

Data Pillars in the Open Music Observatory

Version 0.1.1

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2023-07-08

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Tip



Data Pillars in the Open Music Observatory

Open Music Europe – openmuse.eu. – music.dataobservatory.eu – DOI: 10.5281/zenodo.8108720



This is a manuscript developed for [Open Music Europe](#) following the Open Policy Analysis Guidelines. All materials related to this research can be found in the open repository at <https://github.com/antaldaniel/music-indicators-description>. Bookmark this document as a [webpage](#). Permanent storage and DOI: [Zenodo](#).

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Executive summary and editing notes



Note

- The **first part** of this document should be detached as a general methodological paper concerning WP1, WP2, WP3 and the creation of the music observatory pillars in WP5. It will be detached, but it is kept here to ensure that it will be well understood for researchers working on T1.1, T2.1 and T3.1 in WP1, WP2, WP3.
- The **second part** of this document, [The Music Economy Data Pillar](#), should be seen as a methodological concept to weave together important elements of T1.1; T1.2, and T1.3, i.e, the development of new music industry indicators from conceptual design (T1.1) to data collection and processing (T1.2) and test in public and business policy use or in scientific research.

This is very much a work in progress; most of the expected part of T1.1 requires research from EUBA and SSSA. This document currently aims to help the editing of a minimal version of the D1.1 and to provide clear connection points for T1.2 and T1.3.

⚠ Warning

A **warning** note shows that something is critically missing to deliver D1.1

💡 Tip

A **tip** note shows that something needs to be discussed to prepare our workshop(s) in September or organise the work in subsequent tasks like T1.2 and T1.3.

In terms of research aims, this document contributes to T1.2 and T5.1 with defining the statistical framework and statistical processes that need to be employed to fill the data gaps (the main objective of the Open Music Europe grant.) This is only briefly a topic for D1.1, however, it is very difficult to deliver D1.1 and D1.2 without the researchers involved in those tasks understanding the statistical framework and processes.

High-level overview of background information

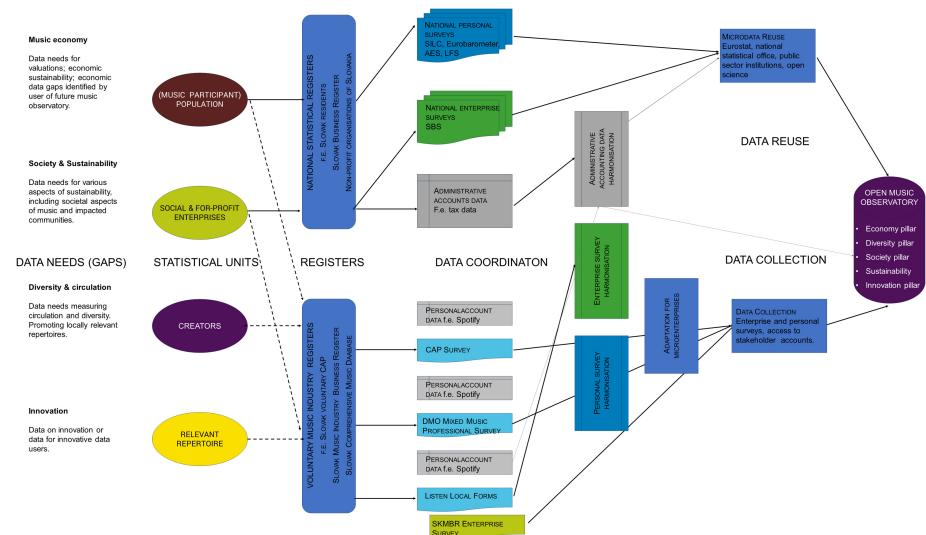


Figure 1: WP1 Data-to-policy schema

I. Defining the Data-to-policy Pipeline is meant to give a more precise definition of the data-to-policy term in our grant agreement.

- I.1 Data coordination and ingestion
- I.2 From data to indicators
- I.3 From indicators to policies
- I.4 Interactive communication of indicators and Open Policy Analysis

People not familiar with the *indicator* design and production concept should focus on that part. When our grant agreement is talking about “filling the data gaps”, it is talking about producing business or public policy indicators, and if possible, scientifically validate them, for the target groups of Open Music Europe. T1.1, T2.1 and T3.1 should clarify what are the data needs of the various music target groups, and how should it be filled.

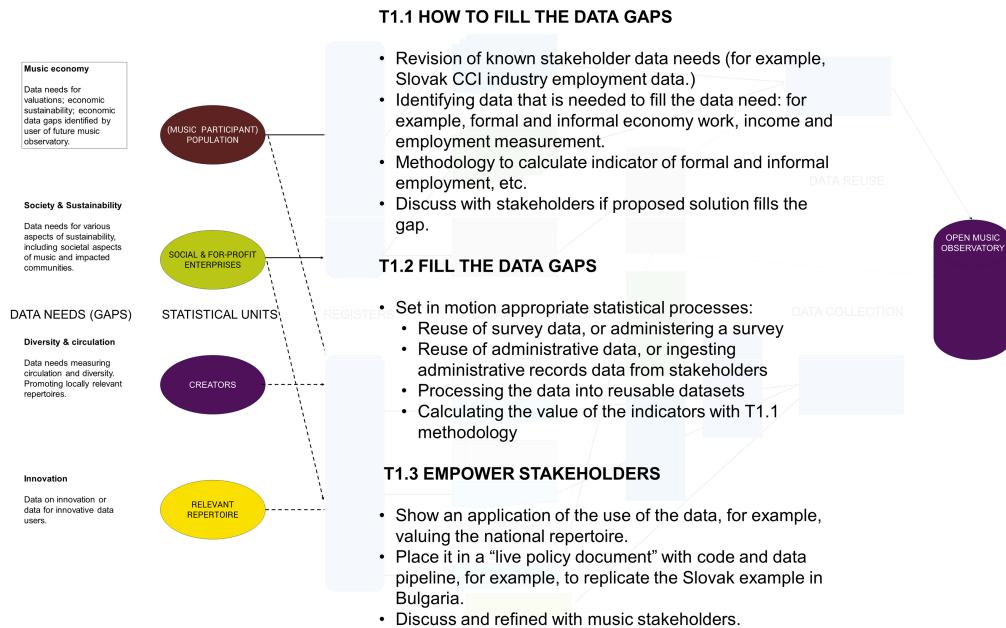


Figure 2: WP1 Data-to-policy schema: D1.1

To successfully hand over D1.1 and start working on T1.2 and T1.3 we need to have a clear view of what the stakeholders need, and from what data sources, what type of indicators can fill those needs. For example, we need to identify that in a survey process, what must be asked from the general public as end-users, or music professionals and entrepreneurs. To keep us harmonised with pre-existing statistical and open science or open government sources, T1.1 must identify harmonised survey questionnaire items, and pre-existing variables made from these survey items. (For example, in LFS)

Now the first document turns into a more practical explanation of the data-to-policy pipeline, which can be broken down to subtasks. Because most of these are not T1.1/T1.2/T1.3 subtask, they should be understood to the point that T1.1/D1.1 can successfully delivered.

II. Building a European Music Observatory

- II.1 **Data coordination and ingestion**: what data exists in some form, what needs to be reprocessed, and what needs to be collected? How it will reach the observatory?
- II.2 **Curated statistical data**: a revision and ingestion of already processed statistical data.

- II.3 Reusable microdata and public sector information: a map to data that is not statistically processed (microdata) but exists and we can use it.
- II.4.Data linking and statistical registers: the statistical framework that coordinates the process.
- II.5 Data collection for the observatory.

The **statistical processes** that we define are reuse or data collection with surveys and from administrative records; i.e. music industry sources originally not designed for statistical purposes. For researchers working on T1.1/T2.1/T3.1 and T1.3/T2.3, T3.3, the statistical processes are *collecting the data* and processing them to *microdata datasets* or *indicators* for further analysis. They are called a statistical process because they describe if pre-existing surveys or records can be used to find the data, or new (and what type of) survey must be administered. The statistical processes will be defined in T1.2, T2.2, T3.2.

The interface between D1.1 (D2.1 and D3.1) is the *statistical register*. The statistical register tells REPREG and UTU from what enterprises and which people we need to collect/process/ingest data. T1.1/T2.1/T3.1 must define a statistical register that our music industry pilot partners, i.e., SOZA and MusicAutor can implement from their own registries. The statistical register is a critical interface between the gap analysis and the actual data collection. General statistical processes of the Statistical Office of the Slovak Republic collect data from all Slovak residents or all Slovak enterprises (meeting a certain size threshold.) To make these statistical processes focus on collecting data relevant for the music industry, we must say which residents are ‘music professional’, or which enterprises are ‘music enterprises’ and we must direct the statistical data collection processes towards them.

The CEEMID background know-how has elements of how to turn the SOZA/Artisjus registries into music industry registers for both WP1 and WP2. To understand the concept, the WP2 register is an easier-to-understand example, but WP1 will do something similar. In WP2 we want to create diversity and circulation indicators, for example, what is the market share of Slovak music in Slovak radio or streaming charts? To machine-process data, we need a register, which selects our algorithm from any radio or streaming playlist the Slovak musical works and music recordings. The *Feasibility* demonstrated this with the Slovak Demo Music Database; now SOZA, with the help of *Hudobne centrum* and *Hudobny Fond* is building the Slovak Comprehensive Music Database. The basis of this database is the musical work registry of SOZA. SOZA had been trying to add to this registry a sound recording register, too; we will speed up this process in WP2.

In WP1 we will need a similar register to identify enterprises and freelancers who contribute to the value added, employment, or other statistical indicator of the Slovak music industry. The basis of this will be the SOZA membership registry, which is by virtue of the copyright directive and its national transposition, public in all EU countries. CEEMID and MusicAIRE SurveyHarmonies demonstrated how to turn this into a quasi statistical register for surveying; in Open Music Europe we try to take this a step further in order to coordinate and harmonise data with the Slovak National Business Register held by the Statistical Office of the Slovak Republic.

Then we can turn to the second, detachable part of the document.

High-level overview of what should go into D1.1

D1.1 [The Music Economy Data Pillar](#) The main aim of T1.1 (D1.1) and T2.1 (D2.1) and T3.1 (D3.1) is not how the data should be collected, but what information is needed to fill the industry’s “data gaps” and how that information can be assembled from data.

i Note

For clarity, the background material on how data should be collected is numbered with Roman numerals, and the parts that are intended to go into D1.1 are numbered with arabic numbers.

Because the *Open Music Europe General Assembly* endorsed the idea to open up these task for a longer period of time, currently we do not aim to provide a full data gap analysis. Instead, we do the following:

- We provide an overview of the pre-existing EU data gap analysis (Feasibility study)
- And a pre-existing Slovak data gap analysis ().
- A methodology to refine this data gap analysis to the more current needs of the European and Slovak, Bulgarian music industry.
- A general methodology to fill the data gaps with indicators.

This is feasible on this generalisation level by 31 July, however, this is a very early and intermediary output; it is more of a summary of pre-existing research.

I. Defining the Data-to-policy Pipeline

Open Music Europe offers a ‘data-to-policy’ pipeline, which extends the music data pipeline to processing data that is ready to use in evidence-based business and policy administration. A data pipeline is a method in which raw data is ingested from various data sources and then ported to a data store for further analysis, in this case, to an open, shared, collaborative music observatory. We extend this pipeline using reproducible research techniques, a novel application of the *Open Policy Analysis Guidelines*, and good statistical practices to support evidence-based policy analysis, scientific music research and sound business strategy building. In this last leg of the pipeline, we emphasise usability for our project’s target audiences and good documentation practices. We want to ensure that our data is high quality and well understood to support robust and correct business, scientific or policy conclusions. This usually makes processing the data into an indicator, or a set of indicators, which are often displayed as a scoreboard, dashboard, or as a part of a standardised business or policy report.

I.1 Data coordination and ingestion

A data pipeline is a method in which raw data is ingested from various data sources and then ported to data store, for further analysis, in this case, to an open, shared, collaborative music observatory.

We want to create a data production method that makes already available public data more usable for the purposes of music businesses, researchers, and policymakers and links further data to fill data (information) gaps. In the *European Statistical System (ESS) Handbook for Quality and Metadata Reports*, which is a European statistical standard, the production of statistical data is covered by the broader term of statistical processes used by the statistical authorities to develop, produce and disseminate statistics (European Statistical System (ESS) 2021). ESS recognises the following data collection and production processes:

- **Survey:** a direct collection of individual data from a sample of respondents for statistical purposes with three subtypes, depending on whether data are collected from all units, and if not, whether probability sampling or non-probability sampling is used (Probability Survey, Non-Probability Survey and Census Survey).
- **Administrative data collection** refers to the set of activities involved in the collection, processing, storage and dissemination of statistical data from one or more administrative sources.

The first leg of the data-to-policy pipeline requires the creation of a statistical infrastructure, a data observatory, that can receive processed and unprocessed public and private data, link them, and offer a data pipeline for newly collected data, too.

I.2 From data to indicators

The use of indicators is widespread in the economics, business, social aspects, or public policies of music and the broader cultural and creative industries agenda. A statistical indicator summarises a key issue or phenomenon derived from a series of observed facts; it is a generalisation of the information in the data. It is often compared metaphorically to traffic signs that help travelers to arrive to their destinations safely. The knowledge we gain from indicators is used to uncover social, environmental or economic phenomena and establish connections between them. It also provides a basis for influencing and controlling such phenomena on a business level (for example, key performance indicators) or the level of public policy (for example, *ex ante* and *ex post* evaluation indicators.)

A statistical indicator is a summary measure related to a key issue or phenomenon and derived from a series of observed facts. [Kotzeva et al. (2017), pp. 7]¹

¹The definition of the statistical indicator originates from the Regulation 99/2013 of 15 January 2013 on the European statistical programme 2013-17 (Annex I,1: Indicators), which went through several modification and it is no longer in force (European Parliament and the Council 2013; EUR-Lex 2018). In a slightly more verbose format it is part of [Eurostat's Glossary](#).

A statistical indicator, or simply, indicator, is the representation of statistical data for a specified time, place or any other relevant characteristic, corrected for at least one dimension (usually size) so as to allow for meaningful comparisons. It is a summary measure related to a key issue or phenomenon and derived from a series of observed facts.

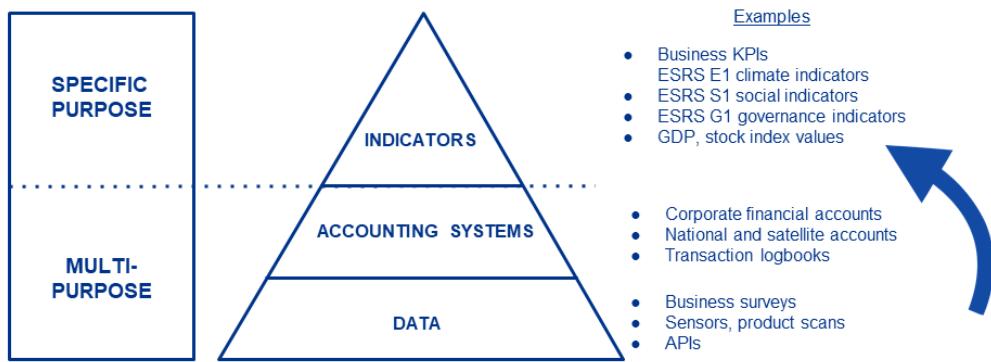


Figure 3: The statistical infrastructure of indicators, DOI: <https://doi.org/10.6084/m9.figshare.23600571>

Statistical indicators, or, in short, indicators, are derived from accounting systems and statistical data. Accounting systems are coherent and integrated accounts, balance sheets and tables based on a set of agreed rules. Statistical data is also collected based on agreed and coherent rules.

The aim of statistical data collection is the creation of sets of data that can be generalised well; for example, when we collect data about people, it includes data on people from all relevant age or gender groups. Open Music Europe is using and developing data collection from primary sources, such as surveys and ephemeral big data, or taking samples of large, pre-existing but biased datasets, such as royalty accounts.

I.3 From indicators to policies

Indicators should be used as traffic signs, and not as route plans. Indicators do not give an explanation to a problem or reveal a solution; they must be interpreted in the context of domain-specific knowledge. While the word *policy* is very often used in the context of public policies, we use it in a more general meaning: a course or principle of action adopted or proposed by an organization or individual. Open Music Europe does not offer tailored data analysis for organisations or individuals, it offers indicators and other data products that can help the setting of policies for public policy, for-profit and social music enterprises, and hopefully even for individual creators. We would like to do this with placing indicators into reproducible reports. These reports contextualize our indicators, and end the data-to-policy pipeline.

Unlike the data from which they are derived, indicators are used for specific purposes. The specific purpose of an indicator is determined by its context, the questions it seeks to answer, and the party or parties asking these questions. (Eurostat 2014, 1:p7)

Indicators are used for specific purposes to support decisions with generalised information derived from the data. The specific purpose of an indicator is determined by its context, the questions it seeks to answer, and the party or parties asking these questions.

There are many conceptualisations on how policies should be set for public organizations or businesses; a review of policy cycles is beyond the scope of this paper. For presentation purposes, we use the policy cycle framework of Howlett and Ramesh adopted by Eurostat for indicator design guidance (Howlett and Ramesh 1995; Eurostat 2017). This is a widely used textbook that over 25 years went through four major editions.

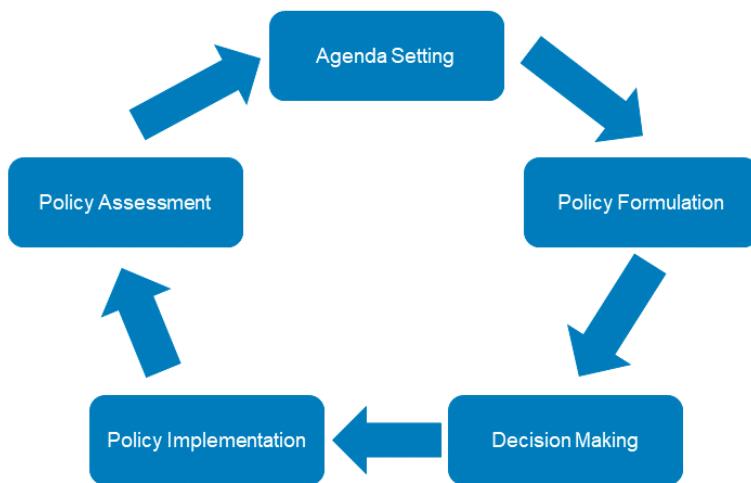


Figure 4: The policy cycle. This chart appears originally in Towards a harmonised methodology for statistical indicators — Part 3: Relevance for policy making as Figure 3 on page 17. The chart was recreated for easier reuse.

In an evidence-based policy cycle indicators should provide different factual information. Different indicators may be needed in the first, **Concept** phase when a business or public body is seeking alternatives to solve a problem: for example, to increase royalty revenue for their artists or assets, and in the final **Outcome** or **Impact** assessment. While impact assessment is often associated with public policy, the current sustainability management techniques require music businesses to implement processes that reduce, for example, fossil fuel use, and eventually have a positive impact (in quantitative terms, a negative change) on greenhouse gas emissions.

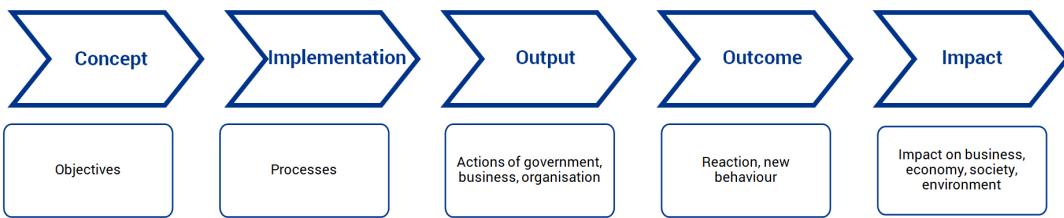


Figure 2. Policy evaluation cycle with indicators, DOI: 10.6084/m9.figshare.23498441

Several alternative options are available to deal with complexity, each one with specific properties that make them more or less fit for a given purpose. This short summary follows the *Communicating complexity* in the Eurostat guide methodology book (Kotzeva et al. 2017, 2:34–39.).

1. Developing indicator sets (including scoreboards or dashboards as specific types of sets) and showing all the information for each individual indicator.
2. Combine indicators on different phenomena and/or dimensions into aggregate, composite or synthetic indicators. A composite indicator is created when individual indicators with different measurements units are combined into a single measure.
3. Show the detailed information on the individual indicators while combining the assessment in ‘aggregated dashboards’.

Regarding the communication of complex subjects, Eurostat normally opts for sets of indicators often in a form of scoreboards or dashboards, and Open Music Europe will do the same, because composite indicators themselves require a higher level of data literacy to interpret correctly.

Scoreboards are concise lists of key performance indicators (often derived from a larger set) which are assessed against specific targets. Dashboards, on the other hand, do not necessarily have an evaluation function, in the sense that the observed indicator values are not necessarily compared to (policy) targets to assess performance².

Following the data pillars of the *Feasibility study for the establishment of a European Music Observatory : final report* (Commission et al. 2020), we foresee the indicators made in our sample reports with the following topics:

- **Report on the European Music Economy:** Support stakeholders with economic questions, such as taxation, price-setting and economic exploitation, and advocating for policies that better support the development of the industry or its parts like publishing (Open Music Europe 2023e).
- **Report on Music Diversity and Circulation in Europe:** Local content regulations, maintaining the diversity of music circulation in Europe, and other aspects of diversity (Open Music Europe 2023b).

²Dashboards are supposed to be very concise, with a very limited number of indicators. An often used example is the car ‘dashboard’, which has only few measurement instruments so that they can be monitored also by non-experts simultaneously.

- **Report on Music, Society, and Citizenship in Europe:** Inform about the societal aspects of music, amateur practices, education, and sustainability (Open Music Europe 2023d).
- **Report on Music Innovation & Technology in Europe:** Novel data-driven applications (Open Music Europe 2023c).

I.4 Interactive communication of indicators and Open Policy Analysis

Indicators are most important in communicating data in a business or public policy context. To discuss this communication, it is helpful to distinguish between simple one-directional information transmission and communication as an interactive process. The informational or one-directional communication of indicators focuses on information transmission between a sender and a receiver. The interactive communication of indicators means that the message is actively constructed by both the sender and the receiver(s), who exchange information in a feedback loop.

Like the mediators who strive to communicate between different parties to find their point of agreement, communication through indicators allows to overpass boundaries between policy, science, statistics and public debate. Thus indicators are able to reveal various phenomena to different user groups — policy makers, researchers, citizens, journalists, statisticians, specialists in different domains. Reaching various types of audiences through their communication function, indicators can ensure that statistics are usable and useful (Kotzeva et al. 2017, 2:p7.).

Going back to the often used traffic management example, a simple one-directional indicator is a speed limit sign on a static road sign; a more interactive version uses sensors and cameras to measure the actual traffic density and to recommend a speed at which vehicles will not jam the road.

Interactivity allows for exchange of ideas and a shared creation of the intended content of the message that the planned indicator conveys. This requires user involvement in the construction of indicators and indicator sets. The developed indicators need to be based on a wide consensus reached through a dialogue involving as many potential user groups as appropriate. This way they can have their say on the relevance of the statistical message. For example, on Digital Streaming Platforms (DSPs) a music creator or label is facing with hundreds of hidden prices. One of our aims is to create price indicators that help a music label, distributor or a band to direct marketing efforts towards more valuable streaming segments. We need to create a price indicator that is as simple as a stock exchange index which is often followed by small and institutional investors alike.

PRINCIPLE 11 Relevance: European Statistics meet the needs of users. 11.1. Procedures are in place to consult users, to monitor the relevance and value of existing statistics in meeting their needs, and to consider and anticipate their emerging needs and priorities. Innovation is pursued to continuously improve statistical output. 11.2 Priority needs are being met and reflected in

the work programme. 11.3 User satisfaction is monitored on a regular basis and is systematically followed up.

The *European Statistics Code of Practice* (European Statistical System Committee 2018) see the *Quality Assurance Framework of the European Statistical System* (European Statistical System (ESS) 2019, 45–46) goes a step further in interactivity. The idea of interactivity in the statistical indicator design process originates in the the European Commission’s *more-than-information approach*: „Communication is more than information: it establishes a relationship and initiates a dialogue with European citizens, it listens carefully and it connects to people. It is not a neutral exercise devoid of value, it is an essential part of the political process.” The Commission refers here instead of the ‘target audience’ to ‘citizens’ because communication is not just a technical exercise of message delivery but part of a democratic involvement of citizens (Kotzeva et al. 2017, 2:p7.). Similarly, a good business indicator is not only printed in the annual financial or sustainability reports of a company: it is often cited in management discussions or communicated by line managers to workers to direct their focus. To make indicators conversation-starters or arguments in professional discussions, we have to ensure their usability: we not only need to involve potential users in the design phase, but we have to get regular feedback on the usability and professional improvement of the indicators.

II. Building a European Music Observatory

The European music stakeholders would like to see a solution “as a centralised music data and an intelligence hub at [the] European level” with the creation of the European Music Observatory (Commission et al. 2020). As a Finnish example and CEEMID have shown, the inherent conflicts of interest and the presence of many microenterprises favour the incorporation of decentralised approaches, too (Osimo et al. 2019). The EMO Feasibility Study also stresses the need to learn from the CEEMID project and exploit richer open data sources, which usually require the development of open-source processing capacities.

According to the study published by the European Commission on the impact of open-source software (OSS) and open-source hardware (OSH) on the European economy, conducted by Fraunhofer ISI and Open Forum Europe on 6 September 2021, open-source software contributed between €65 to €95 billion to the European Union’s GDP (European Commission et al. 2021). It promises significant growth opportunities for the region’s digital economy. The 2020 report on the *Economic Value of Open Data* estimated the value of open data available in the European economy at €184 billion and is forecasted to reach between €199.51 and €334.21 billion in 2025 (Huyer and van Knippenberg 2020). To unlock this potential, the study makes similar but less specific recommendations as the OSS/OSH study described above.

The Open Music Europe project and its grants aim to build an Open Music Observatory based on the Reprex background minimum viable product, the Digital Music Observatory. The OMO aims to develop the Digital Music Observatory further and fill up four “data pillars” as defined by the EMO Feasibility Study to reach Technical Readiness Level (TLR)

7: a system prototype demonstration in an operational environment for Horizon Europe scientific research outputs, pan-European use by representative music stakeholders, and proven ability to scale up various pillars to further national environments. We want to accomplish this goal with as many OSSH and open data components as possible.

The **Music Economy Pillar** will help the better valuation and business representation of European music and the creation of more jobs, revenues, and gross value added in the sector with data and evidence for better policies and better business strategies. WP1 of Open Music Europe plans to fill this pillar with an initial set of indicators that serve this purpose. This means that the data and visualisation output from WP1 T1.2 are incepted as the new economy pillar.

The **Diversity and Circulation Pillar** will prevent unnecessary music import into market segments where European creators suffer from weak institutions that put them at a competitive disadvantage. Furthermore, it would help European creators and music businesses to develop business and public cultural export strategies to find new export markets. How we design this pillar of the OMO would also support designing better local content regulations and better monitoring and enforcement of them. This means that the data and visualisation output from WP2 T2.2 are incepted as this new diversity pillar.

The **Music, Society, Citizenship Pillar** will support better music education and better cultural policies by providing data on the non-economic value of music. The way we plan the initial data assets of this pillar can support the development of Environmental, Social and Governance (ESG) management, control, and reporting tools with reliable, science-based benchmarks. Environmentally and socially more sustainable business administration of music and fighting various forms of bribery in music requires high-quality data that is best collected, processed and disseminated in a data observatory.

The **Innovation Pillar** will be helping other third-party music innovators with open data.

The delivery has two alternatives, contingent on the results of T5.3 exploitation plans and the development of the planned official *European Music Observatory*. The observatory will reach TLR 7 and be handed over to the European Music Observatory as a functional reproducible research, open and big data collection part of the future institutions.

Should the planned, official European Music Observatory fail to be completed by the end of 2025 or will not be in the position to receive the OMO as a complete system, all fallback option is to include the OMO in the *Digital Music Observatory* at TRL Level 8 with a business continuation plan, but with limited funding and servicing capacity (a complete and operational data observatory without official recognition, with a limited budget and servicing capacity as an open collaboration project open to any representative national or EU music stakeholder organisation.)

II.1 Data coordination and ingestion

Open Music Europe offers a ‘data-to-policy’ pipeline, which extends the music data pipeline to processing data that is ready to use in evidence-based business and policy administration. This requires the coordinated ingestion of pre-existing data that is readily available and what needs to be processed, or where further data needs to be collected by primary statistical data collection methods.

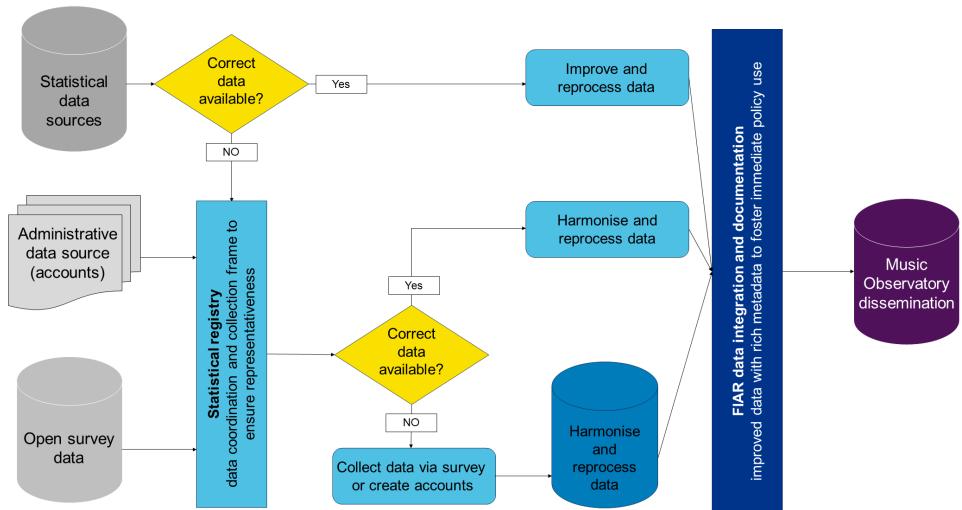


Figure 5: Data coordination in the data-to-policy pipeline

When the data is available in a trustworthy data sources, we will still reprocess it.

II.2 Curated statistical data

In the last two decades, the availability of statistical data increased to the extent that non-professional users often do not find the information they need. Furthermore, statistical authorities increasingly release data that is less processed and requires statistical and domain-specific know-how to transform into a form that music professionals and researchers, or policy-makers can readily use.

Our seemingly trivial first data pipelines are building access to curated and if needed, re-processed statistical data towards high-quality statistical data sources. The [rOpenGov](#) collaboration maintained by the University of Turku, where REPREG is an active developer, provides reproducible tools to access such sources. These tools will be further developed into a statistical ecosystem with a more friendly user interface in WP4.

A good example of these tools will be used and further developed in WP3. The [iotables](#) R package on [rOpenGov](#), developed by the leadership of REPREG, provides access to the Eurostat data warehouse’s symmetric input-output data. Symmetric input-output and

auxiliary tables connect thousands of poorly usable statistical indicators into analytical tables, which can be used for various economic analyses and social or environmental impact assessments. The iotables package helps the user to bring together the necessary data from Eurostat's data warehouse (that includes that from the European Environmental Agency) and perform data processing and algebraic transformations that result in readily-usable indicators and multipliers. This service can be seen as a middleware between data processing and data analysis: most analysts who know how to work with the Leontieff- or Ghosh system to work with this data would spend days just to put together the necessary indicators from the original source.

II.3 Reusable microdata and public sector information

The public sector already holds an extraordinary amount of data that can contribute to improving the internal market and to the development of new applications for consumers and legal entities. The Directive 2003/98/EC established a set of minimum rules governing the re-use and the practical arrangements for facilitating re-use of existing documents held by public sector bodies of the Member States; the rules of such data access were updated in 2019 with the adoption of the *Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (recast)* (European Parliament and the Council 2019a).

According to the preamble of the Directive, information collected, produced, reproduced, and disseminated within the exercise of a public task or a service of general interest is an important primary material for digital content products and services, with a special emphasis on publicly funded scientific research, such as Open Music Europe, or other Horizon Europe framework funded projects. They may form data monopolies and prevent innovation, start-ups, and SMEs from entering into the Single market; for natural persons and civil society organisations, they may form an insurmountable barrier to control the political process, public policy, or engage in advocating for better policies³.

Because the amount of data carriers, such as digital documents containing datasets, text, and data visualisations, exceeds what humans can possibly read, curate, and analyse, the directive also emphasises the need to provide access to public sector information in open and machine-readable formats and via APIs⁴.

³“The preamble of the Directive (EU) 2019/1024 states these aims with justifications (see the legal text for full details):(36) Charges for the re-use of documents constitute an important market entry barrier for start-ups and SMEs. Documents should therefore be made available for re-use free of charge and, where charges are necessary, they should in principle be limited to the marginal costs [...] (44) The re-use of documents should not be subject to conditions. However, in some cases justified by a public interest objective, a licence may be issued imposing conditions [...] (69) For the purpose of ensuring their maximum impact and to facilitate re-use, the high-value datasets should be made available for re-use with minimal legal restrictions and free of charge.”

⁴“The preamble of the Directive (EU) 2019/1024 states these further aims(34) To facilitate re-use, public sector bodies should, where possible and appropriate, make documents, including those published on websites, available through an open and machine-readable format and together with their metadata, at the best level of precision and granularity, in a format that ensures interoperability [...] (69) For the purpose of ensuring their maximum impact and to facilitate re-use, the high-value datasets should be made available for re-use with minimal legal restrictions and free of charge. They should also be published via

The European open data regime not only sets the normative standards for our projects and its data management, but it also provides an opportunity to tap into a wide array of data sources in public institutions. Building a framework to receive and process large amounts of public information is the task of our WP5 (Open Music Observatory), but it requires much work in the other work packages, too, because domain-specific knowledge and curation are needed to identify the necessary data to be ingested, the procedures to process the data, and to check its quality.

By applying the same framework (principles, legal norms, organisational and technical standards) as the national statistical offices themselves as regards public and private administrative data sources, Open Music Europe can facilitate the data supply for the music sector in multiple ways: - We can engage with statistical offices and government and offer them our innovations to be scaled up using the publicly funded and legally more powerful national statistical frameworks; - Using industry or research funds, we can fill data gaps with complementary data that integrates well with novel data products resulting from the increasing reliance of statistical organisations on third-party data.

The framework for this work is developed in WP5 as the music observatory. The domain-specific elements of this framework must be developed by four work packages.

II.4. Data linking and statistical registers

A statistical register typically plays the role of a data coordination tool, integrating data from several sources, both statistical and administrative. This may be done by linking records by means of common identifiers (microdata level), or by using other matching techniques (statistics and indicator level.)

A statistical register is a continuously or regularly updated set of objects for a given population. It contains information on identification and accessibility of population units as well as other attributes which support the surveying process of the population.

Music Industry Business Register

In WP1 we are developing new indicators for filling the data gaps in the European music economy. For this purpose, we need a framework that efficiently divides data relevant to the music economy and which falls outside of the scope of the music economy. In other words, we need a mapping tool that allows the collection of music industry data separately from non-music industry data.

Our emphasis in WP1 is the provision of data for valuing zero-price music and other forms of undervalued European content and to provide information on designing better corporate and public policies on music streaming and broadcasting. While Open Music Europe mainly

APIs.[...](27)[...] Beside open access, commendable efforts are being made to ensure that data management planning becomes a standard scientific practice and to support the dissemination of research data that are findable, accessible, interoperable and re-usable (the FAIR principle)."

focuses on the publishing and recording side of the music business, we need to build a framework that can support the bigger live performance part of the music industry.

The pilot country in this regard is going to be Slovakia, where at the beginning of the project, we secured to come to a Memorandum of Understanding with the national government. We aim to create a data framework in the music industries that is extensible to the broader cultural and creative industries context and successfully links statistical, government and private data for a better design, implementation and monitoring of Slovak public policies and the business policies of Slovak music stakeholders, including our Consortium member SOZA.

The SKMBR is an experimental concept of continuously or regularly updating set of objects for a given population: i.e., music enterprises, including freelance music professionals.

Comprehensive Music Registers

In WP2 we are developing new indicators for filling the data gaps in the European music diversity and circulation. For this purpose, we need a framework that efficiently divides data relevant to the local, national or European music stakeholders about music that they consider to be relevant to them and music that is outside of the scope of their interest. For example, suppose they want to monitor the radio quotas defined by the Slovak national legislation for Slovak content. In that case, they have to rely on a list of sound recordings available for broadcasting that are “Slovak” and “Not-Slovak”. Or, if they want to monitor the French quotes on new music in a broadcast stream, we must have a reference register of recordings with the creation or release date.

In WP2 we rely on the CEEMID background of the Slovak Demo Music Database, which we will develop into a Slovak Comprehensive Music Database (SKMDb) and replicate in Bulgaria. Such a database fulfils many roles apart from creating actionable indicators of music diversity and circulation on public policy and business levels.

The SKMDb will be a continuously or regularly updated set of objects for a given population: music that is considered “Slovak”, or relevant for the Slovak businesses and public policies. Having such a reference list of music works and recordings is an essential prerequisite to understanding, for example, the market share of Slovak music in various foreign markets or the domestic market. Without such a comprehensive registry, local content regulations (which are present in most European markets) cannot be efficiently monitored or enforced; music export strategies cannot be designed, implemented or monitored; and, of course, music labels and distributors are often spending their marketing budgets inefficiently.

Flexible linking of administrative records to sustainability measures

In WP3 we aim to develop music data products to support the triple transition of the music industry to a more digitally apt, environmental and socially sustainable development path. For the first time, after adopting the CSRD Directive, Europe is standardising indicators

that can monitor progress towards these goals (and towards more ethical business conducts, too.)

In this case, we need to build very flexible registers that connect the administrative records of music organisations with external sustainability data, for example, connecting their existing management information system with greenhouse gas emission data or data on gender equality measures.

Because WP3 has no methodological budget for developing such a framework, it will rely on partly the symmetric input-output tables and auxiliary sustainability tables of the national account systems, and partly on the REPREX background, the *Eviota System*. The Eviota system is developing a similar tool to the sustainability auxiliary (satellite) accounts of the national account system for IFRS-based, European corporate accounting systems used by both non-profit, social and for-profit enterprises.

Generalised frameworks for data linking

In WP4 we want to foster innovative data uses in the music sector. Our aim here is to provide a more general framework for data access and data improvement for novel, innovative data-driven technologies and workflows that can support the music industry.

II.5 Data collection for the observatory

Statistical data is collected either from accounts or surveys. Accounts, in statistical terms, are consistently collected data sources. For example, royalty accounts, which follow the general accounting principles applied in all EU countries, with industry-specific further data organisation, are the correct sources of authors' and neighbouring rights (publishing and recording copyright) revenues. Reprex and ALOADED will demonstrate the use of such accounts for statistical productions in Open Music Europe in a way other stakeholders can replicate. In this case, the royalty accounts of ALOADED are a microdata source (non-aggregated observations or measurements of characteristics of individual statistical units without direct identifiers.) The word **microdata** refers to the fact that we want to avoid the distribution of this highly confidential data specific to ALOADED and its clients, and we want to use it for a more general and aggregated data creation.

When no standard form of data registration and accounting exists, statisticians like market researchers rely on constructing surveys. The word survey originally meant a systematic examination and recording of the area and features of (an area of land) to construct a map, plan, or description. Such surveys are still used in natural sciences or cartography. Still, in business and social sciences areas, it is used metaphorically for questionnaires that are filled out about statistical units (music companies, performing music groups) either by the statistical unit itself or by the surveyor. In our experience, the best music industry surveys are administered in face-to-face interviews, when the surveyors pre-fill certain information on a questionnaire (including information on the time and place of the interview, its length, and the cooperation level of the interviewed person) and other administers the answers given orally by the surveyed statistical unit. Due to cost considerations, self-administered surveys,

such as online questionnaire forms, are often used; however, in this case, the survey is filled out by a music professional and not a statistician, and misunderstandings are unavoidable.

The best way to collect statistical information is to rely on, whenever a high-quality account is available, this account itself; and use well-designed surveys with quality assurance to collect the rest of the information. In both cases, data protection rules must be adhered to at all times.

The Music Economy Data Pillar

 This part will be detached as a separate document

The first part of the document is helpful for the creation of D2.1 and D3.1, and D4.1, and it will be the first manuscript of D5.1, which creates the data-to-policy pipeline. D1.1 will summarise it to the necessary length.

To start the T1.2 task, we must create the first version of the data needs assessment based on pre-existing documents and then curate and specify the data sources.

1. What are the data needs of the stakeholders? What kind of indicators would satisfy them? See [WP1 Data needs assesment](#).
2. Can we find reusable data for the creation of these indicators? See [Public Sector Information Reuse](#).
3. If we have to collect the data ourselves, how must we ensure with an appropriate statistical registry that the data will be compatible with pre-existing data? See [WP1 Data coordination](#).
4. We must set up harmonisation protocols, for example, to identify existing natural persons and enterprise surveys that contain the relevant data; find corporate or national accounts that we can use. See [WP1 Linking data and microdata](#).
5. We must give instructions on how to ingest or collect the data and how to process it to the correct indicator dataset.
6. We should create indicator prototypes before we scale up data collection in T1.2. (The [Data collection: Surveys](#) leads towards the T1.2 task.)

The use of indicators is widespread in the economics, business, social aspects, or public policies of music and the broader cultural and creative industries agenda. A statistical indicator summarises a key issue or phenomenon derived from a series of observed facts; it is a generalisation of the information in the data. The knowledge we gain from indicators is used to uncover social, environmental or economic phenomena and establish connections between them. It also provides a basis for influencing and controlling such phenomena on a business level (for example, key performance indicators) or the level of public policy (for example, *ex ante* and *ex post* evaluation indicators.)

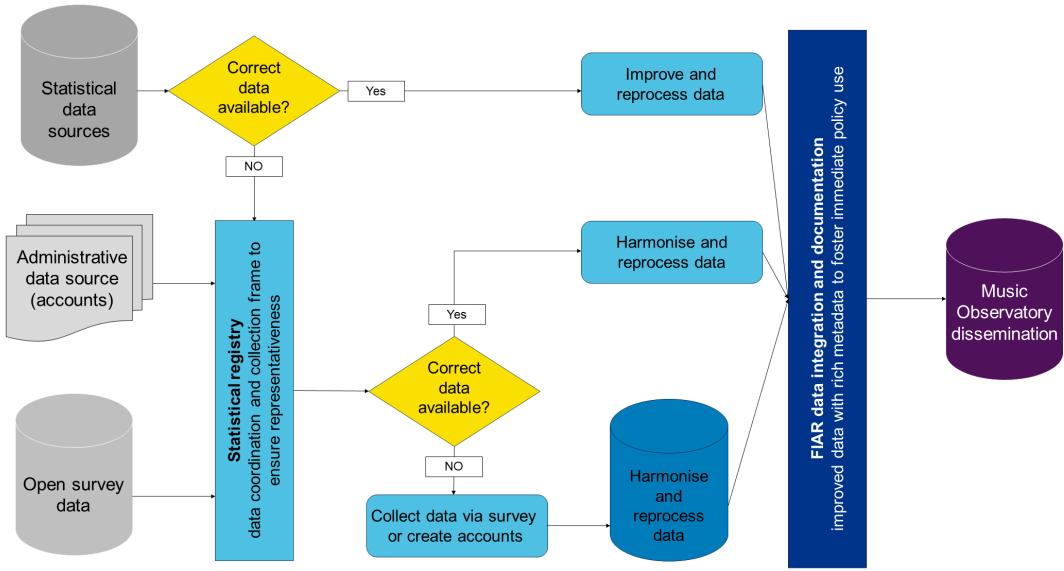


Figure 6: Recap: The data coordination of the data-to-policy pipeline

A statistical indicator is a summary measure related to a key issue or phenomenon and derived from a series of observed facts. (Kotzeva et al. 2017, 2:7)⁵

In the business management, the use of indicators is discussed in the topic of performance management, which goes back to the early 19th century. The use of standardised financial indicators dates to the 1910s (Du Pont analysis), and it became widespread in the 1990s with the emergence of Enterprise Resource Planning (ERP) systems.

We have not found a definition for indicators in accounting law or standards on the EU level. In the UK, the Companies Act of 2006 (as originally enacted) defined key performance indicators (KPIs) in the context of the management discussion of financial reports.

“Key performance indicators” means factors by reference to which the development, performance or position of the business of the company can be measured effectively. — Companies Act of 2006 Chapter 5 — Directors’ report; Part 15 — Accounts and reports; 417 (6)

⁵The definition of the statistical indicator originates from the Regulation 99/2013 of 15 January 2013 on the European statistical programme 2013-17 (Annex I,1: Indicators), which went through several modification and it is no longer in force (European Parliament and the Council 2013; EUR-Lex 2018). In a slightly more verbose format it is part of [Eurostat's Glossary](#).

WP1 Data needs assessment

The Open Music Europe project plan and grant agreement foresees the development of an open science and open data service which complements the existing statistical service of Eurostat. In partnership with the key music industry and policy partners, we will fill as much as possible from the approximately 41 data gaps within the policy context of *Music Moves Europe*, as identified by the *Feasibility Study for a European Music Observatory*. We will **develop key performance indicators** for music businesses and **policy indicators** to “better detect the performance of the European music sector and its contribution to economic and social development, as well as to sustainability.”

In Europe, public policies on music are mainly the competencies of member states, who often develop policies for all creative sectors because of their similarities. Furthermore, because of the territorial nature of copyright law, the publishing and recorded side of the industry is also organised according to national markets. Both public and business policy requires most indicators *at least* on the national level. Therefore, the data gaps must be filled with national indicators.

After the kick-off meeting of the project, Sinus as the coordinator of the Open Music Europe project, and EUBA, SOZA and REPREX signed a Memorandum of Understanding with the *Slovak Ministry of Culture* and the *Institute for Cultural Policy* (Open Music Europe 2023f). This MoU ensures that we apply the Eurostat public policy indicator harmonisation guidelines in at least one member state, i.e., Slovakia.

The starting point of our needs assessment is a critical revision of the *Feasibility study for the establishment of a European Music Observatory* (short: *EMO Feasibility Study*) and the *Stratégia kultúry a kreatívneho priemyslu Slovenskej republiky 2030* (Strategy of the cultural and creative industries of the Slovak Republic 2030, short: *Slovak CCI strategy*.)

At the proposal stage, we mad the following pre-assessment of the data availability for WP1. In the case of **Pillar 1 - Music & Economy**, we are usually able to locate the source of the data, and we have some experience in processing the data and bringing it to light. We have mapped many perceived data gaps to the various data harmonization projects of GESAC and CISAC, and we will seek cooperation with these organizations and their members to find a secure and voluntary way to retrieve the data. The only data gap that we do not intent do address is the “impact of the non-profit sector”.

Value-added

Share of music in the value added of the culture and creative industries

Warning

The *Slovak CCI Strategy* identifies a value added KPI and cites the Slovak CCI satellite accounts as data sources; EUBA should discuss what is the KPI about, what are the initial values, introduce the CCI satellite account, and provide us ideas on how to

Pillar 1 - Music Economy			
Topic		Description	
pillar	problem	availability	feasibility
Pillar 1	Value of music sector	One-off	EY study on the cultural and creative industries (2015)
Pillar 1	Value of music sector	One-off or one recast	CEEMID studies on national music economies
Pillar 1	Employment	One-off	EY study on the cultural and creative industries (2015)
Pillar 1	Employment	One-off or one recast	CEEMID national music industry reports
Pillar 1	Employment	Annual	Eurostat, lacking granularity
Pillar 1	Employment	Data gap	Absence of granularity on the employment of the various sub-sectors, in particular in defining the roles of the various sub-sectors and the importance of the not-for-profit sector in terms of employment.
Pillar 1	Employment	Data gap	HU, SK pilot successful to add granularity.
Pillar 1	Value of music sector	Data gap	No EU-level assessment since 2015
Pillar 1	Strucutre of the market	Data gap	Absence of pan-European data detailing the number of companies, employees, revenues for the sector and the subsectors.
Pillar 1	The impact of the not-for-profit sector on the overall economy of the music sector	Data gap	No data available on the specific impact of the not-for-profit sector, especially in the live music sub-sector
Pillar 1	Recorded music	Subject to partnership with IFPI	IFPI
Pillar 1	Authors and publisher's stream	CISAC partnership	CISAC
Pillar 1	Authors and publisher's stream	GESAC	GESAC
Pillar 1	Recorded music stream - performer rights	Data gap	No aggregated data on neighbouring rights collections Partner with AEPO-ARTIS and SCAP.
Pillar 1	Music publishing	Data gap	No aggregated data on the music European music publishing business
Pillar 1	Synchronisation rights	Data gap	IFPI data available on the recorded music side but not on the publishing side.
Pillar 1	Independent music companies	Data gap	No aggregated data on the independent music sector (value, number of companies, employees, etc.)
Pillar 1	Live music	Data gap	Some data is compiled by Live DMA, ETEP or Yourope, but there is no aggregated data on the pan-European live music sector listing the value of the market, the number and size of venues and shows, number of festivals, share of European artists, among other data points.
Pillar 1	Exports	Data gap	No pan-European data on the export flows between EU countries and outside the EU.
Pillar 1	Exports	Data gap	Embedded cultural tourism export.
Pillar 1	Music retail	Data gap	Granular data on some countries via retail associations (UK, France, Germany) but no pan-European aggregated data.
Pillar 1	Financing of the music sector	Data gap	No aggregated data on how the sector is financed (from investment fund to bank loans and subsidies).
Pillar 1	Live music regulation	Data gap	No aggregated information available on the various legal and tax systems within the EU applied to the live music sector.
Pillar 1	Copyright regulations and evolution of copyright regimes	Data gap	Although many copyright laws applicable in Europe originate from the Commission, there are few instruments available to monitor the state of copyright regulation across the EU

calculate this indicator for the music industry itself.

Employment

Employment breakup: for-profit and non-profit

The *Feasibility study* stresses out that there is an „an absence of granularity on the employment of the various sub-sectors, in particular in defining the roles of the various sub-sectors and the importance of the not-for-profit sector in terms of employment.”

Note

Providing a solution for this gap in Slovakia would be interesting, because this is the type of data that is can be resolved differently in countries that rely more on surveys and differently in countries that rely more on administrative records data.

From administrative records, this could be computed if the Slovak Republic has a national business registry and a national non-profit registry it collects any income payouts from them.

Another solution could be to ask in a personal survey (perhaps harmonised with LFS) about the type of employer the music professional has.

Number of male and female employees

Warning

The stated source is the satellite account of the CCI; which is only a secondary source. Furthermore, the music industry does not have a a satellite account.

We need to review the current (past) values of this KPI and its calculation, and also the concepts used in the indicator: what employment and sex concepts are used? How are different occupations like sound engineer, tour manager, or music performer are mapped into this indicator per industry? What is the policy use/debate that needed to make this KPI strategic?

This could be an interesting point of discussion to refine this indicator and provide it for the music industry, too.

This indicator is particularly interesting, because it can relate to our WP3 task as a primary information source to calculate the indicators in ESRS S1.

Number of self-employed persons

Warning

Number of self-employed persons in the culture and creative industries; Ministry of Culture Statistical Office of the Slovak Republic KPI 3c (strategy); Satellite account CCI

The same questions apply: what employment concept is used for self-employed persons. Because satellite accounts use an full-time equivalent (FTE) concept, we need a good reconciliation with the previous indicators.

The Slovak SBS's brief English summary on Eurostat mentions that SOSR has been creating mixed surveys to include freelancers, this should be briefly explained.

At last, we need questionnaire items, and clear instructions from whom to ask them to get to this figures in our own data collection.

Average income in culture and creative industries (music industry)

Warning

Average income in culture and creative industries - number of industries lagging behind the national economy average; Ministry of Culture Statistical Office of the Slovak Republic KPI 3d (strategy); Securing the dignified working environment in CCI.

It is unclear what income concept is measured here (corporate income? government tax income? personal income?)

In the Slovak Music Industry report we had shown that the majority of the music professionals are working among atypical working conditions. We should clarify what income concept the indicator uses; review its current and past values and how they were calculated. An interesting point to start the clarifications: provide a case study on how the payouts of SOZA (which are unambiguously represent income toward music industry professionals in artistic roles are taken into consideration during the computation of this indicator.) Trace a Jane Doe's payout from SOZA (what are the administrative trails) into the indicator.

Average wages of professional men and women

Warning

Average wages of professional men and women in the cultural and creative industries as a proportion of the average wage of university-educated men and women in the national economy; Ministry of Culture KPI 3e (strategy); Securing the dignified working environment in CCI We need to clarify if this indicator can be computed and makes sense for the music industry. A starting point could be establishing the percentage of music industry workers who earn a wage. What wage concept is used in this indicator? And what music industry concept is used?

This indicator is interesting if the correct “wage” concept is applied, because it is the basis of the mandatory disclosures of ESRS S1 “the male-female pay gap, defined as the difference between average gross hourly earnings of male paid employees and of female paid employees expressed as a percentage of average gross hourly earnings of male paid employees.”

Minimum wage earners



Warning

Percentage of people working in the music industry with income over the minimum salary in the economy; KULT surveys, LFS

Music production

Number of Live performances in abroad



Warning

KULT surveys

WP1 Public Sector Information Reuse



Identify existing data

We need to identify existing microdata in the Slovak statistical office, SOZA and partners and in the Eurostat data warehouse that can be used to create the desired indicators.

Any preliminary census or survey that we will initiate (see [WP1 Data coordination](#)) will differ from the data that the Slovak national statistical authority or Eurostat can provide to us. They work with a national business registry that does not use the membership list of music organisations. Instead, it uses the so-called NACE economic activity codes of the enterprises.

Connecting NACE codes with the music industry is impossible for three reasons:

1. The music industry does not have a NACE code;
2. creative enterprises are commonly operating in several economic activity fields and may have several NACE codes;

3. National business registries do not contain a full view on very small enterprises and often do not include all freelancers, the most common working form in the music industry. These are the main reasons why we must construct the music industry business registry in the first place.

In practice, the music industry business registry must create a mapping to subsets of the NACE classes in each country.

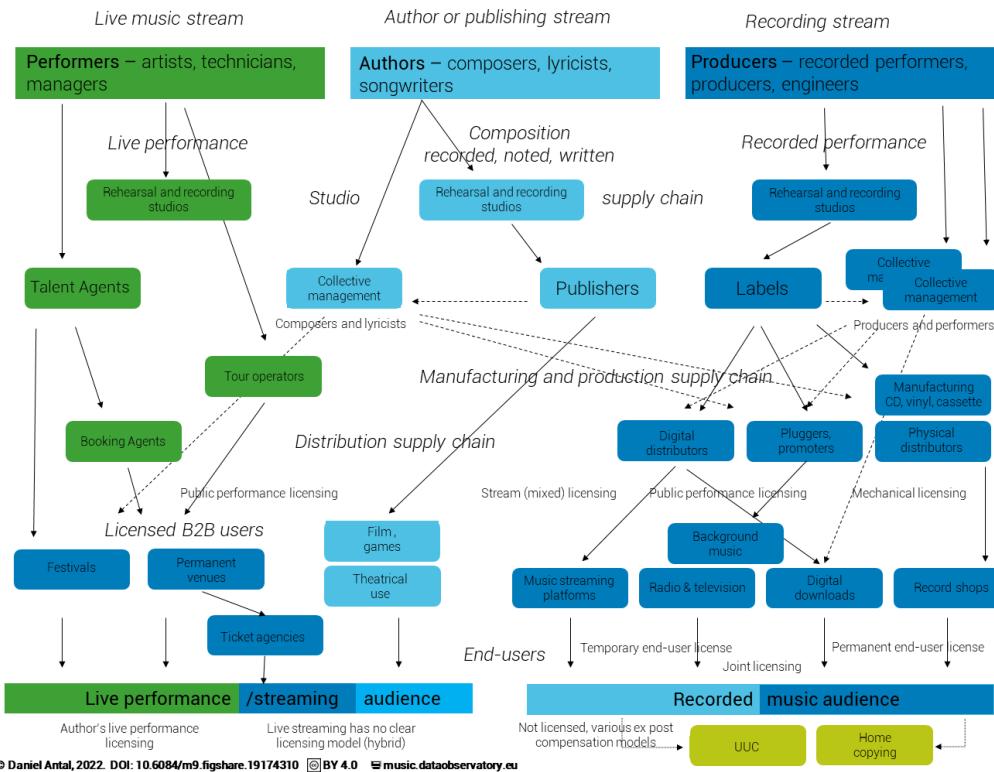


Figure 7: The music industry value chain; adopted from the model used to map the Croatian music industry.

Because of the mapping need, there is significant data coordination is needed before we can reuse data from pre-existing statistical (micro)data sources, or other company sources.

⚠ KULT surveys

EUBA mentions the KULT surveys; these should be introduced, and we should get some sample data from them, even if in processed forms. We must have in copy and in the [bib/slovakia.bib](#) referenced all 1. previous questionnaires, 2. methodological description, 3. public datasets.

We must introduce how these surveys were used in the *Slovak CCI strategy*, introduce published results, and ask for microdata or re-processed data on the music industry as a starting point.

Reuse of survey data and survey harmonisation for own collection

Data gap: employment & informal value added

The EU labour force survey (EU-LFS) is conducted in all EU countries, 4 candidate countries, and 3 European Free Trade Association (EFTA) countries. EU-LFS microdata for scientific purposes currently contain data for all EU countries, as well as data for Iceland, Norway, Switzerland, and the United Kingdom (up to third quarter of 2020). EU-LFS microdata for scientific purposes for the years 1983-2021 became available in December 2022 (Eurostat 2023).

The primary source in the *Slovak CCI strategy* is the Labour Force Sample Survey (LFS), a representative survey conducted by the Statistical Office of the Slovak Republic and its methodology is harmonised with other EU countries. The sample population of the Slovak LFS is based on a random selection of dwellings covering all districts of the Slovak Republic. The subject of the LFS is all persons aged 15 years and over living in households in the selected dwellings. This target sample indeed contains the music industry workforce, however, it does not allow the identification and subsetting of this workforce. Apart from the fact that LFS may under-sample our desired target population (the music industry workforce) it does not contain any variables that would allow the subsetting of music industry workers.

For discussion

EUBA: “In order to effectively identify professionals operating within the music industry, a suitable approach is to utilize the International Standard Classification of Occupations (ISCO) codes. Specifically, the ISCO code 2652 corresponds to the category encompassing musicians, singers, and composers. By employing this code, individuals within these occupations can be accurately identified and distinguished within the music industry context.”

REPREX: “In Reprex’s opinion this data source is only useful for ex ante harmonisation and as comparison points. Several ISCO categories, for example, 2552 Musicians, singers and composers, are relevant in our target population, but they are only targeting a minority of the music professionals; finding the technical, educational and managerial staff of the music industry in line with the Slovak Music Industry Report is not possible in this sample; and even in the artist population, popular music creators may not fall under the 2552 category. The Slovak Music Industry report did not analyse music professionals in artistic roles, but all music professional. We need to clarify if the Slovak policy monitoring is targeting only people in artistic roles?”

- It is also unclear from the Eurostat document [] if the Slovak survey can provide us information about the non-profit nature of the employer or not.
- EUBA needs to review the actual survey questionnaire and identify elements that may be useful for our purposes.

LFS surveys

EUBA should describe the Slovak LFS. We must have in copy and in the `bib/slovakia.bib` referenced all 1. most recent questionnaires, 2. methodological description, 3. public datasets relevant to our work, particularly whatever SOSR provided for the creation of the Slovak CCI strategy.

Because EUBA thinks that this is our major data source, we should request access to microdata or reprocessed data on the music sector.

This data source is a good candidate for harmonisation purposes, but it is unlikely to provide data to fill the data gap itself. EU-LFS survey does not (seem) to contain data about the non-profit or for-profit nature of the employer, furthermore, it does not describe the economic activity of the respondent, rather it uses the ISCO occupation codes.

Data gap: value-added in the enterprise sector, employment

Both surveys are enhanced with data from administrative records (tax filings.)

Large enterprises questionnaire Roc 1-01

1/ the legal units with 20 and more employees registered in the Business register; 2/ the legal units with less than 20 employees registered in the Business register: a) which were statistically important (the decision about including them into survey of big enterprises was done by expert of particular branch statistics, e.g. responsible for branch statistics etc.); b) or of which turnover exceeds 5 million €

Only a few music industry players are likely to be included in this data collection. This is a census-like survey that all large companies are required to fill out.

Small enterprises questionnaire Roc 2-02

1/ the legal units with less than 20 employees registered in the Business register the turnover of which does not exceed 5 million €

Data on small entrepreneurs (physical persons [sic!]) are included in SBS data files starting with the data transmission of preliminary 2010 SBS data files. We use the basic information on structures and relations of particular variables from small sample survey for small entrepreneurs to make estimations of missing data in administrative source for this population.

This is a sample survey, and because of the sampling method it is unlikely that it can provide data on the music industry (not enough and not well identified companies will enter the sample.)

SBS surveys

Currently this is the only information that we have on Slovak enterprise surveys. They hint to the use of mixed surveys (enterprise + freelancers): Eurostat metadata information page: *Structural business statistics (sbs) National metadata - Slovak Republic*

EUBA should describe the Slovak SBS. We must have in copy and in the `bib/slovakia.bib` referenced all 1. most recent questionnaires of Roc-1-01 Roc-2-01, 2. methodological description, particularly on mixed surveys, 3. public datasets relevant to our work.

WP 1 Data coordination

A *statistical register* is a continuously or regularly updated set of objects for a given population. It contains information on identification and accessibility of population units as well as other attributes which support the surveying process of the population. The Statistical register should contain the current and historical statuses of the population and the causes, effects and sources of alterations in the population. Statistical register are stored in a structured database.

Data Infrastructure: The Music Industry Business Register Concept

Statistical business registers (BR) are repositories of legal and statistical units to be used for producing business and macroeconomic statistics. They include information on the active population of:

- Enterprises carrying out economic activities which contribute to the gross domestic product (GDP);
- Legal units of which those enterprises consist of;
- Local units;
- Kind of activity units;
- Enterprise groups, incl. all-resident and multinational enterprise groups.

In the current statistical infrastructure, each EU member state has set up a national statistical business register (NSBR) within their national statistical office on the basis of the European Regulation 2019/2152 (European Parliament and the Council 2019b), which updated earlier regulations in this field going back to 1993. These NSBRs connect to the government's tax authorities, company registration institutions like chambers of commerce or government company houses, and courts. They have an essential role in creating business statistics.

NSBRs are not of identical quality across the EU; the motivation behind Regulation 2019/2152 was correcting some differences among member states. Furthermore, a long-known problem of the NSBRs is that they do not cover well very small enterprises (Eurostat 2021, 43–44.), and certain industries are dominated by very small enterprises. The cultural

and creative industries, and the music industry in particular, fall under these problematic areas.

The earlier statistical guidelines suggested various forms of improvements that required either special projects between national statistical authorities and representative music industry bodies or were mandated by national authorities themselves. Without these special actions, it is not possible to create similar indicators for the music industry that exists, for example, for car manufacturing, paper production or electricity distribution.

In Open Music Europe, we have no legal mandate to carry out such experiments, but based on the *Memorandum of Understanding on utilizing the Open Policy Analysis results of the OpenMusE Research and Innovation Consortium in the context of Slovak cultural and creative industries and sectors' public policies* (Open Music Europe 2023f), we will try to persuade the Slovak national authorities to carry out one; furthermore, we provide guidelines on how the music industry's representative (collective) organisations can take action themselves and produce similar indicators. To do this, we briefly review the role of business registers, and we outline the idea of the Music Industry Business Register (MIBR.)

The Open Music Europe Data Management Plan follows the *European Statistics Code of Practice — revised edition 2017* and the *Quality Assurance Framework of the European Statistical System. 2019 edition (Version 2.0)*, besides the terminology and procedures defined by the current EU statistical program on how it designs and carries out statistical data collection (European Parliament and the Council 2019b; European Statistical System Committee 2018; European Statistical System (ESS) 2019). It should serve as a template for music industry organisations carrying out similar data collection on their own initiative (i.e., without the legal mandate granted by EU regulations to national statistical authorities of the member states), to maintain maximum compatibility with pre-existing statistical products.

Slovak Music Industry Business Register Concept

The role of the business register is to provide a framework for the data collection to help precisely establish the target population of the data collection and carry out the surveying and microdata linking. For example, if a nationally representative organisation like SOZA in the Slovak Republic sets up the *Slovak Music Business Register (SKMBR)*, then this enables us to collect systematic data on the Slovak music businesses in a way that we can create similar statistics to Eurostat and the Statistical Office of Slovakia.

A large, decisive part of the music industry comprises freelancers and microenterprises who cannot be (well) surveyed with enterprise surveys. Because of this high level of fragmentation, we suggest an unusual business register, partly containing enterprises and partly freelancers and music professionals.

Enterprise registry

The enterprise registry of the SKMBR could be based on public membership/representation lists of national membership-based organisations like SOZA and SLOVGRAM with write-in and opt-in procedures to add further enterprises. In this case, writing in is relatively unconstrained because we need to create a list of legal persons who are publicly associated with the music industry: they have publicly listed a relevant NACE code, or they have publicly visible music activities (for example, organising public concerts and they sell licensed tickets to them.) The opt-in procedure would allow the identification of non-trivial microenterprises which may not have a relevant NACE code or have a NACE R90.0x code that does not allow the identification of music activities.

The enterprise registry can support two statistical processes:

- Enterprises that are able to provide answers on enterprise level would be required to fill out a harmonised enterprise survey similar to the survey used by the Slovak structural business surveys (SKMI-SBS);
- Microenterprises would be surveyed based of the SBS survey but with some simplification and additional data protection measures; because in a microenterprise, many employments related questions are likely to refer to a single employee. In practice, the SKMI-LFS survey would ensure that very small enterprises do not answer some of the questions;
- Enterprise administrative accounts data can be collected on microdata level, or in a statistically aggregated level. For example, if we knew which enterprises are “Slovak music enterprises” then SOZA would be able to calculate statistical indicators of royalties paid to such enterprises, or licensed live performances organised by such entities. On a microdata level, and strictly on a voluntary basis, enterprises in the registry could provide data from their royalty or sustainability accounts to the production of statistics (similarly to voluntarily filling out survey questionnaires.)

Mixed surveys

Mixed household-enterprise surveys are usually used to measure the “informal” economy. “Since it was first coined in the early 1970s, the term ‘informal’ has been used with different meanings for different purposes. Originally, it referred to a concept for analysis and policy-making. Today it is sometimes used in a much broader sense, to refer to a concept that defines activities not covered by the existing, conventional sources of statistics.”

Personal registry

Because the freelance part of the SKMBR would relate to freelancers in the industry who are natural persons, the procedure of creating a personal register is more difficult because the general data protection rules apply. The starting point would be again the public membership/representation list of SOZA and SLOVGRAM; these lists are public by the act of copyright law. Any further write-in is only possible via explicit consent from the music professional.

The SKMBR would be the basis for administering a periodic (preferably annual) enterprise and professional survey. The burden on the music industry enterprises would not be excessive because they are almost certainly excluded from most regular statistical data collection because of their size or freelance legal form.

Again, the personal registry would support two statistical processes.

- Freelancers would be asked to fill out a questionnaire harmonised with the Slovak LFS (SKMI-LFS) and the pre-existing CEEMID/DMO Music professional surveys;
- Music professionals, particularly creators could voluntarily connect their other administrative records to voluntary data systems, particularly the Slovak Comprehensive Music Database (which is more the topic of the WP2 Music Diversity data infrastructure.)

In previous years, the CEEMID project set up a very simple and not formalised business register for Hungary and Slovakia to create the first Hungarian national industry report and subsequent Artisjus reports, then built on this experience for surveying for the *Slovak Music Industry Report*. We also attempted to create a Croatian version. These experiences will be quoted for practical guidance. Statistical units

An **observation unit** or **statistical unit** is an identifiable entity about which data can be obtained. If we create statistics on the Slovak music industry, we must observe all units that professionally contribute to the economic value creation and output of the industry in Slovakia. If the person is a natural person, such as a freelance music performer or a freelance sound engineer, then the statistical unit is also a data subject in the language of the General Data Protection Regulation (GDPR).

Regardless if we want to use questionnaires in surveys or we want to sample royalty accounts, we must be able who can answer the questions or provide us with accounting data: we need to define the geographical scope of our data collection and its economic (industry) scope.

Business registers have a “live” component: the registrar must include new industry players at all times and delete deceased entities. A good starting point for this can be the list of legal and natural persons represented by music industry organisations in a given country. SOZA, for example, collects authors’ rights (copyright) revenues on the territory of Slovakia and must identify the intellectual property owners. Therefore it has an up-to-date list of composers and publishers who make their music works available on the territory of the Slovak Republic. SLOVGRAM has a similar list of entities that release recordings in Slovakia or have significant business revenue from neighbouring rights. These membership and representation lists provide a good base for the “live” component of the SKMBR. Because the administration of copyrights follows national jurisdictions, in this case, it is logical to create a national business registry⁶.

The voluntary SKMIR should follow as much as possible the actual national statistical business registry in Slovakia and provide more industry-specific detail when the national

⁶From a technical, statistical point of view, it is important to notice that this registry can collect data on a domestic view (statistical units operating on the territory of Slovakia) and national view (statistical units domiciled for tax or residency purposes in Slovakia.)

registry does not have it. In other words, it should use the same data definitions as the national authorities' business registry.

Suppose the main purpose is data collection on publishing and recording parts of the music industry. In that case, the national copyright jurisdiction may be the best geographical frame for setting up a business registry. If we want to observe the live music industry, it may be more feasible to work on the metropolitan area/provincial/state level.

All in all, a music industry business register must be able to clearly define who can and who cannot be a subject of data collection for the music industry: it must define the statistical units which are considered to be players of the music industry and whose data must be rejected, or simply not asked, because they are not part of the industry. The geographical coverage must also be defined. This defines the "business demography" of, for example, the music industry of Slovakia or Berlin.

In our vision, the SKMBR is a voluntary registry created by the existing administrative records of membership organisations that are public by law and which allow the inclusion of other statistical units, including natural persons as data subjects, who do not wish to become members or give a mandate for representation in the maintaining organisations. However, they are still important constituents of the Slovak music industry. Maintaining the business registry needs to be very carefully designed from a data protection point of view, and the procedures for linking microdata also require strict rules that conform to GDPR in the case of natural persons and other business confidentiality and statistical data protection rules in the case of legal persons. The earlier experience of the CEEMID project is a good starting point.

Surveys can be census-like when we try to record data on all statistical units or based on a sample of the statistical units that well represent the entire population. It is important that we can move from the "live" business register to a more practical format. Suppose we want to collect annual data on the Slovak music industry. In that case, we must define a date or date range when we query the live business registry to define the population which counts into the 2023 music industry data collection. This will necessarily exclude a new music publisher starting and registering a business on the 2nd of January, 2024.

The membership lists of collective management organisations are a very good starting point because the national copyright laws of the European Union (as harmonised by the Copyright Directive) make the membership lists of such organisations public; in other creative industries, we may not find such a well-defined and public registry. The advantage of a public registry is that we consider census-like data collection and sample-based at the same time.

For example, for the members that operate as a legal persons, other legislation makes some of their business data public by law. Because legal personality is abstracted from the concept of natural personality, it is generally assumed that an abstract legal person can be known: its name, seat, and main financial records are public, so other stakeholders wishing to contract or work with this entity can get to know the "person". In our view, it is a necessary first step to connect such data to the music industry business registry, which can be seen as a first census of the industry.

WP1 Linking data and microdata

A business registry is often a source of data itself or can provide metadata, i.e., factual statements about data that can assess the qualities of such data. Data linking is possible on both the microdata level and the statistically aggregated data level. Survey harmonisation techniques that Open Music Europe uses based on earlier CEEMID experience ensure that data collected in a survey is easily linked with either more precise microdata or at least with other statistically aggregated but more precise data sources.

It is desirable to ask the surveyed statistical units to give us legal permission to connect their administrative records with their collective management organisation or other membership organisation, or their label or distributor. For example, if we want to know the most important territories and regions where a creator's music was listened to on DSPs, it may be difficult, time-consuming or even impossible for a respondent to fill this information onto a questionnaire text box. But with access to the person's distribution list or royalty account, we can retrieve this information precisely.

WP1 Data collection: Surveys

Enterprise surveys

In Slovakia, the structural business statistics are collected by SOSR on two surveys:

- Exhaustive survey of large enterprises with questionnaire Roc 1-01
- Survey of small enterprises (sample) with questionnaire Roc 2-01

We should build a questionnaire that adapts partly Roc 2-01 to be filled out by companies in the SKMBR.

Information about the enterprise surveys are taken from [] and the Eurostat metadata information page on the Slovak Structural Business statistics⁷.

Mixed surveys

Informal employment exists in countries at all levels of socio-economic development. More than 60 per cent of the world's employed population earn their livelihood in informal employment. While the practice is generally associated with developing countries, developed countries like the EU member states have a significant informal sector ((ILO) 2018).

Because the Slovak music economy overlaps with the informal economy, and because many individuals add value to the Slovak music sector's activities without a formal employment in the sector, we suggest following the methodological guidelines on measuring informal employment and value creation with regards to the sector; as a data collection process,

⁷Eurostat metadata information page: *Structural business statistics (sbs)* [National metadata - Slovak Republic](#)

we suggest the use of mixed surveys. Mixed surveys are personal or household surveys regarding their collection mode but target information that is normally collected by enterprise surveys.

“The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes for the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale” (International Labour Organization (ILO) 1993). In addition, they share the characteristics of household enterprises. The resolution defines the concept of the informal economy as “all economic activities by workers and economic units that are—in law or in practice—not covered or insufficiently covered by formal arrangements”.

The OECD Manual on *Measuring the Non Observed Economy* endorses the a combination of LFS surveys with in-depth more specific surveys, such as the Digital Music Observatory/CEEMID music professional survey that we want to further develop: “Monitoring the number and characteristics of the persons in the informal sector and the conditions of their employment and work can be achieved by periodically including a few additional questions pertaining to the informal sector definition in an existing labour force or similar household survey [...] Labour force or similar household surveys are often conducted at a higher frequency than specialised, in-depth informal sector surveys. Thus, the data obtained from the former concerning the evolution of labour inputs in the informal sector can be used to extrapolate data from the latter ...” (International Monetary Fund (IMF) 2002, 170).

Similarly, the manual on the same topic of the *International Labour Organization* suggest to take the LFS as a starting point: “There are many advantages to including the measurement of both informal employment and employment in the informal sector in a labour force survey or a household survey that includes the labour force as a topic. These include the relative ease with which the topics can be added to an existing survey, cost-effectiveness, conceptual coherence with other labour force statistics, and the analytical possibilities offered by the collected information.” (International Labour Organization (ILO) 2013)

Personal surveys

LFS

It is interesting that the Slovak strategy is very much employment and personal income focused; it uses the LFS surveys as the main data source; this is a questionable source for the use of the music industry.

The LFS survey is conducted on a target population of Slovak natural persons starting from the age of 15 with a classification of their economic activity by NACE code and their occupation by ISCO codes.

It is unlikely that we can create any meaningful music industry (or, as a matter of fact, film-, television-, and video industry) indicators from this survey. The activity-based filtering does not allow to select the music (or the film) industry.

The Statistical Classification of Economic Activities in the European Community, commonly referred to as NACE, is the industry standard classification system used in the European Union; it is a slightly adopted classification of the more general UN standard. NACE does not have a music industry group or class. In case we have at least four-digit coding of NACE, we can divide the J section, and division 59 into J591 film and television production and post-production activities and J592: Sound recording and music publishing activities. This is however a very small part of the music professionals.

The problematic NACE division is R90 which has only one group, R90.0, which is further divided into four classes: R90.0.1—Performing arts; R90.0.2—Support activities to performing arts; R90.0.3—Artistic creation; R90.0.4—Operation of arts facilities. Each of them can contain music activities, however, they are mixed with theatre, movie, dance activities.

The International Standard Classification of Occupations (ISCO) is an International Labour Organization (ILO) classification structure for organizing information on labour and jobs. It is part of the international family of economic and social classifications of the United Nations. Filtering by ISCO codes may help, however, there is only one “clean” ISCO code that contains music only workers, 2652. These artistic roles (musicians, singers and composers) are of primary interest, but they cover only a minority of the music industry, as the number of technical and managerial support personnel is likely to exceed the size of the artist population. As a starting point, we should clarify how ISCO 2652 qualification applied—how would a rap performer without any music qualification get into the sample and what ISCO could be assigned to this person? The majority of artistic roles in the Slovak music industry (and in most European music industries) are created in the popular music and not the classical (art) music area. In popular music, informal learning practices are the norm, therefore the educational background of the artist is not informative about the occupation.

The LFS microdata files contain a number of variables that can potentially fulfill the data needs of European music stakeholders, or the needs of our policy partners, the Slovak Ministry of Culture and IKP.

Eurobarometer

AES

EU-SILC

Digital Music Observatory/CEEMID Music Professional surveys

Most of the data gaps defined by the *EMO Feasibility Study* cannot be filled with such public data, and it is unlikely that the cost/benefit considerations of surveying would allow a census-like data collection beyond the data that these enterprises already made public.

Therefore, the most important function of the SKMBR in Slovakia is the preparation of the surveys that target only a sample of the relevant music industry preparation.

In the past years, CEEMID used a less rigid framework that considered that some music industry players are not associated with SOZA or Artisjus, for example, in Slovakia and Hungary. Our experience in the preparation of surveying the Hungarian, Slovak, and Croatian music industries first, then moving on to many other countries, was that for the music industry stakeholders, it is always a cost/benefit decision itself if they join a collective rights management organisation, even if the choice of not joining (and registering an intellectual property) results in revenues that will never be paid to the music creator or the business entity.

It is important to include as wide a range of stakeholders in the survey creation process as possible.

The way CEEMID handled these problems is that it created a meta-registry: it produced anonymous surveys that allowed data entry by music professionals who were not associated with the collective rights management organisations but who were invited by trusted members or associations. For example, in Hungary, the national DJ association and Zenészbázis, a civil society organisation that was very critical towards the Hungarian collective management organisations, agreed to distribute our surveys. We then included data points in the survey that could be statistically (but not individually) connected with Artisjus's and SOZA's data in-house.

Lessons from the Central European Music Industry Report

When the CEEMID project created the *Central European Music Industry Report* (Antal 2020), we failed to create a proper collection framework for Moldva because the country had weak institutions. In Armenia, due to the general mistrust of ARMAUTHOR, we created a private registry to collect data. This is understandable: creators base their membership and representation decisions on comparing the likely annual income and the cost of administration, and they often consider subjective criteria such as the justice of royalty distribution. When CEEMID started to work in Slovakia, the Slovak collective management organisations could distribute far less income than the Hungarian organisations, and we found a higher segment of the business demography that was not associated with these organisations. In Hungary and Slovakia, we realised that hip-hop creators are often missing from the membership list because they produce music that has lyrics which is too explicit for radio play or to be used as background music. As public performance revenues are the main income sources in the Central and Eastern European region, it is logical that creators who will not have such revenue do not register. In Open Music Europe, we see that Musicautor faces a more severe problem than SOZA did due to low revenue.

The *Lessons from the Central European Music Industry Report* above show that already the population definition requires an intimate knowledge of the domain. The actual data needs assessment is also based on the domain knowledge of the collective music organisations. For example, we do not want to collect data that is already available or can be created

in a more comprehensive, census-like manner: connecting membership data with public company registry data is almost certainly cheaper and more reliable than surveying. When we rely on questionnaires, we must assess what can be asked in a personal survey and an enterprise survey. The questions must be set to harmonise with statistical business surveys for comparability, on the one hand, and the target population understands them. In other words, we must frame the questions so that a music professional will likely give the information the statisticians want. This is challenging because, in the music industry, most business is led by creative people who only rarely have any formal or informal training in business administration and use business information in a very informal way.

CEEMID has used questionnaire items that were standardised with the methodology created by the ESSNet-Culture working group of Eurostat and participating EU national statistical authorities (Haan and Adolfsen 2008; Bína, Vladimir et al. 2012; Haan and Broek 2012), mainly based on pre-existing best practices developed in the Netherlands. The ex ante harmonisations of questionnaire items (the same question is asked in the same format and with the same national language translations) are one of the prerequisites of joining data from surveys taken at different times, in different countries, or by different organisations. This practice has been developed by CEEMID since 2014 and further improved by the SurveyHarmonies project of SINUS and REPREX with the help of MusicAutor, SOZA, and Artisjus in 2023. It was also the basis of the development of [retroharmonize] R language software package hosted by the rOpenGov community, organised by the University of Turku Data Science group and actively developed by REPREX. Open Music Europe will continue to develop these methodologies and tools for creating a music economy, diversity surveys and collecting data on the societal and sustainability aspects of music.

For example, CEEMID pioneered the semi-open anonymous music professional survey format. To ensure that the data collected from these surveys remains representative, we included questions about royalties collected from the participating collective management organisations like SOZA in the Slovak Republic or Artisjus in Hungary. We collected survey data from a quasi-open population until we found a 95 or 99% correlation between the self-reported income of unknown music professionals from SOZA and Artisjus and the actual annual distribution of the organisations (which was provided to the researchers in an anonymous vector of numbers to establish the true distribution of the surveyed quantity.) This is a simple form of data fusion or statistical data linking (See, for example, the Slovak Music Industry Report—Správa o slovenskom hudobnom priemysle (Antal 2019).).

Mixed surveys

Mixed household-enterprise surveys are usually used to measure the “informal” economy. Because the Slovak music economy overlaps with the informal economy, and because many individuals add value to the Slovak music sector’s activities without a formal employment in the sector, this approach may be a good solution.

Independent informal sector surveys using the mixed household and enterprise survey approach

(International Monetary Fund (IMF) 2002)

Reproducible exploitation of the data

This is the T1.3.

Towards exploitation pathways

This is a connection to the D5.2 *Dissemination, Communication and Exploitation Plan* and the D6.3 *Data Management Plan*.

References

List of figures

Figure 1: *Data-to-policy schema*: will be made reusable only in final format. Figure 2: *Data-to-policy schema for D1.1*: will be made reusable only in final format, or may not need to be reused (this is zooming in Figure 1.) Figure 3: *The statistical infrastructure of indicators*, DOI: [10.6084/m9.figshare.23600571](https://doi.org/10.6084/m9.figshare.23600571)

Figure 4: *The policy cycle*, DOI: [10.6084/m9.figshare.23617563](https://doi.org/10.6084/m9.figshare.23617563)

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Figure 7: *The music industry value chain; adopted from the model used to map the Croatian music industry*, DOI: [10.6084/m9.figshare.19174310.v1](https://doi.org/10.6084/m9.figshare.19174310.v1)

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