

These estimates also took into account specific findings on the additional cost of running orchestras, choirs, and ensembles, and findings (based on the survey results and other data) concerned with the cost per hour of music versus non-music radio programming.

[18] Defined to include not just music radio broadcasting, but also online music radio operations, and off-air music activities organised by the radio operations, such as orchestras, choirs, and ensembles, and other off-air events. Non-music radio activities, such as news and current affairs, sports reporting, and radio drama, etc, are excluded where they account for a significant share of radio activity, as are TV and other non-radio media functions. But an appropriate share of the organisations' general administrative activities and overhead costs is allocated to the music radio function.

ESTIMATING THE VALUE OF PRODUCTION IN THE INDIRECT AND INDUCED CHANNELS

To estimate the operations' indirect impacts, Oxford Economics first estimated the value of their purchases of inputs of goods and services from other entities, by country and industry of supplier.

The starting point here was provided by the member survey, which also included questions on how total procurement spending was split between major types of supplier (such as music producers, live performers, and transport services), and broad region (home country / rest of Europe / rest of the world). This was combined with relevant ratios in the OECD Inter-Country Input-Output (ICIO) Table[19]—a dataset showing the value of transactions between different industries in different countries—to arrive at the estimated pattern of procurement by industry and location of supplier.

This information in turn was combined with a further, very large set of ratios found in the same ICIO Table, using a standard statistical technique, to help arrive at the total value of production throughout the European supply chain—i.e. the value of production in the indirect channel. Thirty-four of the 48 countries are included separately in the underlying OECD dataset, and these were modelled fully. Impacts in the remaining 14, relatively small, economies of study, were 'carved out' of the 'rest of the world' total, taking into account other information on trading patterns.

The value of production in the induced channel was arrived at by summing two separate effects. Induced production supported by the spending of employees in the supply chain was worked out alongside indirect production, using an extended set of ratios in the ICIO Table (extended to take into account workers' spending power for each country and industry of supplier, and the pattern of household spending for each country of worker residence).[20]

Induced production supported by the spending of the radio operators' own staff was worked out by estimating that expenditure and feeding those results into the model. These estimates were based on information on employment costs in the member survey and other sources, and labour tax rates for each country which were mostly sourced from the OECD.

[19] http://www.oecd.org/sti/ind/inter-country-input-output-tables.htm
[20] Spending power was worked out by Oxford Economics, using values for employee compensation in the adjusted ICIO Table, and making further adjustments for labour taxes and self-employed workers.

ESTIMATING INDIRECT AND INDUCED GDP AND JOBS IMPACTS

Having calculated total indirect and induced production, indirect and induced GDP contributions were worked out from there using GDP-to-total-production ratios (sector production being the sum of sector GDP and sector purchases from other industries). For the 34 fully-modelled countries, these ratios were simply extracted from the underlying ICIO Table, separately for each industry in each country. Ratios for the remaining 14 countries were applied at the national rather than industry level, mostly based on production and GDP data in the Oxford Economics Global Industry Databank.[21]

Employment was then worked out for the 34 countries, for each industry separately, using GDP-to-employment ratios sourced from the OECD, Eurostat, and national statistical offices. Employment-to-GDP ratios for the remaining 14 countries were applied at the national level, mostly based on data found in the Oxford Economics Global Economics Databank (sourced in turn from official national and international organisations).[22]

Employment in the indirect and induced channels can include self-employed as well as employee jobs, and workers' spending power—which drives the induced impact—takes self-employed income as well as wage income into account.

GDP and employment by industry group were then worked out, for the 34 fully-modelled countries, by consolidating the results for the 36 separate industries in the model (the eight industry groups reported on are defined in Appendix 3). The by-industry results for the total region, covering the 48 countries, were scaled up from there in a simple manner.

[21] For countries not included in this dataset (i.e. most of the 14), the average ratio across the 76 countries that are included was used.
[22] While the Global Industry Databank is presently limited to 76 countries, due to difficulties in obtaining robust data at the detailed level required, the Global Economics Databank includes 202 countries.

APPENDIX 3: CLASSIFICATION

Fig. 45: Industry classification used to illustrate the indirect and induced impacts

Broad industry group in the report charts and tables	'Class' or 'Division' in the OECD's international standard industry classification	'Section' in that classification
Music & radio services	Sound recording & music publishing (59.2)	Information & communication (J)
	Radio broadcasting (60.1)	
	Own account musicians (part of 90.1 & 90.3)	Arts, culture & sport (R) (part of)
Other information & communication	Online & other publishing (58)	Information & communication (J)
	Film, video & TV programme production (59.1)	
	TV programming & broadcasting (60.2)	
	Telecommunications services (61)	
	Computer-related services (62)	
	Data processing, web portals & other information services (63)	
Production & construction		Agriculture (A)
		Mining including oil extraction (B)
		Manufacturing (C)
		Energy supply (D)
		Water supply & waste services (E)
		Construction (F)
Wholesale & retail		Wholesale & retail services (G)
Transport services		Transport services (H)
Finance & real estate		Financial & insurance services (K)
		Real estate including property rental (L)
Business services		Professional services (M)
		Administrative & support services (N)
Catering & personal services		Hotels & catering (I)
		Public administration (O)[21]
		Education & training (P)[21]
		Health & social care (Q)[21]
		Arts, culture & sport (R), excluding own account musicians
		Membership services, household goods repair, other personal services (S)
		Households as employers (T)

[21] The indirect and induced impacts only capture services paid for privately rather than out of taxation.

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The WDR Radio Orchestra conducted by Wayne Marshall at the Probat Factory, Emmerich am Rhein in Germany.

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