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*CORRESPONDENCE

Diana Andreeva-Popyordanova,
✉ andreeva@culturaleconomics.bg
Tsveta Andreeva,
✉ tsvetoma@yahoo.com

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Audiovisual industries' global production networks through a statistical looking glass: the Bulgarian case

Diana Andreeva-Popyordanova^{1,2*}, Tsveta Andreeva^{1*} and Bilyana Tomova^{1,2}

¹Observatory of Cultural Economics, Sofia, Bulgaria, ²University of National and World Economy, Sofia, Bulgaria

This article examines how the global production networks (GPNs) of the audiovisual industries—film, television and radio, and video games—are represented in Eurostat and Bulgarian national statistical systems. Situated within the EU funded CICERONE project and applying Coe and Yeung's GPN framework, the study integrates Eurostat structural business statistics (EU 27), longitudinal mapping data for Bulgaria (2008–2019), and international datasets provided by the European Audiovisual Observatory. The analysis identifies structural misalignments between existing statistical taxonomies and the organisational dynamics of increasingly digitized and globally integrated audiovisual markets. Major limitations include missing codes for creation, archiving, and digital distribution; overlapping or aggregated NACE categories that obscure subsector distinctions; the absence of foreign direct investment (FDI) indicators; and insufficient regional granularity for place based cultural policy. Drawing on the Bulgarian case, the article demonstrates both strong sectoral growth, the specific of labour in the sectors, and the importance of national mapping methodologies in compensating for incomplete European datasets. However, persistent market failures—such as distribution oligopolies and confidentiality related data gaps—constrain evidence based policymaking. The article argues for comprehensive statistical reform, including more granular classifications for digital services, integration of FDI and regional data, and harmonised national taxonomies. Such modernization is essential for enabling effective cultural governance and for capturing the evolving value chains that underpin Europe's audiovisual production networks.

KEYWORDS

audiovisual industries, Bulgaria, creative industries policy, cultural statistics, global production networks

Introduction

The audiovisual and media industries are among the most dynamic markets in the cultural and creative sectors, where globalised value chains and digital platforms play a central role. The fast advancement of digital technologies and markets has led to substantial transformations in traditional audiovisual industries, specifically in Film, Television and Radio, and Video Games. Producing sound policies and designing adequate instruments for these industries requires reliable data collection and analysis. Effective cultural policies and governance require reliable and comprehensive data and measurements for quality assessment of policy results. Cultural statistics are becoming an increasingly important

tool for informing cultural policies globally (UNESCO Report, 2026). In the European Union, the ESS-net report (Bina et al., 2012) has shed light on the main needs and shortcomings in European statistical data collection in the field and offered suggestions. Nevertheless, statistical data collection and taxonomies tend to lag behind industry developments, often capturing inadequately or insufficiently the economic realities of the cultural and creative industries' value chains. There are also discrepancies in statistical frameworks among different EU member states and the Eurostat taxonomy (Pratt and Bennett, 2022; Tomova et al., 2023). This leads to insufficient data for the sectors and policymakers at multiple levels.

This article was developed as part of the research project "Creative Industries Cultural Economy Production Network" - CICERONE, funded by the EU's "Horizon 2020" between 2019 and 2023, which aimed to provide a new way of understanding how cultural and creative industries function, along with a new foundation for effective policies for these economic activities at the EU, national, and local levels.¹ In this article, we look at the way global production networks of the audiovisual industries are reflected in the European and national statistical frameworks in the Republic of Bulgaria, and how could these frameworks reflect more adequately and precisely these economic activities. We critically assess the available data sources on Audiovisual industries through the prism of the Global Production Network (GPN) approach, which was developed by Neil Coe and Henry Yeung based on the Global Value Chain (GVC) approach (Coe and Yeung, 2015; Kloosterman et al., 2019). This approach has been chosen by the CICERONE project to apply to cultural and creative industries and sectors for the first time. The overarching GPN approach used in CICERONE has three dimensions: the structure and the characteristics of the GPN phases, the embeddedness, and the spatial footprint (Kloosterman et al., 2026; Andreeva et al., 2025). This combines qualitative (analysis of statistical data) and quantitative research (in-depth case-study research). In this article, we delve into the quantitative aspects of audiovisual industries' global production networks (GPNs), with the aim of extracting insights and recommendations for upcoming reforms in statistical data collection at the national and European levels. These GPNs are treated as a theoretical construct that provides an analytical framework for organising and interpreting available statistical data rather than as a fully measurable empirical reality captured by current official statistics. Due to the limitations of existing classification systems, particularly NACE, and the absence of sufficiently detailed and comparable indicators by the GPN phase (Bina et al., 2012; Pratt and Bennett, 2022), the quantitative data employed are primarily illustrative. They approximate the structure of the global production networks, but do not provide an exhaustive picture. Accordingly, the proposed statistical framework follows the logic of the GPN approach as a conceptual model and is intended as a proposal for

future official measurement (Tomova et al., 2023). Its implementation within European and national statistical systems is expected in the coming years, after the ongoing review, update, and harmonisation are complete. Until then, this analysis will rely on current data sources (such as Eurostat, the National Statistical Institute, the EAO, the OCE, and others), emphasising the provisional nature of the results and their role in advocating for a statistical reform explicitly. The most recent UNESCO (UNESCO, 2025a) and UN-related approaches to cultural statistics are therefore viewed as models in the making, informing the concept of the used data collection framework, but not yet operationalising it.

Methodology

The analysis of the statistical framework and taxonomies follows the logic of Global Production Network theory, which distinguishes five primary phases in the cultural and creative industry networks: Creation, Production, Distribution, Exchange, and Archiving (Coe, 2015). For the purposes of the research carried out under the CICERONE project, we focused on the three large sub-sectors of the audiovisual industries: the Film industry, Television and Radio, and Video Games (Tomova et al., 2025; Tomova 2021). Our analysis and findings are based on Eurostat data on audiovisual industries (covering the EU-27). It also reveals the specificities of national statistical data in Bulgaria, a small but dynamic European audiovisual market, with an interesting mix of public and private actors. Small European audiovisual markets are countries with relatively small populations to sustain commercial audiovisual industries, characterised primarily, but not exclusively, by subsidised film industries and challenges in international distribution and outreach (CresCine, 2024). The Bulgarian audiovisual market has so far been under-represented in cultural economy research.

This study includes a statistical analysis and conclusions based on three information clusters: Eurostat data on Audiovisual industries (I); Analysis of national statistical data in Bulgaria represented through national mapping methodology, developed for CCIs by OCE (II). The analysis of other international data sources, more specifically the European Audiovisual Observatory and its "satellite" monitoring tools and databases (III) data supplied by international bodies: European Audiovisual Observatory, professional associations, networks and others.

Applying the GPN lenses to the Eurostat data on audiovisual industries

This section presents the results of the statistical mapping of the audiovisual sector at the EU level (Eurostat), divided into the Film industry, Radio and TV, and Video games.

There are three main indicators from the classification of structural business statistics (NACE codes) that we used, which allowed comparative analysis: added value, number of enterprises, and employment. We analysed the existing NACE codes for audiovisual industries at each phase of the global production network: creation, production, distribution,

¹ The CICERONE project received from the European Commission's Horizon 2020 Research and Innovation Programme, under grant agreement no. 822778 (<https://cicerone-project.eu>).

exchange, and archiving. For the purposes of this article, we provide a brief overview of the Eurostat codes, highlighting some of the issues we found during a thorough statistical analysis of the audiovisual industries' global production networks, which will be published by the CICERONE project in 2022.

Key issues detected in the NACE codes of the audiovisual industries at the Eurostat level

For the film industry, Eurostat does not collect data on some GPN phases, notably *creation* and *archiving*. No aggregated Eurostat data were available, specifically under code 90 – Artistic creation. Another issue is that some four-digit codes included different phases of the global production network, which caused overlaps and prevented us from distinguishing the sub-industries. For example, code 59.13 – Motion picture, video and television programme distribution – covers the film industry and television together, regardless of their different value chains and consequent different global production networks.

For Television and radio, we detected similar issues in the NACE codes. Data were not available for some GPN phases in the global production chain, whereas there were overlaps between the TV and the film industries in the *creation*, *production*, *exchange*, and *archiving* phases due to more inclusive codes. Specifically problematic was the *archiving* phase, where the NACE codes – 91.01 (Library and archives activities) and 91.02 (Museum activities) – did not specifically reflect the film or audiovisual archives. When data on some codes for a country or industry could not be found in Eurostat databases, we consulted the national statistics to find what information was available there on the GPN of the audiovisual industries. Our analysis using the NACE codes in Bulgaria found that four codes from the Eurostat database on the audiovisual industries are missing, notably 90.03 (Artistic Creation), 91.01 (Performing arts), 91.02 (Support activities to performing arts), 94.99 (Activities of other membership organisations).

There are additional limitations to the statistics of the audiovisual industries in Bulgaria – both by industry and by activity. The data under certain NACE codes were not publicly available at the time of analysis (they are considered confidential due to the small number of firms active on the national market under these codes). The NACE codes in question are:

GPN phase NACE codes

Production 59.11 Motion picture and television broadcasting services production.

Production 59.12 Technical activities relating to the production of films and television programmes.
(post-production)

Distribution 59.13 Distribution of films and television broadcasts.
Exchange 59.14 Film screening.

Some NACE codes overlap across several industries; hence, it was impossible to distinguish the cinema, television, video games, and multimedia sectors in these codes. At the national level (in Bulgaria), such a task seems almost impossible, because Bulgarian national statistics only observe them at the two-digit code level. In other words, the

National Statistics do not observe the following economic activities: 90.03 Artistic creation; 47.63 Retail sale of music and video recordings in specialised stores; 91.01 Library and archive activities.

This also applies to extensive codes in important audiovisual industries, such as film, TV, and gaming. For example:

GPN phase NACE code

Exchange 94.99 Activities of other membership organisations N.E.C.

Exchange 58.11 Book publishing.

Exchange 58.14 Publishing of journals and periodicals Exchange 73.1 Advertising.

Some NACE codes are included but may give incorrect information about the nature of the audiovisual industry. Code 26.40 (Manufacture of consumer electronics) includes “the production of the manufacture of electronic audio and video equipment for home entertainment, motor vehicle, public address systems and musical instrument amplification” [SIC]. This definition only implicitly includes the production of game consoles, but counting these particular consumer electronics cannot be done with a two-digit taxonomy system.

Code 47.91 “Retail sale via mail order houses or via Internet” should provide information about e-commerce in general. For the analysis of specific industry-related information through these codes, relative weights could help in some cases, but they were not very accurate for the specific share of CCIs.

Looking at the global production network of the audiovisual industries, we found entire phases not covered by statistical codes. For example:

- Film - Exchange - Online distribution - Digital distribution via over-the-top (OTT) services and VoD (mainly big multimedia platforms, such as GAFA)
- Videogames - Transmission–Audience feedback, alpha and beta versions in the digital environment
- Videogames - Archive - Digital archiving. Re-selling digital platforms: digital assets, digital copies.

In a CICERONE project study dedicated to statistical taxonomies in CCIs, Pratt and Bennett (2022) stated that: “By contrast the video games industry, one of the largest and most successful industries in the cultural and creative sectors, on a par with some of the largest industries in the world, currently does not have a taxonomic category at all.” [SIC]

The Eurostat database also had issues in accounting for the global production chain in CCIs at the regional level. The information provided at the regional level is in two-digit codes only. In fact, it was not possible to conduct a quantitative analysis of one of the most important dimensions of the CCIs in Europe, i.e., the regional dimension. Data on the number of firms in the audiovisual industries were also not available via NACE codes in the national statistics. These figures are usually obtained from various national inventories, professional associations, and so on.

Data on employment in the audiovisual sector are not easy to compile at the EU level. The statistical definitions of “audiovisual” in national statistics vary from country to country. Netherlands is one of the few countries where the national definition is aligned with that of Eurostat. There are also different data collection methods at the national level. Data about employment at public broadcasters in many countries are not included in Eurostat’s business statistics.

Another key issue we found is that Eurostat does not collect data on Foreign Direct Investment (FDI) for CCIs, although FDI is a very important indicator of CCI economic development. Moreover, FDI is a crucial indicator of the dynamics of Central and Eastern European market economies and is present in all GPN phases of CCIs. The media and film industries are a good example of how important FDI is during the transfer of capital and influence. Information on FDI in the film industry, for example, is important when tax or other financial incentives are discussed or introduced.

Our independent analysis confirmed that the Eurostat definition is considered “inadequate to capture the national complexities” in the audiovisual industries (ICF Consulting Services Ltd, 2016, p. 6). “*The analysis of EU LFS data on employment does not allow any distinction to be made between the subsectors radio (J60.1) and TV broadcasting (J60.2) [...]*” (Ibid., p.22).²

Mapping of cultural and creative industries by the observatory of cultural economy (OCE) - national level

This section provides the analysis of the dynamics of the Bulgarian audiovisual industries over a period of 12 consecutive years (2008–2019), using OCE’s mapping methodology and the NACE economic classification system (Eurostat). The data show the dynamics of key indicators for the three main audiovisual industry groups (Film, TV and Radio, including new media, and Video games). The observed indicators are the number of enterprises, added value, employment and temporary employment (typical of CCIs), turnover, and foreign direct investment (FDI).

Statistical mapping can be defined as a systematic approach to identifying and classifying the cultural resources of a city, region or country. This is important for developing evidence-based policies, including for the distribution of public funding. It expands knowledge of the potential of cultural markets and provides a basis for considering culture and CCIs as investment-worthy sectors where business management and revenue models can be applied. The mapping also helps to position CCIs within the economy, providing important data and creating opportunities for comparative analysis.

The methodology follows three stages:

1. Theoretical (broad) definition of the subject of statistical observation (e.g., “film industry”);
2. Shaping the ‘Statistical definition’ of the subject. The general definition of the sector is limited to real-sector statistical

activities, using existing statistical classifiers such as the “Economic Activity Classifier” and Structural Business Statistics (Bachvarov et al., 2008);

3. Narrowing the subject down to an “operational statistical definition” by including activities with clear *cultural content* and excluding activities that are monitored by statistics but have no cultural content whatsoever.

In order to address some of the aforementioned issues and gaps in the aggregated statistical data, the Observatory of Cultural Economy (OCE) has been conducting annual mappings of the arts, cultural, and creative industries in Bulgaria since 2008. The mapping data provide evidence of the dynamics and economic sustainability of the CCIs and of the audiovisual business in particular. There is also evidence of spillover effects and possibilities for clusters (Tomova, 2013, p.112). The mapping methodology (including the data matrix) developed by the OCE was based on German and Austrian models using Eurostat data (Alexandrova, 2011; OCE, 2011). The approach to defining the scope of the arts and cultural and creative industries, and the film industry in particular, follows the recommendations of the Leadership Group on Cultural Statistics (2000), as reflected in the European Statistical System Network on Culture (ESSnet-Culture, Bina et al., 2012), the “Cultural and Creative Industries in Germany 2009: Monitoring” Report 2010, and others. For the national mapping, the OCE used data from business statistics (not publicly available) provided by the National Statistical Institute at national and regional levels for the six planning regions in Bulgaria, and at the local level for Sofia (the capital city). The OCE (as an independent, not-for-profit research organisation) carried out the mapping in partnership with the Sofia Municipality as part of the Cultural Strategy of Sofia 2013–2023 “Sofia - Creative Capital” (Andreeva-Popyordanova and Tomova, 2018). The same methodology was subsequently used for other strategies: “Sofia - Creative City of Film 2017–2021”, which contributed to designating Sofia as a UNESCO city of film, and in the SMART Specialization Strategy of Sofia (2016).³

Statistical mapping of Bulgarian audiovisual industries—applying the GPN lenses

This section presents the results of OCE’s analysis of statistical data on key economic indicators of Bulgarian audiovisual industries’ GPNs between 2008 and 2019. It identifies blind spots and inconsistencies in the aggregated statistical picture of these industries, while demonstrating their economic and social potential.

Bulgarian film industry

The film industry has a complex production process. In this business, we often observe information asymmetry between unfocused demand and oversupply. Unreliable returns,

² The exchange rate was fixed at 1,9558 BGN per 1 EUR (see ECB exchange rate).

³ Strategy for the cultural development of Sofia, p.25 (link); Strategy - Sofia - Creative City of Cinema 2017–2021, <https://www.sofia.bg/sofia-unesco> and link.

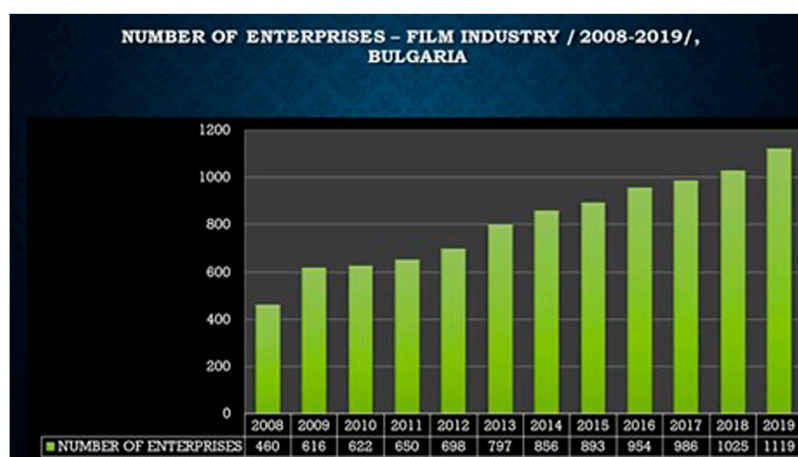


FIGURE 1
Number of enterprises–film industry (2008–2019). Source: NSI/OCE.

coupled with high capital demand, define the product as risky and with high running costs. This conclusion is also a rational argument for state support, which predetermines the leading role of public funding in the film industries in Europe and Bulgaria. The multiplier effect of public investment in Bulgarian cinema proves that the role of the state as an investor is decisive at the macro level. In Bulgaria, public investment has awakened production demand and managed to transform this market from crisis-ridden to successful. In order to make this industry viable and ensure its sustainability, this trend requires further action, such as stabilising micro-production companies through greater access to alternative capital. The current competitive environment has market failures that need to be addressed, namely the distribution oligopoly and the vertical integration between distribution and screening (Tomova, 2018: 49).

The analysis below illustrates the distinctive growth and development trends in the Bulgarian film industry in the period 2008–2019, based on three basic indicators: added value, number of enterprises, and employment. The mapping also allowed OCE to extract data on foreign direct investment.

NACE codes for the Film industry GPN in Bulgaria

GPN phase	NACE code	Activity
Production	59.11	Motion picture and television broadcasting services production
Production	59.12	Technical activities relating to the production of films and television programmes (post-production)
Distribution	59.13	Distribution of films and television broadcasts
Exchange	59.14	Film screening
Distribution	77.22	Renting of video cassettes and discs

The number of firms/enterprises in the Bulgarian film industry more than doubled during this period (from 460 in 2008 to 1,119 in 2019) (See Figure 1). The largest number of enterprises is in *Production of films and television programmes* (59.11) (from 245 in 2008 to 604 in 2019). The number of enterprises in *Technical activities related to film production and television programmes (post-production)* (59.12) has increased by nearly three and a half times (from 102 companies in 2008 to over 360 in 2019). The number of companies in *Distribution of films and TV* (59.13) also increased from 51 in 2008 to 61 in 2019. In *Film screening* (59.14), the number more than doubled (from 20 in 2008 to 46 in 2019). The entire *Renting video cassettes and discs* (77.22) economic activity disappeared from the market - from 42 companies in 2008 to 0 in 2018.

Data show that the value added to the Bulgarian film industry over the 12 years considered more than tripled (from BGN 45,852,000 in 2008 to BGN 150,508,000 in 2018) (See Figure 2). The highest value added was observed in the production of films and television programmes (59.11), where it more than doubled (from BGN 27,708,000 in 2008 to BGN 66,697,000 in 2019). The largest increase in value added was in Technical activities and post-production (59.12), which increased nearly fivefold (from BGN 11,375,000 in 2008 to BGN 61,014,000 in 2019). Value added in Distribution (59.13) peaked in 2013 (at BGN 13,240,000) and has since declined more than tenfold to BGN 1,422,000 in 2018. In Film screening (59.14), added value increased more than five times (from BGN 2,678,000 in 2008 to BGN 17,950,000 in 2019).

Data on foreign direct investment (FDI) show a 1.5-fold increase over 11 years (from EUR 15,646,000 in 2008 to EUR 27,632,000 in 2018) and a substantial drop in 2019 due to a lack of foreign films (See Figure 3). The largest share of FDI was observed in the Production of films and television programmes (59.11). No data were available for FDI in the other NACE codes in the film industry due to data confidentiality. We therefore assumed that, of the other NACE codes in the film industry, FDI accounts for a minimal share of the total volume, which is distributed between two or three companies.

Employment in the film industry for 2008–2019 more than doubled - from 1,814 in 2008 to 4,454 in 2019 (See Figure 4). The largest number

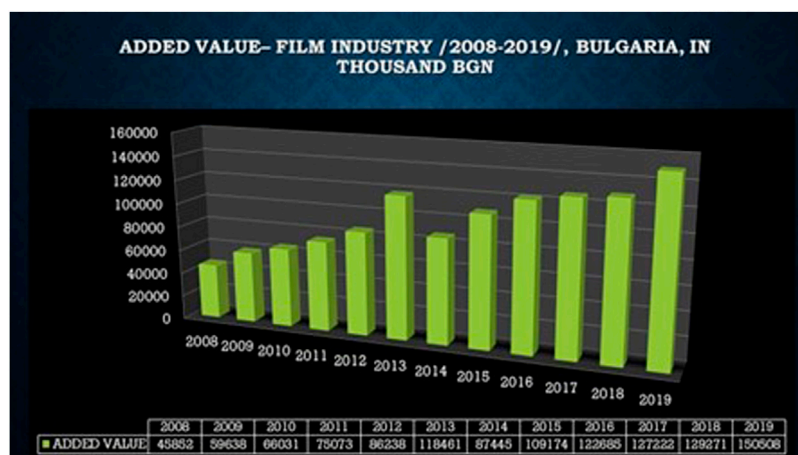


FIGURE 2
Added value in the Film industry (2008–2019). Source: NSI/OCE.

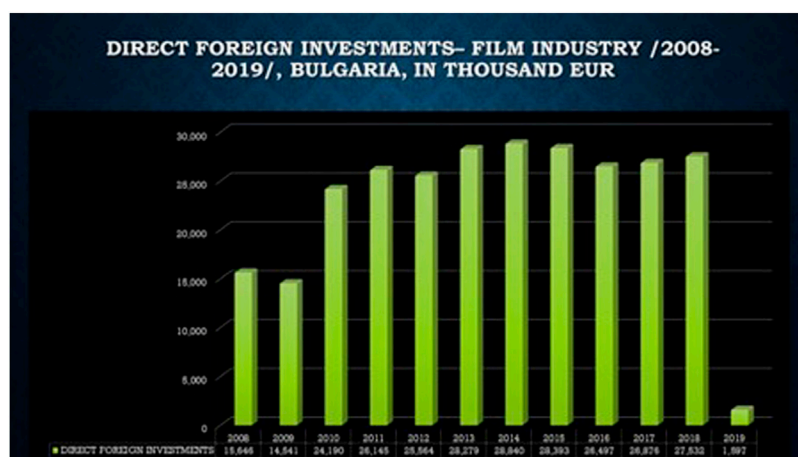


FIGURE 3
Foreign direct investment (2008–2019). Source: NSI/OCE.

of employees was observed in the *Production of films and television programmes* (59.11), which more than tripled (from 859 in 2008 to 2,496 in 2019). Employment in *post-production* (59.12) increased nearly 4-fold (from 357 employees in 2008 to 1,447 in 2019). In *Distribution* (59.13), it decreased from 221 employees in 2008 to 127 in 2019, whereas in *Film Screening* (59.14) the number of employees almost tripled.

The number of temporary employees in the film industry almost tripled—from 1,493 in 2008 to 4,369 in 2018. Due to the COVID-19 pandemic in 2019, a slight decrease was observed, with 3,627 employees that year. The largest number of temporary employees was in the *Production of films and television programmes* - 2,049 in 2018, compared to 700 in 2008. The largest increase (3.5 times) in temporary employment was observed in *Post-production* (from 268 in 2008 to 1,148 in 2019). In *Distribution of films and TV programmes*, temporary employees decreased significantly (from 189 in 2008 to 87 in 2019). In *Film screening*, temporary employees doubled from 180 in 2008 to 343 in

2019. No individuals were employed in 2019 in Renting video cassettes and discs, as this sector disappeared.

Turnover in the Bulgarian film industry more than doubled for the period 2008–2019, rising from BGN 172,747,000 in 2008 to BGN 442,895,000 in 2019 (See Figure 5). The largest turnover was in the *Production of films and television programmes* (59.11, reaching BGN 203,616,000 in 2019). The largest increase in turnover was seen in *Post-production* (59.12), with a 3.7 times growth (from BGN 27,018,000 in 2008 to BGN 123,316,000 in 2019). In *Distribution of films and television programmes* (59.13), dynamics showed an increase of nearly two and a half times (from BGN 21,250,000 in 2008 to BGN 50,998,000 in 2018). *Film screening* showed a 4.4-fold increase in turnover (from BGN 13,272,000 in 2008 to BGN 61,023,000 in 2019).

Hybrid and digital audiovisual products are still insufficiently and inadequately covered by the NACE taxonomy. We need consistency in the definitions of the different activities and products at the European level. For example, in code 77.22, both

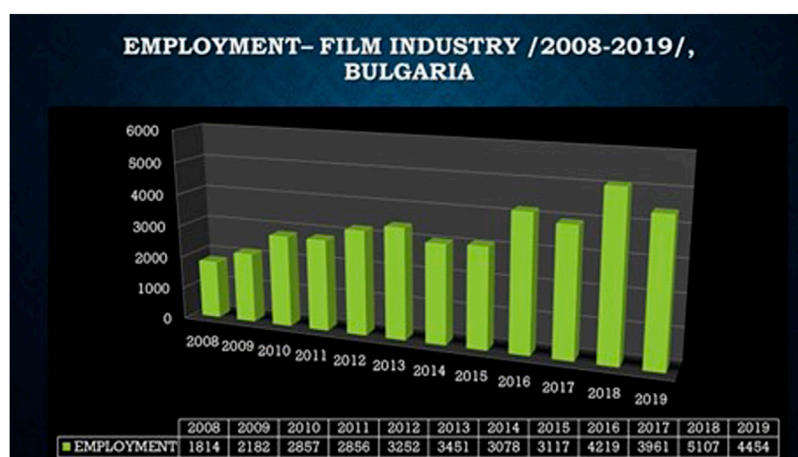


FIGURE 4
Employment in the Bulgarian film industry (2008–2019). Source: NSI/OCE.

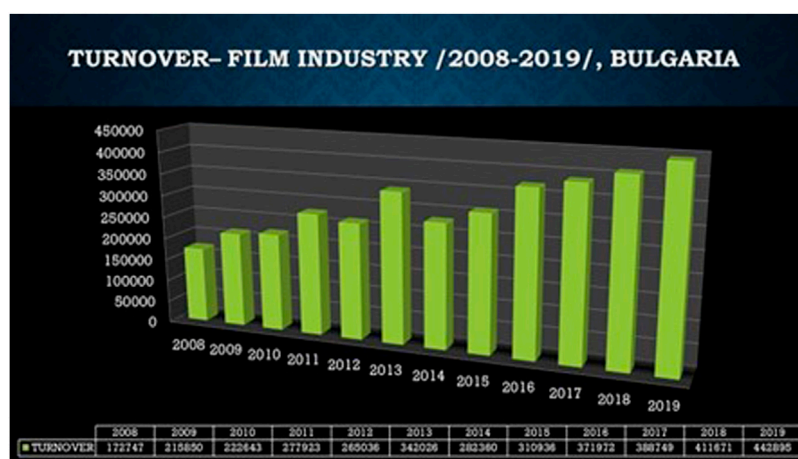


FIGURE 5
Turnover in the Bulgarian film industry (2008–2019). Source NSI/OCE.

national data (above) and EAO Key Trends show a continued dramatic decrease in revenues from DVD and Blu-ray retail and rental (European Audiovisual Observatory, 2019 p. 58) together with the opposite trend, a substantial increase in TVOD and SVOD. However, TVOD and SVOD, which have increased substantially, are not covered at the national level in Bulgaria. The *creation* and *archiving* phases of the GPN cannot be detected through NACE mapping either.

The Mapping the Creative Value Chains (IDEA Consult, 2017) suggests improving statistics and data collection to better monitor the impact of digitisation on the economic structure and market dynamics in creative value chains. More specifically, this could be done by: “new quantitative and qualitative data gathering on market relations/dynamics within value chains to complement current official structural business statistics;” and by finding “new research methods to better monitor the impact of digitization on creative businesses and CCIs in general” (IDEA Consult, 2017, p. 14). [SIC].

Radio, television and new media

The traditional electronic media market in Bulgaria has reached its maturity. It is impossible to expand any further without transforming production, distribution, and audience-satisfaction models. This is most evident in television, which is gradually (yearly) losing out in the competition with webhosting and web-based information services. Nevertheless, TV operators may not appear to be losers because of their transition to multi-platform media companies, and because of the expansion of their activities. *Cross-media spillovers* are yet to be differentiated for statistical observation. The merging of resources and ownership leads to spillover effects and the emergence of clusters, where communications, entertainment and the Internet/digital environments and applications converge into modern media ecosystems (Tomova, 2017). In such an environment, public

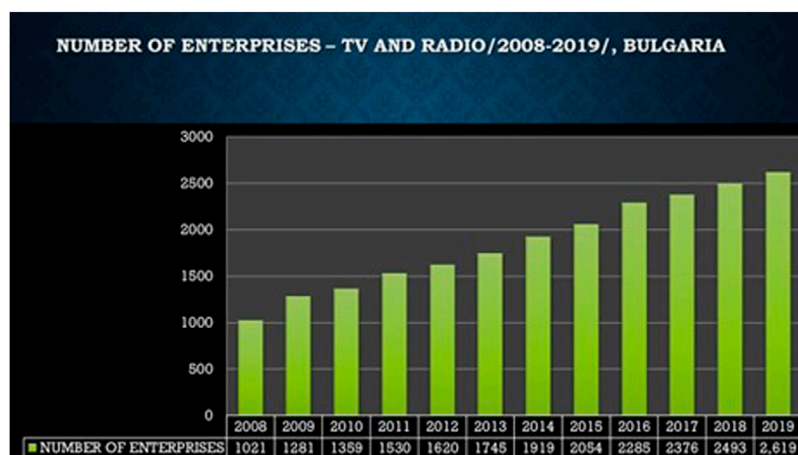


FIGURE 6
Number of enterprises–TV and radio (2008–2019). Source NSI/OCE.

national television (BNT) is under pressure from increasing competition and limited budgets. BNT is part of an oligopolistic market in which commercial operators use the opportunities of the converging environment much more effectively by creating media conglomerates, thus enabling cross-advertising and cross-financing (Tomova, 2019). Statistical activities in the two areas correspond to the statistical definition of *Radio, Television and New Media*.

GPN phase	NACE code	Activity
Creation, exchange	60.10	Creation and broadcasting of radio programmes
Creation, exchange	60.20	Creation and broadcasting of TV programmes
Distribution, archiving	63.11	Data processing, hosting and similar activities
	63.12	Web-portals
	63.99	Other information services (not classified elsewhere)

Radio, television and new media NACE codes

Data on television and radio enterprises for 2008–2019 show an increase of nearly 2.5 times, from 1,021 in 2008 to 2,619 in 2019 (See Figure 6). The largest number of enterprises is in *Other information services, not classified elsewhere* (63.99). We observed an increase of nearly 3.5 times in the number of enterprises in *Data processing, hosting and similar* (63.11). In *Web-portals* (63.12), we observed positive dynamics from 76 enterprises in 2008 to 393 in 2019; however, this code does not explicitly reflect the audiovisual industries. In *Creation and broadcasting of television programmes* (60.20), we observed a decrease in the number of enterprises - from 224 in 2008 to 148 in 2019. In *Creation and broadcasting of radio programmes* (60.10),

approximately half of the enterprises on the market have left, decreasing from 86 in 2008 to 47 in 2019.

Data show that added value for TV and radio increased almost three times (from BGN 239,347,000 in 2008 to BGN 825,441,000 in 2019) (See Figure 7). The highest added value was observed in *Data processing, hosting and similar activities* (63.11), which increased almost five times over 12 years, although this code includes much more than just audiovisual activities. We observed a substantial increase in turnover (six times) in *Web portals*. In *Creation and broadcasting of television programmes*, despite the decrease in the number of enterprises, there was an increase in value added (from BGN 143,165,000 in 2008 to BGN 218,558,000 in 2019). In *Creation and broadcasting of radio programmes*, we observed a similar trend: a decreased number of enterprises and an almost 50% decrease in value added (from BGN 11,184 thousand in 2008 to BGN 6,407 thousand in 2019).

Data on foreign direct investment (FDI) in television and radio for the period 2008–2019 show interesting dynamics, with numbers fluctuating from EUR 153,813,000 in 2008 to a sharp decline in 2011, reaching EUR 4,031,000 (See Figure 8). There was then a steady growth rate for the period 2014–2019, with EUR 132,122,000 reached in 2019. As with the film industry, data on the remaining NACE codes are not available for television and radio due to data confidentiality.

Employment in television and radio for 2008–2018 nearly doubled - from 8,597 in 2008 to 16,033 workers in 2019 (See Figure 9). The largest number of employees was observed in *Data processing, hosting and similar activities* (63.11), which also marked a 3-fold increase compared to 2008. A relatively large increase in employees in *Other information services* (63.99) and *Web-portals* was also observed, although we could not distinguish the exact share of the audiovisual industries in the aggregated number. In *Creation and broadcasting of television programmes*, the number of employees decreased from 4,042 in 2008 to 2,406 in 2019. A similar trend was observed in *Creation and broadcasting radio programmes*—the number of employees on the market decreased from 764 in 2008 to 444 in 2019.

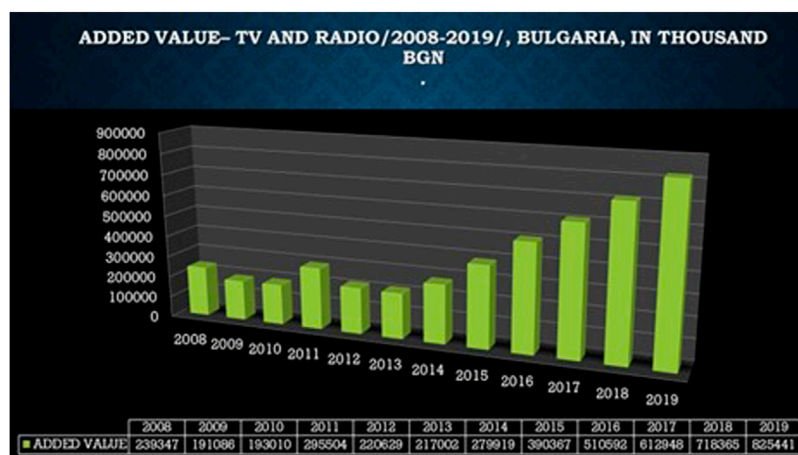


FIGURE 7
Added value in TV and Radio (2008-2019). Source: NSI/OCE.



FIGURE 8
Foreign direct investments-TV and radio (2008-2019). Source: NSI/OCE.

Temporary employment in TV and radio almost doubled - from 7,927 in 2008 to 14,163 in 2019. The largest number of temporary employees was observed in *Data processing, hosting and similar activities*, nearly tripling compared to 2008. Temporary employment also more than tripled in *Other information services, not classified elsewhere* and in *Web portals*. In *Creation and broadcasting of TV programmes*, we observed a slight decrease in the number of temporary employees - from 2,556 in 2008 to 2,318 in 2019. We also observed a decrease in *Creation and broadcasting of radio programmes*, with a fall from 457 employees in 2008 to 406 in 2019.

Turnover in *TV and radio* increased by almost 2.5 times (from BGN 645,072,000 in 2008 to BGN 1,512,877,000 in 2019) (See Figure 10). The largest turnover was observed in *Creation and broadcasting of television programmes* - reaching BGN 507,661,000 in 2019 compared to BGN 417,225,000 in 2008. A relatively large increase in turnover was observed in *Data processing, hosting and*

similar activities and in *Other information services*. Turnover in *Web portals* increased almost eight times - from BGN 7,783,000 in 2008 to BGN 58,271,000 in 2019. In *Creation and broadcasting of radio programmes*, turnover decreased from BGN 32,411,000 in 2008 to BGN 28,915,000 in 2019.

Video games

Today, the Bulgarian gaming industry has built a complete ecosystem. There has been a substantial increase in the number of

GPN phase	NACE code	Activity
Production	58.21	Release of computer games
Distribution	58.29	Release of other software products
Creation	62.01	Computer programming

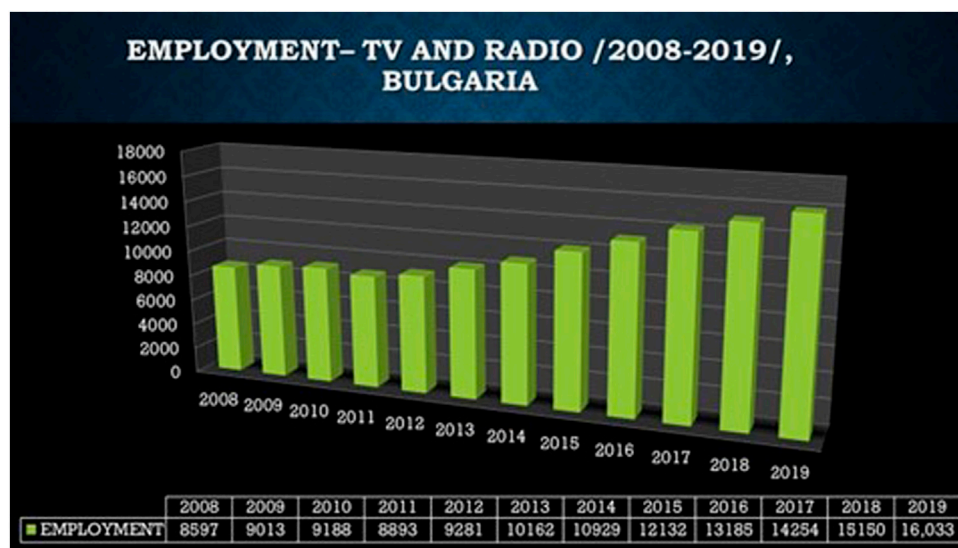


FIGURE 9
Employment in TV and radio (2008–2019). Source: NSI/OCE.

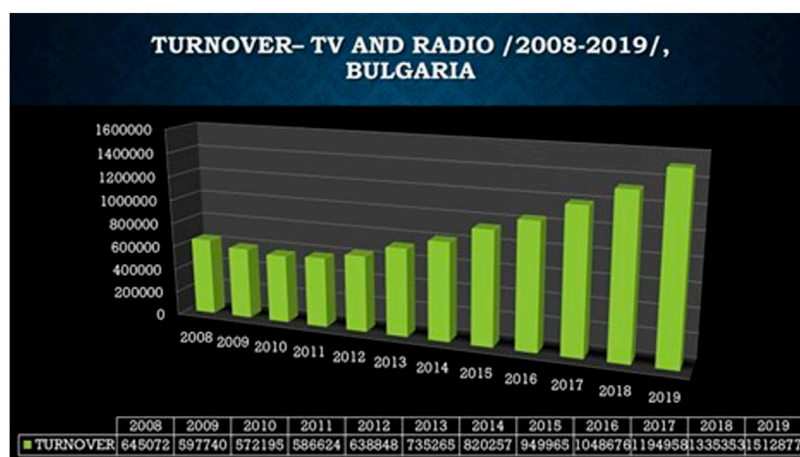


FIGURE 10
Turnover in TV and radio (2008–2019). Source: NSI/OCE.

companies and employees in the sector in Bulgaria (See [Figures 13–15](#)), as the country has become one of the best IT outsourcing destinations in the region. Three of the biggest gaming companies are represented in our country - UBISOFT, Gameloft and SEGA. We also have our own success stories: the creators of the Tropic Series, Victor Vran and Tsar, are Bulgarian. One of the best MMORTS studios⁴ in the world is Imperia Online ([Tomova et al., 2023](#)). The potential of the sector is as a growing game development community, with Bulgaria already a European leader in IT development and with a history of technological accomplishment and innovation.

⁴ MMORTS stands for Massively Multiplayer Online Real-Time Strategy games.

Data on enterprises in *Software and video games* show a 2.5-fold increase - from 965 in 2008 to 2,767 in 2019 (See [Figure 11](#)). The vast majority of these enterprises are in *Computer programming* (62.01), reaching 2,626 companies in 2019. This figure has nearly tripled compared to 2008, when it stood at 877. Enterprises in *Release of other software products* also increased (from 78 enterprises in 2008 to 112 in 2019). In *Release of computer games* (58.29), there were 10 companies in 2008 and 29 in 2019.

Value added in video games increased over five times over the 12 years considered (from BGN 235,597,000 in 2008 to BGN 1,717,592,000 in 2019) (See [Figure 12](#)). The highest added value was observed in *Computer programming*—BGN 1,662,225,000 for 2019 (almost a fivefold increase compared to 2008). Value added in

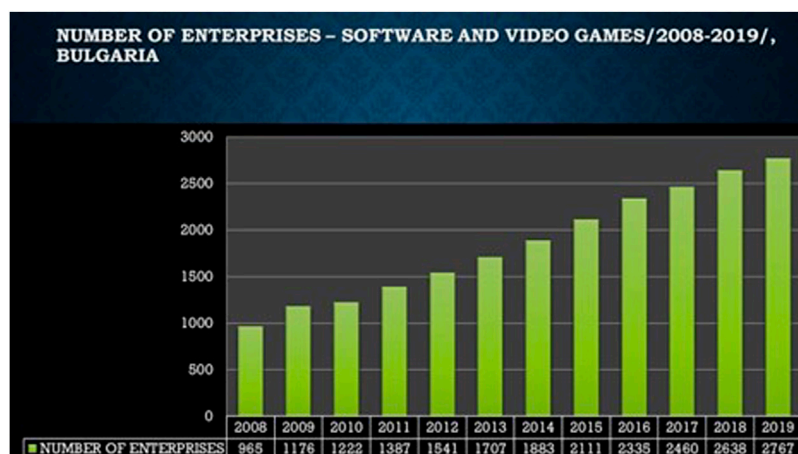


FIGURE 11
Number of enterprises in games (2008–2019). Source: NSI/OCE.

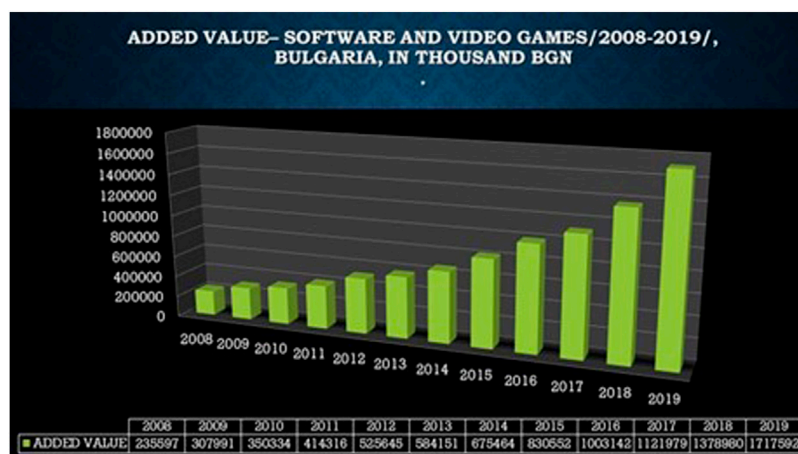


FIGURE 12
Added value in Video games (2008–2019). Source: NSI/OCE.

Release of other software products increased by approximately four times (BGN 9,079,000 in 2008 to BGN 46,654,000 in 2019). Value added in *Release of computer games* (58.29) saw the highest increase - from BGN 87,130 in 2008 to BGN 6,867,000 in 2019.

Foreign direct investment in video games increased over five times in the period considered, from EUR 25,524,000 in 2008 to EUR 164,429,000 in 2018 (See Figure 13). The largest increase in FDI was in *Computer programming*, reaching EUR 151,227,000 in 2019, eight times more than in 2008. Data on the remaining NACE codes were not available for *Video games* due to data confidentiality.

Employment in Software and video games increased over three times - from 7,109 in 2008 to 22,914 in 2019 (See Figure 14). The majority of the employees were obviously found in *Computer programming* (21,854 in 2019). Employment in *Release of other software products* nearly tripled (from 343 employees in 2008 to 929 in 2019). In *Release of computer games*, employment increased from 16 individuals

employed in 2008 to 131 in 2019. In small and independent computer studios, an overlap of activities was often observed, i.e., developers are also publishers, and *vice versa*.

Temporary employment in video games tripled - from 6,437 workers in 2009⁵ to 21,030 in 2019. The vast majority of the temporary employees in the sector were in *Computer programming*, reaching 20,049 employees in 2019. In *Release of computer games*, the number of temporary employees increased from four employees in 2008 to 112 in 2019.

The turnover of video games in Bulgaria increased over five times - from BGN 374,429,000 in 2008 to BGN 2,369,805,000 in 2019 (See Figure 15).⁴ The largest turnover was observed in *Computer Programming* - BGN 2,226,990,000 for 2019. In

⁵ Data by type of activity were not available for 2008; hence, we considered 2009 as the baseline in this case (OCE).

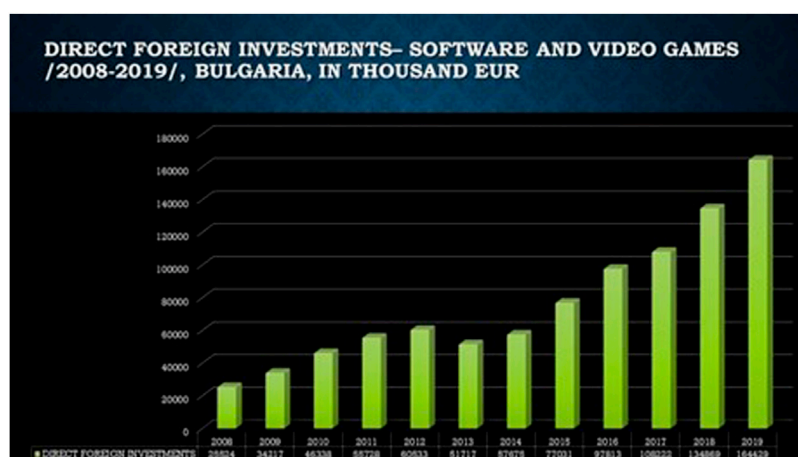


FIGURE 13
Foreign direct investment in Video games (2008–2019). Source: NSI/OCE.

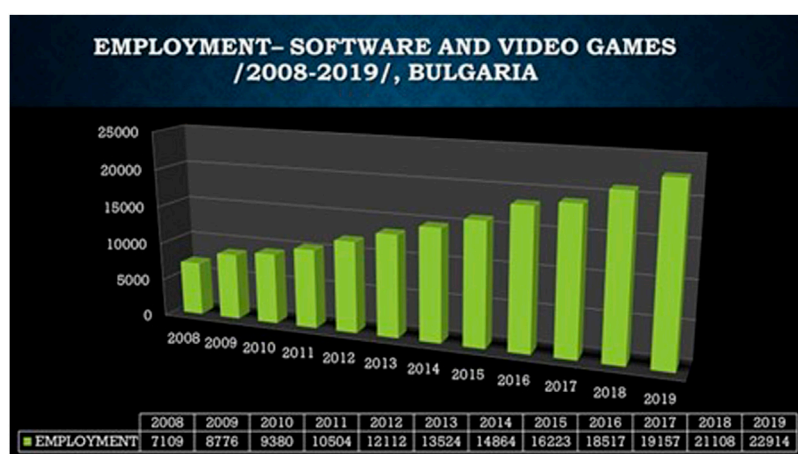


FIGURE 14
Employment in Video games (2008–2019). Source: NSI/OCE.

Release of computer games, we observed the highest increase in turnover - from BGN 47,000 in 2008 to BGN 20,133,000 in 2019.

Other sources of data

In addition to the National Statistical Institute and business statistics, there were other sources of data used in our national mapping of the audiovisual industries. The Executive Agency National Film Centre collects through its own public inventory (register) data about:

- film producers/companies
- film distributors and legal persons organising film screenings at a national level
- cinema theatres in Bulgaria
- films with distribution permits for screening in Bulgaria
- film production by foreign producers in the country, including international co-productions with Bulgarian producers.

Producers must register with the National Film Centre in order to be eligible for public funding. The reported number of registered companies does not reflect the real number of active producers on the market (which is smaller). The NFC, in conjunction with the Creative Europe MEDIA Desk, and in partnership with the OCE, has published its annual brochure: Bulgarian Cinema: Facts, Figures, Trends (Tomova, 2014) between 2010 and 2018 (Tomova and Andreeva, 2014), which presents the state of the Bulgarian audiovisual industry monitoring the following chapters:

- State subsidy for the film Industry - amounts according to the financial report of State budgets and cash payments for the relevant years
- Average film budgets
- Projects supported by the Bulgarian National Film Centre

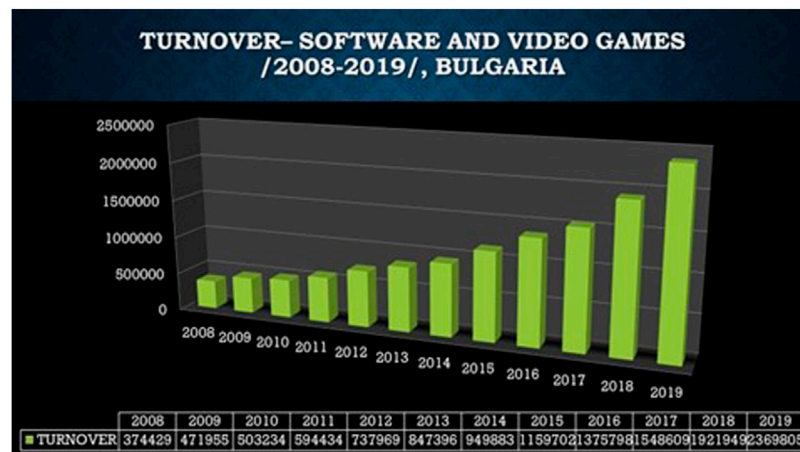


FIGURE 15
Turnover in Video games (2008–2019).

- International film support -MEDIA and Eurimages support for Bulgarian projects
- Top 20 theatrical releases in Bulgaria, Theatrical industry trends, Bulgarian releases, Top 25 theatrical releases in Bulgaria by admissions, Top 25 Bulgarian releases of local films by box office
- Number of cinema theatres, multiplexes, screens, seats in Bulgaria
- Funds for film production as per the Bulgarian National Television (BNT) budget
- Participation of BNT in financially closed film projects of the National Film Centre.

Data supplied by international bodies: the European audiovisual observatory, professional associations, networks, and more

The European Audiovisual Observatory (EAO) is the most important data source for the audiovisual industries in Europe. It provides comprehensive and comparable data collected from specialised national agencies and statistical bodies and from a number of dedicated “satellite” monitoring tools, such as the MAVISE database for TV digital services (MAVISE, 2026), IRIS for legal updates, Media Salles for cinemas (Mediasalles, 2026), the EFARN film research library, and others. The EAO covers the 41 Council of Europe member countries that provide membership contributions for the functioning and governance of the EAO. The EAO’s specialised reports and yearbooks (e.g., European Audiovisual Observatory, 2019) provide data on TV, Cinema, video and on-demand audiovisual services, shedding light on the various elements of the audiovisual industry’s global production network, such as film production and circulation of audiovisual works. Our overview of data sources by the EAO and its related (or satellite) databases has shown good coverage of the *Production, distribution and exchange* phases of the GPN. However there is less information on the *creation and archiving* phases for the majority of the key indicators: employment, number of enterprises, firm size, import and export, and so on. The EAO collects data on the audiovisual market, including public funding of public broadcasters,

TV and radio advertising, pay-TV and VOD services, cinema screens, admissions, box office (turnover), and home entertainment. It also analyses key legal issues in the audiovisual sector and reports on major legal developments and cases affecting media legislation in Europe.

The MAVISE database (supported by the EC Creative Europe–Media programme) is a free database offering crucial resources for the analysis of Television channels (TV) (MAVISE, 2026), FOD (Free on-demand services), TVOD (Transactional Video-on-Demand), SVOD (Subscription Video-on-Demand), and UGC (Video sharing platforms). It is up-to-date and covers 41 European countries and Morocco.⁶ It shows licensed providers (firms) in each country and final ownership (public or private), which is important for the GPN. Aggregated reports by the EAO on the European audiovisual market, for example, show data for all EAO members, not exclusively for those in the EU (Schneeberger, 2019). This is key for analysing the state of affairs in on-demand and digital AV services, which is often lacking at a national level.

Circulation of European films and TV series via TVOD and SVOD in Europe is analysed by the EAO, which provides data about the shares of European and non-European catalogues. A report on Trends in the VOD market in the EU28 (EAO, February 2021) examined the TVOD, SVOD and AVOD/BVOD, revealing “Explosive growth in the past 10 years”, based on SVOD revenues (Grece, 2021, p. 7). The EAO data for the EU28 show stagnant and declining market segments of the rest of the AV industry for 2010–2020, which were compensated by the rapid growth of VOD revenues. The most recent EAO report (covering trends between 2016 and 2024) shows there is a higher concentration of consolidated revenues across platforms (SVOD and in-video OTT) among non-European players, reaching up to 89%. The top 3 places in terms of operating audiovisual revenues are occupied by global players (Comcast, Netflix, and YouTube). However, 56% of operating audiovisual revenues were generated by European players, which were helped to a great extent by telecoms (Ene Iancu, 2026).

⁶ <http://mavise.obs.coe.int/> (last seen 16/03/2026).

The EAO's cumulative data shed light on the exports and market shares of European films in non-national EU markets (they collect data for 12 non-European markets). The "European films" they monitor are the "films produced and majority-financed by European country" [SIC] (EAO 2019). *MEDIA Salles* is an initiative of the EU MEDIA Programme supported by the Italian Government focusing on cinema exhibition. *MEDIA Salles* publishes European Cinema Charts, cartograms and interactive maps, which facilitate the comparison of indicators internationally (Mediasalles, 2026).

The EAO Yearbook: Key Trends 2018/2019 analysed the breakdown of the income sources of European fiction films in 21 countries (European Audiovisual Observatory, 2019, p. 13). It contained data on the revenues of TV services (linear and on-demand), and on the "Explosive growth of SVOD" – showing the fast growth of subscription audiovisual services in Europe between 2013 and 2017 – 10 times (Ibid. pp. 51–52). These data on OD services (by UK-based Ampere Analysis) may complement our GPN approach.

The EAO yearbook analyses data from its monitoring tools (e.g. MAVISE) and provides reports on the localised audiovisual services in Europe and the main hubs of these services (both on-demand and linear) that target foreign markets. Data are also provided on the linguistic diversity of AV services (61 languages).

The EAO also provides data on the market share of European films worldwide, the number of feature films produced in the EU and the United States (for comparison), the number of cinema screens and cinema admissions (in millions of EUR or USD) (European Audiovisual Observatory, 2019, pp. 20–21). Data on TV audiences and viewing figures are also made available.

The LUMIERE database, developed by the EAO, systematically collects data from the member states on film admissions across Europe to support research and the evaluation of the success of films and their creators. The LUMIERE database contains calculation tools, designed to facilitate the analysis of market share, comparisons between supply and demand, the degree of concentration of film attendance, exportation rates, and film attendance charts; however these tools are not available online⁷.

IRIS provides monthly observations on the most important legal developments in the audiovisual industry within the framework of the EAO—such as court decisions related to the audiovisual industries in the 41 countries in broadcasting, cinema, VOD, and IPTV. These legal aspects cover the latest developments in the field of market regulations, ownership, court decisions, copyright law, data protection, competition, and so on.⁸ In addition, through the AVMSD interactive search tool, users can find the national transpositions of the Audiovisual Media Services Directive in each country.

The EFARN Research Library (developed by the EAO) collects film industry research published across Europe and includes a search engine with different filters (topic, country, organisation, and more).⁹ A thorough examination of some of specialised databases and reports, zooming in on other "cells" of our matrix, has shown that, in fact, fewer countries can provide sufficient data for research. For example, the EFARN Research Database does not [yet] contain

figures for all EU member states (let alone CoE members). The Bulgarian National Film Centre, for example, has been publishing annual facts and figures about the national film industry, but this information is not included in the EFARN library.

One of the problematic data fields in the GPN network is *archiving*. The EAO (in cooperation with the European Intellectual Property Office–EUIPO) published a report on *Deposit systems for audiovisual works* (Arias Burgos et al., 2017). Although it gives a comprehensive picture of the legal and practical aspects of the subject, it does not yet address how the different deposit systems existing in the Member States could help to bridge the statistical data collection gap.¹⁰

Alternative sources of data for video games are available from industry organisations such as European Game Developers Federation (EGDF) and Video Games Europe (former ISFE). In 2020 ISFE reported a market size for the European games industry in 2020 of 21.6 billion EUR which by 2025 grew to 29,7 billion EUR (Video Games Europe, 2025). The reports show trends on revenue distribution across different usage (online, via consoles, or mobile devices).¹¹

The European Games Developer Federation (EGDF) publishes country reports on the video games sector. Bulgaria has been included with a national report only in 2024.¹²

Conclusion, or what we cannot measure

The audiovisual sector is in a process of economic convergence. Horizontal and vertical mergers and purchases transcend national boundaries and the boundaries between audiovisual sub-sectors (cinema, TV, radio, video games). New business models are emerging, which form hybrid value chains with overlaps between cinema and TV—for example, the digital distribution of film and TV productions (TVOD, SVOD). However, some of these new digital processes are not included in the current statistical observations.

Using the GPN approach to audiovisual industries is a valuable method to analyse the realities of sub-industries and distinguish their market specificities. The GPN also allows us to explore the spatial distribution of the networks and their agents. This was not a focus of this article, but it is very important in the globalised markets as CICERONE research demonstrates (Tomova et al. 2023).

Convergence in Audiovisual sectors is obvious in a small market such as that of Bulgaria. The TV industry market is consolidating. New players are entering the market. Telecom companies are taking part in the distribution and content creation. Global streaming platforms are becoming part of national markets and affect them in different ways. For small markets, this means that limited production volumes may have difficulty performing internationally (CresCine, 2024).

These powerful transformations of the past decade are not reflected in statistical monitoring. Consequently, we have insufficient tools to measure and govern these processes, which are crucial for the GPN in the audiovisual sector. These

7 <http://lumiere.obs.coe.int/web/search/> (last seen 16/03/2026).

8 <http://merlin.obs.coe.int/page/info> (last seen 16/03/2026).

9 <https://filmresearch.eu/about-efarn> (last seen 03/2026).

10 <http://yearbook.obs.coe.int/> (last seen 16/03/2026).

11 <https://videogameseurope.eu/wp-content/uploads/2020/08/ISFE-final-1.pdf> (last seen 25/09/2026).

12 <http://www.egdf.eu/data-and-studies/>

inconsistencies and shortcomings in statistical data remain at both the national and European levels.

“The main criterion for the quality of statistical information in the ESS (European Statistical System), which is applied in quality assessment and management in the NSS (National Statistical System), is applicability. Applicability is very important criterion, because if the statistics are not applicable, it does not matter whether they are accurate, timely, comparable, etc. The applicability of statistical information shows whether all the statistics needed by users are produced and to what extent the concepts used (definitions, classifications) are adjusted to the needs of users. Principle 11 “Applicability” of the European Statistics Code of Practice stipulates, “European Statistics meets the needs of consumers” (National Statistical Institute - Bulgaria, 2011) [SIC]”

We can conclude that, in order to have applicable statistics (in addition to accurate, reliable, comparable) in the steadily growing but rather diverse audiovisual sub-sectors of Film, TV and radio and Video Games, we need to amend and add new statistical definitions and taxonomies. This is the only way to reflect our realities and the processes, market activities and professions that have emerged.

Through our analysis of statistical data at the European and national levels in Bulgaria through the prism of global production networks, we can confirm that audiovisual industries’ GPNs are not correctly covered by Eurostat taxonomies. The general issues detected are overlapping or transversal NACE codes in *creation* and *archiving* phases in the film industry, TV and radio. These do not allow us to distinguish creation or archiving in one sub-sector from another. Merged codes for the production and post-production of activities in the film and TV industries are common, but do not reflect the reality of the sectors’ value chains over the past decade.

The European Audiovisual Observatory (EAO) compensates for gaps in data collection by Eurostat and national statistics, specifically regarding TVOD, VOD, FOD and digital sharing platforms. The EAO supports EU Member States in the transposition, monitoring and reporting of the implementation of the Audiovisual and Media Services Directive (AVMSD) and other EU provisions. The EAO and its monitoring tools provide data reports that are relevant to governments, investors, and businesses in Film and TV (including on-demand and digital services).

The statistical mapping methodology has proven to be adequate for the national legal and institutional context in Bulgaria, as it corresponds to the level of development of the CCI markets and is adaptable to mixed-market and “quasi-market” (subsidised) value chains in Audiovisual industries. Statistical mapping also enables comparisons at the European level (Tomova, 2013: p. 113).

Recommendations

Proposals to the Eurostat framework:

- Develop the key definitions of the audiovisual sub-industries, which could distinguish their specific value chains and global production networks.
- Use five-digit codes in the *distribution* phase.
- Collect data on Foreign Direct Investment (FDI) in CCIs, which provides important knowledge about the global financial flows and is therefore key to studying GPNs. FDI also informs us about strong economic convergence processes, which are very typical of global audiovisual industries.
- Collection of Eurostat data at the regional level - it may be crucial while programming and measuring the importance of CCIs for local and regional development and cohesion. This could be instrumental in the distribution of EU structural funds for regional development and for National Resilience and Recovery Plans (RRF Plans).
- At the level of national business statistics (which reflects business statistics at the European level), we primarily rely on aggregated codes; there is therefore a need for an adequate taxonomy (statistical definition) of the subjects. For example, the film archive should be defined within 91.01, “Library and archives activities”. This would enable the scope of activities to achieve a more detailed code for “Archives - film and TV activities”.

At the national level, we recommend using a mapping methodology to gather and analyse data on CCIs and the Audiovisual sectors. Mapping exercises at the European level could contribute to stronger evidence for more effective cultural governance and management and the development of business models. Periodic mapping of global production networks could inform strategies, programmes, and projects for and with CCIs, including the programming and usage of EU funds. At the EU level, this could mean synchronising the codes they collect and observe. Through taxonomies, hybrid business value chains (which also comprise large multimedia platforms, such as Google, Amazon, Facebook, and Apple). This could enable better financial and fiscal control over their activities in the EU and the individual Member States.

Other possible benefits could include better-informed governance and policymaking based on real data, indicating the availability of resources, potential, and limitations. It could also lead to new forms of funding and investment. Mapping could detect emerging clustering and incubation activities in cities and regions and inform adequate investment policies for SMEs and innovation, which could in turn nurture SMART specialisation and local/regional economic development (SMEs in CCIs carry out both technological and social innovations).

The proposed model for a new statistical framework for the audiovisual and game industries adopts the theoretical perspective of global production networks (GPNs) and should be understood as a normative and conceptual design rather than as an already implemented change to official statistics. It outlines how a more accurate measurement of globalised chains of creation, production, distribution, exchange, and archiving could be developed. Pending its anticipated gradual introduction over the next three to 4 years, the analysis relies on the existing statistical framework and its inherent limitations, including incomplete coverage of certain GPN phases, the use of aggregated classification codes, and the absence of indicators for emerging digital processes. Consequently, the national and

European data used are interpreted as illustrative empirical “windows” into GPNs, supporting the theoretical argument without claiming to be comprehensive. In this context, the new statistical framework proposed by UNESCO (UNESCO 2025a; UNESCO 2025b) serves as an important point of reference and direction. The present findings constitute an intermediate step, providing an evidence-based argument for reform rather than a definitive measurement of GPNs in Bulgaria’s audiovisual industries.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: Data has been requested for the purpose of the research. Requests to access these datasets should be directed to andreeva@culturaleconomics.bg.

Author contributions

The article is co-authored by Associated Professor BT (1966 – 2024), DA-P and TA. The original research and writing took place in 2022 in the framework of Cicerone project, yet unpublished in this form. The article has been updated in 2026 and should be published posthumously in BT’s name.

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Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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