HORIZON EUROPE (HORIZON)

PROJECT	
Project number:	101094872
Project name:	A 360 DEGREES PERSPECTIVE ON THE VALUE OF MUSIC
Project acronym:	Music360
Call:	HORIZON-CL2-2022-HERITAGE-01
Topic:	HORIZON-CL2-2022-HERITAGE-01-05
Type of action:	HORIZON-RIA
Service:	REA/C/01
Project starting date:	1/3/2023
Project duration:	36 months
Coordinator contact:	Jaap Gordijn , STICHTING VU

REPORTING PERIOD	
Reporting period number:	1
Reporting period duration:	from 1/3/2023 to 29/2/2024
Periodic report date and version:	4/5/2024, 1

1. PROJECT SUMMARY

Context and overall objectives

The online music economy has so far shown a winner-takes-all dynamics in which a few large labels and superstar artists collect most royalties. However, there is a very long tail of creative entities who barely can make a living with the music they make. This is not only unfair, it also a direct threat to cultural heritage, e.g. concerning music that represents various (sub)cultures in a country.

In Music360, we focus on the professional use of background music. Users of music such as shops, bars, restaurants, sports clubs, cafés, radio & television stations and other venues play background music to improve the well-being of customers, create a brand identity, and eventually increase revenue. Background music may be life music, music broadcast by radio, streamed music, or music distributed through other means such as tape or disc. Together with live performances it accounts for 28% of royalty collection for lyricists and composers, more than streaming, which accounts for 21%.

While playing background music, venues are obliged to pay a fee for making music public to artists (called neighboring rights on recordings) and to text & song writers, and composers (called author rights on works). These fees are collected, often mandated by national intellectual property laws, by Collective Management Organizations (CMOs). CMOs operate on behalf of all right owners (artists, text & song writers, and composers) in a country and distribute the collected money to these right owners. CMOs may differ in the intellectual property right (IPR) they collect for. Since the decrease of the sales of CD's and MP3's, neighboring- and author rights are an important source of revenue for right owners.

Fees should be fair, both in terms of payments to the right holders and in terms of the amount of money to be paid. This leads to the following three objectives of Music360:
A fair distribution of neighboring and author rights based on the actual use of music. There should be a criterion how to divide the collected money over the eligible right owners. Currently, this is distributed using reference data such as the top twenty radio stations in a country. For each recording (and related to that, the works), the number of seconds a recording was played during a time period is counted. That number determines the amount of money right owners receive; the money is distributed proportional. Because only the top twenty radio stations are considered, this leads to unfair distribution of money, as local artists who are played in local restaurants, bars and shops, but are not on the radio, do not receive money.
There should be a 'fair compensation' for the use of music. In the past, many lawsuits took place about what a reasonable fee actually is. We advocate that this fee should be based on the actual value of the music played in a venue. The current practice is that a shop pays a fee based on the square meters it has (which has a very inaccurate relation to the number of people listening to the music). A better metric would be the contribution of music to the positive decision of the customer to buy something, or even the increase in revenue.
The information concerning the value of music should be made available widely and transparently respecting confidentiality requirements. Users of that information are the right holders, the venues but also policy makers. Policy makers often lack insight in the effect of new legislation for both music creators and users. Policy makers at the national and EU level need more data too, as the importance of cultural heritage at the local level is not measured. Also, during the Covid-19 pandemic almost all venues closed and royalties from background music significantly dropped. Without data about which music is created, distributed or used where, policy makers were in the dark about what the impact of this on musical heritage was.

Work performed and main achievements

The Music360 uses a two stage delivery process, meaning that most deliverables have two versions over time. The following is achieved:

We have proposed a framework to quantify and qualify the value of music. The framework considers multiple dimensions concerning the notion of value, such as cultural-, social-, therapeutical-, behavioural-, emotional- and economical value. For these very different interpretations of value, different ways (quantitative and qualitative) ways of measuring have been proposed.

An ontology of the value of music as well as an implementation of it in terms of a data mode is developed concerning the value of music. The ontology and the data model is grounded in the data collections that the CMOs and BMAT have. The data model is implemented using the relational database model. This will be the foundation for storing and retrieving data about the value of music at various levels of granularity.

A distributed architecture for music data collection, representation, and distribution has been designed that allows each data provider to stay in control of its data. Currently, a first version of this architecture is implemented.
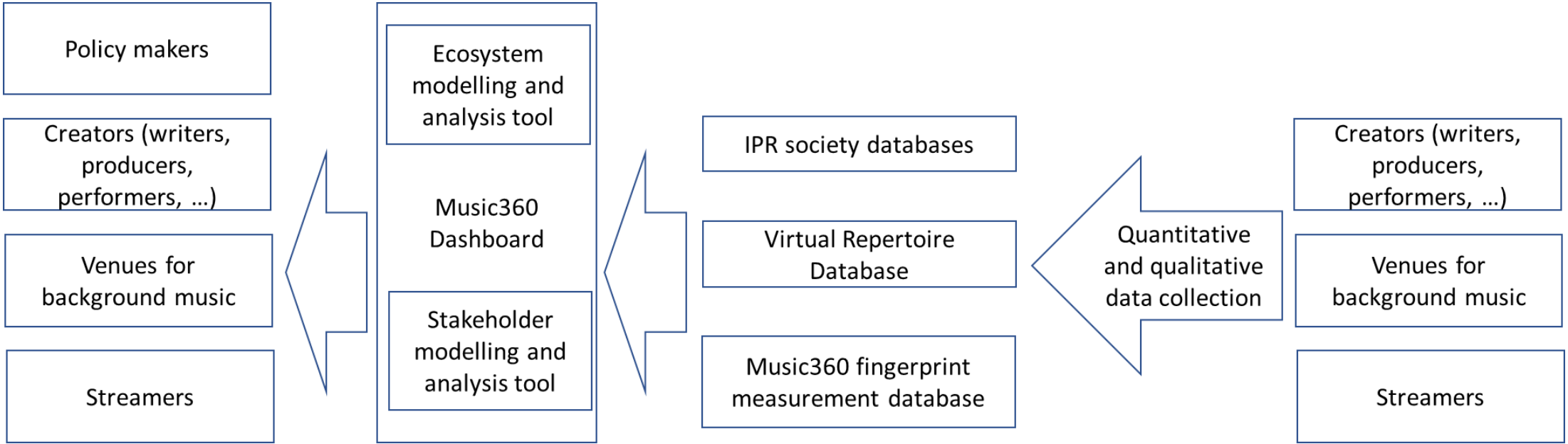
Taking the perspective of various kinds of stakeholders (right holders, venues, and policy makers), their needs for understanding the value of music have been investigated. Also, conceptual models of the ecosystems of the countries the partners reside in (Finland, Netherlands, Ireland, Spain, Portugal, Belgium) have been developed, with the focus in background music that is streamed to venues.

Results beyond the state of the art

- We relate data on neighboring rights with data on author rights. To achieve this, we defined a unified ontology and data model for music and relating this to the models used by the individual CMOs.
- The Platform will collect detailed music data usage in venues by installing audio recognition devices equipped with music finger printing technology. This goes far beyond the current data collection regarding the use of music. We will do this by means of music fingerprinting followed by Single View matching and metadata pairing with our project partner BMAT.
- We have started development of a business model and governance structure for the Music360 platform which ensures survival of the platform after the project finishes and prevents monopolization by a powerful tech actor. Important is that this business model development started very early in the project, so that it goes hand-in-hand with Platform development.

Policy relevant evidence of your project

Not applicable yet

Policy makers			
Creators (writers, producers, performers, …)	Ecosystem modelling and analysis tool	IPR society databases	Creators (writers, producers, performers, …)
Venues for background music	Music360 Dashboard	Virtual Repertoire Database	Venues for background music
Streamers	Stakeholder modelling and analysis tool	Music360 fingerprint measurement database	Streamers

Quantitative and qualitative data collection

3. DELIVERABLES

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date	New Due Date (if delay)	Delivery Date (actual)	Status	Comments
D1.1	A framework to quantify and qualify the value of music – version 1	WP1	UPV	R	PU	31 December 2023	31 January 2024	29 January 2024	SUBMITTED	This deliverable was delayed by one month in order to better integrate the results of VU and UPV. It was agree with the PO.
D2.1	An ontology of the value of music – version 1	WP2	UPV	R	PU	31 October 2023		30 October 2023	SUBMITTED	N/A
D2.2	A distributed architecture and implementation for music data collection, representation, and distribution – version 1	WP2	UPV	OTHER	PU	31 December 2023	31 January 2024	29 January 2024	SUBMITTED	This deliverable was delayed because it took more time than expected to hire skilled staff. It was agree with the PO.
D2.3	Secure and trusted sharing of music data– version 1	WP2	STICHTING VU	OTHER	PU	29 February 2024	30 April 2024	21 April 2024	SUBMITTED	This deliverable was delayed because it took more time than expected to hire skilled staff. It was agree with the PO.
D6.1	Stakeholder needs for understanding the value of music – version 1	WP6	IMRO	R	PU	30 April 2023		2 May 2023	SUBMITTED	This deliverable was slightly delayed to execute internal reviews.
D6.3	National music ecosystem models	WP6	TVE	R	PU	30 September 2023		21 April 2024	SUBMITTED	This deliverable was on-time but was uploaded wrongly. In cooperation with the PO, we have corrected the problem.
D7.1	Dissemination,communication, and exploitation plan version 1	WP7	STICHTING VU	R	PU	31 August 2023		15 September 2023	SUBMITTED	This deliverable was slightly delayed due to internal reviews
D8.1	Management handbook	WP8	STICHTING VU	R	SEN	31 May 2023		15 September 2023	SUBMITTED	N/A

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date	New Due Date (if delay)	Delivery Date (actual)	Status	Comments
D8.2	Data management plan version 1	WP8	STICHTING VU	DMP	SEN	31 August 2023		15 September 2023	SUBMITTED	This deliverable was slightly delayed due to internal reviews
D9.1	H - Requirement No. 1	WP9	STICHTING VU	ETHICS	SEN	30 April 2023		2 May 2023	SUBMITTED	It took more time thanm expected to find the required three experts.
D9.2	POPD - Requirement No. 3	WP9	STICHTING VU	ETHICS	SEN	30 April 2023		2 May 2023	SUBMITTED	It took more time thanm expected to find the required three experts.
D9.3	AI - Requirement No. 4	WP9	STICHTING VU	ETHICS	SEN	30 April 2023		2 May 2023	SUBMITTED	This deliverable was slightly delayed due to internal reviews.
D9.4	OEI - Requirement No. 5	WP9	STICHTING VU	ETHICS	SEN	31 March 2023	3 May 2023	2 May 2023	SUBMITTED	It took more time thanm expected to find the required three experts.
D9.5	OEI - Requirement No. 6	WP9	STICHTING VU	ETHICS	SEN	31 August 2023		15 September 2023	SUBMITTED	The external experts needed more time than expected.
D9.6	OEI - Requirement No. 7	WP9	STICHTING VU	ETHICS	SEN	31 March 2024	30 April 2024	30 April 2024	SUBMITTED	N/A

TECHNICAL REPORT (PART B)

COVER PAGE

PROJECT	
Project number:	[101094872]
Project name:	[A 360 DEGREES PERSPECTIVE ON THE VALUE OF MUSIC]
Project acronym:	[Music360]

REPORTING PERIOD ⚠️ Please note that you must report on the entire reporting period.	
RP number:	[1]
Duration:	from [01/03/2023] to [29/02/2024] M1 – M12

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#@PRO-GRE-PG@# [This document is tagged. Do not delete the tags; they are needed for the processing.]

1. EXPLANATION OF THE WORK CARRIED OUT AND OVERVIEW OF THE PROGRESS

Music 360 is a three-year project, which uses a versioned delivery approach, meaning that most deliverables and objectives are touched during the first 1.5 years, and then are considered again during the next 1.5 years.

We have developed first versions of the following:
- WP1: An approach to value music using multiple perspectives.
- WP2: An ontology and corresponding data model to represent data needed to provide detailed insight in the value of music computationally.
- WP2: A highly distributed and decentralized ICT architecture of data providers, data users and intermediate parties.
- WP3: A design for a multi-perspective, multi-user dashboard to report on the value of music
- WP4: A design and implementation of a graphical modeling web-tool to design and explain various (national) music ecosystems.
- WP5: A preliminary design of a sustainable ecosystem for the Music360 platform, including its governance.
- WP6: Identification of a number of Living Labs in various EU countries. The first round of these Living Labs are expected to finish in Summer 2024, and is now in full swing.

Furthermore, we have undertaken a portfolio of dissemination and communication efforts (see WP7). Finally, we have produced the required project management materials such as the signed consortium agreement, project plan, data management plan (WP8), and the required Ethics deliverables (WP9).

1.1 Objectives

#@WRK-PLA-WP@#

Summary

Objective 1: Conceptualization and measurement of monetary and non-monetary value of music

We have developed a multi-perspective contribution on the value of music, including an economical-, societal-, cultural- and therapeutic point of view. This is based on a thorough and broad literature review. Various methods, both quantitatively and qualitatively, have been identified to understand the value of music. This understanding is used in the Living Labs (WP6), which are executing now.

Objective 2: Standardized, trusted and unified collection and representation of music metadata

An ontology and a corresponding data model has been developed to represent aspects of music created, published and played, as well as value aspects. The data model is implemented as a Postgres relational data scheme. A highly distributed architecture was developed that allows each data provider to keep in control of its own data, and to aggregate data over various sources and make it available to dashboards to present it to end-users. Also, a decentralized security architecture is proposed, amongst others based on Oauth2/OpenID connect, which is an innovation for the industry by itself. The designed architecture for data collection and representation, as well as the security framework is currently under implementation.

Objective 3: Stakeholder-level reporting and analysis of the value of music

By means of a collection of user stories, a dashboard is designed and currently under implementation. The implementation itself is due after reporting period 1.

Objective 4: Ecosystem level reporting and analysis of music value creation, distribution and consumption

A web-enabled software tool was developed to graphically represent the alternatives for the Music360 ecosystem. The tool was already used to understand the national music ecosystems better (WP6) and to design the ecosystem for the Music360 platform itself. The tool has analysis capabilities, e.g. to calculate the cash flows for all parties involved. The implementation of the tool is due after reporting period 1, and is still being worked on.

Objective 5: A sustainable business model for standardized and unified representation of music data and reporting platform

A series of workshops were held to discuss the business model for Music360 ecosystem, such that the Music360 is viable once the project stops. Also, the governance of the ecosystem as well as possible embeddings in the industry have been considered. This forms the basis to discuss embedding of the Music360 ecosystem with SCAPR (performer rights umbrella organization) and CISAC (author rights umbrella organization). The deliverable reporting on all this is due in period 2.

Objective 6: A field validated Music360 solution

In a workshop, stakeholder needs regarding understanding of the value of music have been elicited. Also, business models for the Music360 platform in all the participating countries (Finland, Ireland, Netherlands, Spain and Portugal) have been developed. In the same countries, a set of Living Labs have been identified and started. The deliverable reporting on all this is due in reporting period 2.

1.2 Explanation of the work carried out per WP

1.2.1   Work Package 1- Conceptualization and measurement of monetary and non-monetary value of music:

WP1 - Conceptualization and measurement of monetary and non-monetary value of music

Description of work progress

Work package 1 started in May 2023 (M3) and consists of one deliverable: a framework to quantify and qualify the value of music (version 1) and three tasks: modeling, measuring, and analyzing the value of music. The deliverable 1.1 defines the multi-stakeholder conceptual framework to measure the monetary on non-monetary value of music quantitatively and qualitatively based on literature as the proposal indicates. The tasks to measure and analyze the value of music are still ongoing, but the task to model the value of music was finished during period 1.

At the second workshop in Valencia, on Monday 4th September 2023, UPV presented their analysis on the value of music based on 18 research papers. Results from codification led to the definition of the following types of value: cultural, social, emotional, and economic value. Discussion on the definition of the concepts of the value of music overlap – especially social and cultural values: are these values distinct or is e.g. cultural value part of social value? Also, the connection between culture and geography was questioned. The conclusion was that different values of music are not unequivocal.

During the first day of WP2, VU presented the impact of background music on the consumer, employees, and their interaction and produced a literature review paper. The framework for understanding

environment-user relationships in service organizations was based on Bitner's "Servicescapes: The impact of physical surroundings on customers and employees." (M. J. (1992), Journal of marketing, 56(2), 57-71).

On the second day Tuesday 5th September of the WP2, as part of the Living Lab presentations for WP6, Lauri from GTM presented the economic and non-economic values of music in retail. Values such as brand, dwell time, increase in sales, repurchase and revisit, enhanced shopping experience, mood enhancement such as improved employee productivity, reducing loitering and/or unwanted behavior, and improved customer perception were seen as values to study at the Finnish Living Labs. Also, other presentations of Living Labs reflected on the values of music and how to model, measure, and analyze it.

As a part of modeling the value of music UPV (Giovanni Giachetti, Daniel Catalá, Blanca de Miquel, Conrado Carrascosa, Maria de Miquel, and Oscar Pastor) wrote a research paper. Based on this and literature review paper from VU, UPV and VU produced and assembled delivery D1.1 a framework to quantify and qualify the value of music (version 1).

This section describes the work progress related to the conceptual model to measure music value and involves three main tasks: identifying the variables to include in the model that represent the monetary and non-monetary value, proposing how to measure these variables, and defining the analyses that could be conducted with information collected about the values. The result of these three tasks is the deliverable D1 with two versions that present advances in the conceptual model. During the previous months of this report, advances in the model have been presented in the first version of the deliverable.

Participants in these tasks: UPV, Stichting VU, TVE, UPV, BMAT, GTM, IMRO.

Tasks
T1.1a Modelling the value of music.

The first task, **T1.1a Modelling the value of music**, aims to design a conceptual model focused on the value of music with a multi-perspective view. The model has been designed considering that it should:

- refer to both monetary and non-monetary values,
- be flexible enough to be applied by different stakeholders of the ecosystem in different venues, like retailers, cities and hospitals,
- help stakeholders understand the different types of values that they might consider in case they need to measure the value of music,
- indicate the outputs that values might impact, like customers' behaviour (intention to purchase and loyalty) and stakeholders' results,
- facilitate the design of living labs of the project,
- act as a guide in the design of the ontology.

The design of the first draft of the conceptual model involved various steps: a literature review, the understanding of the living labs to be developed by every partner, and the revision of the model based on information about these living labs and indications provided by the partners.

The literature review has helped to detect all the different types of values considered by previous studies in addition to other variables. The theory selected as the base for developing the model is the Theory of Consumption Values as it considers that value is a set of multidimensional constructs, and this enables flexibility when applying the model to different possible cases. Following this view, our model includes five groups of values, covering monetary and non-monetary values: cultural, social, behavioural & emotional, therapeutic, and economic values. This theory has been applied to measure values in different

industries including music products and events, thus, previous analyses offer valuable information to design a model valid to the events considered as cases to measure music value.

The challenge in defining the multidimensional constructs is that literature offers several items for each of the five groups of values considered. For example, in the cultural value, around twenty-six different values were detected. In the social value, we identified around eleven different values. These differences are due to the variety of stakeholders analysed in the literature. Because of the multi-stakeholder profile of the project, the first draft of the conceptual model includes all the potential values to be measured. However, to help stakeholders use the model, the deliverable includes some guidelines:

- types of values that meet better each stakeholder and activity in the value chain,
- connections between values that might be analysed,
- research questions that might be analysed and answered, incorporating different outputs,
- a music value matrix that connects the values and environment that can be analysed besides other variables; the matrix includes examples to facilitate the selection of variables for analysis. This matrix enables the connection between the conceptual model and the living labs.

These guidelines were added after obtaining feedback from the rest of the partners during the presential meeting in Valencia in September 2023, and based on the information about the living labs they were designing during the subsequent monthly meetings.

Table 1. Work progress in task T1.1a/b Modelling the value of music (month 5 – 20)

Research question	Approach	Reached
Q1.1 What are the aspects/ components of the value of music	Based on a literature review and previous studies, variables that represent the monetary and non-monetary value of music have been identified, besides the relations among values.	Yes. Contributes to result R2 (deliverable D1; Conceptual model of the value of music).
Q1.3 How do the various aspects of the value of music relate to each other, and what are the consequences of measurement	The living labs are field studies in which the values of music are measured and tested, and also the relationships among the values. In the living labs, it is evaluated how music played and its variations in the impacts on the venue's performance and the well-being of customers, patients and employees.	In progress (30%). Contributes to result R2 (deliverable D1; Conceptual model of the value of music).
WS2. Workshop 4th September 2023, during the meeting in Valencia	Presentation and discussion of types of values to include in the model and connections between variables and outputs. Participants: participants in the task (Image 1).	Yes
WS5.Workshop to be programmed	Presentation of the final conceptual model.	Future workshop

Image 1. WS2, 4th September 2023, UPV-Valencia.

T1.2a Measuring value of music

The second task, **T1.2 Measuring the value of music**, refers to the various methods to obtain data for the value definition. Work progress in the task goes together with the living labs. Thus, questionnaires and interviews are being tested through the first living labs conducted, as well as fingerprinting is being done using the technology developed by the partner BMAT. Both the literature review and commercial partners' inputs have supported the surveys and interviews.

Through the literature review, the types of values also offered the items to measure the five types of values previously defined in the conceptual model (cultural, social, emotional, therapeutic and economic). These items are also supported by a content analysis of the interviews because they offer additional types of values in each of the five groups. For example, cultural values include other values like aesthetic, cognitive, functional, epistemic, experiential, and instrumental.

During the next period, when all the living labs end, the measurement of values will be studied further. The use of different methods to collect data is showing new opportunities to measure values without using interviews and surveys in the future. This is important to define a sustainable method to measure the values of music, which was discussed during the meeting at the UPV in April 2024.

Table 2. Work progress in task T1.2a Measuring the value of music

Research question	Approach	Reached
Q1.2 What methods and data are needed to measure the various aspects of the value of music	Questionnaires and interviews have been developed and adapted to every venue analysed through the living labs. For the monetary value, music fingerprinting is used to analyse which background music is played in different venues and relate this to revenue data.	In progress (70%). Contributes to result R3 (deliverable D1; Value measurement methods).

WS1. Workshop 8ᵗʰ March 2023 during the Consortium Meeting in Amsterdam	Modelling/Measuring/Analysing the value of music.	Yes.
WS4. Workshop to be programmed	Presentation of questionnaires and interviews after the living labs are finished.	Future workshop

T1.3a Analysing value of music

The third task, **T1.3a Analysing value of music**, refers to the various analyses that can be done once the value of music is known. Analyses that are being conducted with the first living labs are both qualitative and quantitative. The information collected through interviews is analysed with qualitative methods but complemented with the quantitative analysis of the list of songs played in the venues with BMAT's support. Information collected through surveys is analysed with quantitative methods that vary according to the data and research questions to answer. The conceptual method in task *T1.1a/b* offers the outputs and research questions that can be used in the analyses to obtain the impact of music values on customers' behaviour and venues' results. This research is in the first phase as few living labs have collected all the data needed. During the next months, more advances in this task will be reached and results will be evaluated.

Table 3. Work progress in task T1.3a/b Analysing value of music

Research question	Approach	Reached
Q1.4 How to reason about the value of music, given the collected data?	Research questions defined in the conceptual model are answered through data collected in the living labs; it includes data about monetary value and non-monetary value.	In progress (20%) Contributes to R4 (deliverable D1; Value analysis methods).
WS2. Workshop 4ᵗʰ September 2023, during the meeting in Valencia	Presentation and discussion of types of values to include in the model, and connections between variables and outputs. Participants: participants in the task (Image 1).	Yes
WS4. Workshop to be programmed	Presentation of questionnaires and interviews after the living labs are finished.	Future workshop

1.2.2 Work Package 2 - Standardized, trusted and unified collection of music metadata

WP2 - Standardized, trusted and unified collection of music metadata

Description of work progress
WP2 focuses on building a system to collect and manage music data in a standardised and secure way.

This work package considered three tasks during the first year, which generated three different deliverables. Task T2.1 to design an ontology for the value of music (D2.1); Task T2.2 to design and implement an appropriate architecture for data collection and representation (D2.2); and Task T2.3 to design and implement security mechanisms for controlled data access (D2.3). The project partners worked together to define what information should be included (Music360 Ontology) and how it should be stored (Music360 Platform). They also designed security measures to protect the data (Music360 Security Mechanisms). This work is still ongoing and the system will be further refined based on real use cases (Living Labs) to obtain new versions of the different WP2 deliverables.

Tasks

T2.1a Designing an ontology for the value of music

The first task of this work package (T2.1) was to specify a first version of the Music360 Ontology to represent the use and measure of music value (D2.1). The Music360 Ontology consolidates the points of view of the different partners of the projects as well as the use of the music works according to the different Living Labs to be developed. Three different workshops were held to reach a consensus on the definition of the Music360 ontology: a first workshop (Amsterdam, NL) to analyze the different stakeholders involved in the music ecosystem and rights management; a second workshop (Amsterdam, NL) to propose a first ontology model; and a third workshop (Valencia, ES) to validate and refine the first version of the music ontology with the different partners. In addition, several meetings were held during the first year of the project to address specific aspects of the conceptual constructs and business rules involved in the ontology definition. The implementation of the Music360 Ontology was carried out using open source development tools and standards based on the Eclipse Modelling Tools (EMT) [ref2.1] and the OMG MOF standard [ref2.2] to obtain a machine-processable version of the conceptual models defined. The first version of Music360 was presented at the CAISE conference [ref2.3]. It is important to note that this first version will be refined taking into account the results obtained from the Living Labs execution (D2.4).

T2.2a Designing and implementing a platform for data collection and representation

The second task (T2.2) involved the design and initial implementation of the platform to support Music360 data management. This platform implementation is aligned with the Music360 ontology specification. For the implementation, it was necessary to design a specific architecture to support the data distributed among the different actors of the Music360 ecosystem. Thus, this second task resulted in the definition of the Music360 distributed architecture and the initial implementation of the data model to support the management of the data (D2.2) coming from the music usage as well as the actions proposed in the different living labs. In particular, to measure the economic and non-economic impact of music consumption in different types of venues. The specification and implementation of the Music360 architecture and the implementation of the corresponding platform for data representation and collection were carried out following the agile methodology presented in [ref2.4] in order to assess the quality of the results obtained. In addition, several online meetings and two workshops were organized around the specification and implementation of the Music360 architecture. A first workshop (Valencia, ES) with the different stakeholders to present the initial requirements that the Music360 architecture must meet; a second workshop (Barcelona, ES) with technical providers and partners to refine the initial version of the Music360 architecture.

T2.3a Designing and implementing security mechanisms for controlled data access

The third task to be developed during the first year of the project (T2.3) corresponds to the design and implementation of the security mechanisms that are necessary to keep the security and confidence of the data that will be processes in the Music360 Platform (D2.3). The security mechanisms defined must be aligned with the proposed Music360 Architecture and must meet the confidence and privacy requirements from the different stakeholder involved. Thus, the proposed security layer must support the management of distributed information sources, at the same time that provide the flexibility necessary to facilitate the inclusion of users in different roles, including CMOS, rightholders, music venues and living labs managers, etc. A distributed and decentralized security architecture, largely based on the industry standard OAuth 2.0 / OpenID Connect was designed and is currently implemented.

References

[ref2.1] E. Foundation. "Eclipse Modeling Tools."
https://www.eclipse.org/downloads/packages/release/2024-03/r/eclipse-modeling-tools (accessed April 2024).

[ref2.2] OMG, "Meta Object Facility (MOF) Specification," *Version 2.5.1*.
https://www.omg.org/spec/MOF (accessed April 2024)

[ref2.3] Giachetti, G., Catalá, D., de Miguel, B., Carrascosa, C., de Miguel, M., & Pastor, O. (2023). Music360: Modeling the Value of Music. In CAiSE Research Projects Exhibition (pp. 105-110).

[ref2.4] Giachetti, G., de la Vara, J.L. & Marín, B. Model-driven gap analysis for the fulfillment of quality standards in software development processes. Software Qual J 32, 255–282 (2024). https://doi.org/10.1007/s11219-023-09649-x

1.2.3 Work Package 3 - Stakeholder-level reporting and analysis of the value of music

WP3 - Stakeholder-level reporting and analysis of the value of music

Description of work progress

Work Package 3 is formed of two tasks that both started at M11. This means that in this first reporting period, this work package has only been running for 2 months.

The main objective of the work package is to facilitate a dashboard to the users. This tool will be the interface from which each user profile can access and visualise the data stored in the database. In the months during which the tasks were active, we have initiated the activities related to the design and implementation of such a dashboard.

The first iteration of the dashboard must be very complete since it needs to allow for the visualisation of music usage data (T3.1) but also of value data and aggregated data from various providers (T3.2), and it should work both as a visualisation and a reporting tool. It should also cater to different needs, linked to the specificities of each national Living Lab and of each stakeholder.

The work package leads to two deliverables, the first one of which (D3.1 Reusable dashboard to present and analyze the value of music - version 1. Web frontend for stakeholder-oriented modeling and value analysis, led by BMAT) is planned for M15 and as such the results will be presented in detail in that report. Two milestones are also related to this work package, the first one (milestone 3) being a working prototype of the dashboard. It is planned for M15 according to table 3.1a of the Grant Agreement and as such is not reported in this document. The second deliverable of this work package is a second iteration of the development and implementation tasks and is expected at month 31, together with milestone 8 "Stakeholder oriented dashboard v2".

Tasks
T3.1a Designing and implementing stakeholder data presentation
First of all, we have defined fifteen stakeholder profiles. Those are different individuals (or persona), grouped in five different categories. For instance, a "songwriter" or a "record label" are two different personas of the "Creative" category, "retail shop" is a persona of the "Music user" category and "policy maker" is a persona of the "Policy stakeholder" category. For each stakeholder type, several user stories were defined, to understand the use that each of them can make of the dashboard. These user stories follow the following format:

> *As a "persona", I want to… so that…*

For instance, «As a "retail shop" I want to list the songs played in my venue per date with timestamp so that I can relate the music played to sales data to get insight that helps me grow my revenue».

The complete list of user stories will be reported in D3.1. These user stories allow us to build a user scenario for each case, where we define the different steps that must be taken by each stakeholder. These user stories are then sorted and arranged according to similarity, and are used to define the different views or "pages" of the dashboard. From this perspective, the design of the user interface has been initiated, with a definition of items related to each user story, columns, filters, KPI, visualisation and graph options, and adapting the ontology defined in work package 2. A list of questions has also been defined, and then submitted to the different stakeholder types, to validate the hypothesis used for the design of the interface. The definition of wireframes for each page of the dashboard has also been initiated in order to visualise the skeleton of our stakeholder dashboard.

The next steps for the achievement of a functioning stakeholder dashboard are:
1. The finalisation of the wireframes for each page of the dashboard.
2. The validation of these wireframes, both for data visualisation and for value and reporting.
3. The validation of the design and UI/UX of the dashboard.
4. The definition of the relevance of each page for each stakeholder profile. Since each user profile has different interests and needs, they will be granted access to different pages of the dashboard.
5. The access control for the different data types for each stakeholder.
6. The design and implementation of the front end modules of the web application.

T3.2a Music360 platform value analysis and reporting tools
This task is starting and builds upon the results of T3.1a. This task focuses on the value presentation and analysis and aggregating data from various providers (audio fingerprinting companies, CMOs, venues, Living Labs..). The task is ongoing and as first steps we have analysed how to connect the front end modules we are developing in T3.1a with the available data from the different resource owners in the distributed architecture of the Music360 platform. Another crucial step is to design and implement the data aggregation services to serve the data from the Music360 database of the different resource owners in the way that the web application needs it. To do so, we have started defining the endpoint requirements of the application API.

1.2.4 Work Package 4 - Ecosystem-level reporting and analysis of music value creation, distribution and consumption

WP4 - Ecosystem-level reporting and analysis of music value creation, distribution and consumption

Description of work progress
Work package 4 concentrates on the development of a web-enabled software tool (called EcoSphere) to support the design, analysis and evaluation of digital business ecosystems and platforms from an economic value perspective. In Music360, it is used in various ways. First, the EcoSphere tool is used to understand the national business ecosystems with respect to background music better (see WP6). Also the tool is used to design a digital business ecosystem for the Music360 platform itself (see WP5). Third, EcoSphere will be used to show live data on economic value on a per-actor basis. The latter is outside the scope of the reporting period. We started with a piece of legacy software that could design and execute business models for ecosystems in the graphical e3value modeling language. E3value is a conceptual modeling language developed at the VU to model the revenue models of business ecosystems. There is now a first version of the EcoSphere tool, which was already used in WP5/6. However, the functionality is focussed on the graphical representation of e3value. Analysis capabilities such as net value flow calculation is currently implemented and the corresponding deliverable is out-of-scope for this reporting period.

Tasks
T4.1 Designing and implementing graphical ecosystem modeler tool
First, we updated the metamodel of the e3value modeling language to include all the features we need in the Music360 project. We then rewrote the editing software to run in any web browser, using a client (browser) -server (backend) architecture. We tested the tool by applying it to the music ecosystem, including artists, record companies, music publishers, distributors, and venues (businesses where background music is played). We tested and elaborated this model in a physical workshop with all project members. See also WP6. This finished task T4.1.

T4.2 Extending ecosystem modeler tool for full support of the e3value language

This required the addition of a transaction editor, which identifies all commercial transactions in an ecosystem and resolves ambiguities in the model. The transaction editor can run in the browser, on the backend, in case of complex models.

The next part of this task is to add quantification capabilities to the editor and create an execution engine that runs on the server. This will allow users to quantify money flows and market sizes, which we need to test if the ecosystem is financially sustainable for all participants. The execution engine will use these numbers to simulate the transactions in the model, and use the numbers provided by the user to compute the revenue of each economic entity in the model, and generate a spreadsheet with revenues, expenses and investments for each entity. By providing different sets of numbers, the user can simulate different market scenarios. We will describe the results in D4.1, due in M15.

1.2.5 Work Package 5 - Sustainable business model of Music360 solution

WP5 - Sustainable business model of Music360 solution

Description of work progress

This work package designs a business- and governance model for the Music360 platform itself. It is currently under execution, a series of workshops with the CMOs and BMAT were already held. The deliverable presenting the results is due in reporting period 2.

Tasks

T5.1a Designing and validating Music360 platform business model v1

The ecosystem for the Music360 platform consists of right users, right owners, CMO's, and data providers such as BMAT. In order to be sustainable in the long term, actors in the Music360 ecosystem should experience value themselves by the platform, and therefore should be willing to contribute to the platform in terms of money, and in terms of making data concerning the value of music available. Initially, we will focus on the structure and valuation of such an ecosystem. Later on, we will concentrate on how to upscale such an ecosystem at least to the EU level. We also pay attention to new business models that become possible as a result of the Music360 platform. The deliverables related to "Designing and validating Music360 platform business model." focus on a sustainable business model and should provide answers to questions such as:

- What are the different types of business and governance models used in the industry?
- How do these models relate to Music360?
- How do these business models incentivize the stakeholders in the music ecosystem to use the Platform?
- Are the governance models decentralized and do they give stakeholders the confidence that they own their data?
- What would be the most appropriate business & governance model for Music360 Dashboard?
- Who are their participants?
- Does the Dashboard satisfy requirements from the EU ecosystem?
- How to scale up the (usage of the) platform at least to the EU level?

Progress

- 3 remote workshops held; focusing on:
    - All different stakeholders and the USP's of Music360 per stakeholder group, in order to ensure the platform and business model will incentivize the different users to use the platform
    - Potential different funding models of the Music360 platform
    - Existing industry and potential relevant governance models for the Music360 platform
- Based on remote sessions several documents have been created, including;
    - A preliminary e3value business model for the Music360 platform
    - A matrix identifying data streams, incentives and services per stakeholder
    - A table of different governance models within the music rights industry

Next Steps

- April 16th - In-Person workshop at the UPV in Valencia

- May - Create Deliverable 5.1 Sustainable business model of Music360 dashboard – version 1

- Design of a Music360 platform business model and governance model (Month 16)

1.2.6 Work Package 6 - A field validated Music360 solution

WP6 - A field validated Music360 solution

Description of work progress

The goal of MUSIC360 is to improve the transfer of value in the music ecosystem in two ways:
• Design and test a digital infrastructure to support fast and accurate payment of public performance rights and author rights to creative entities.
• provide data-driven insights into the value of music for users.

In order to gather primary information, our first living labs have been focused on obtaining a deeper understanding on the different venues/values defined in WP1. At this point, economic, and non-economic values (emotional, social and cultural) depend on different variables that we want to analyse and show on the Music360 dashboard. This information helps us to create the "user stories", depending on the stakeholders' necessities.

Tasks

T6.1a Eliciting stakeholder needs for the understanding of music
We started by identifying the stakeholders involved in creating and experiencing value by using music in venues. In the plenary project workshop in March 2023, we identified the significant stakeholders in the music ecosystem and the value hierarchy embedded in the ecosystem of providing music to human users were identified. The most relevant ecosystem stakeholders were identified, documented and categorised, and are listed below:
• Business users.
• Embedders.
• Creative entities.
• Production and Distribution entities.
• Data providers.
• Governance entities.
Also, we identified each of the identified stakeholders' business goals and motivations.

We also defined and proposed different approaches to measuring the non-monetary value of music, presented a model for the non-monetary impact of music on users, and presented the MUSIC360 approach to measuring the stakeholder value of music. This was further explored in WP1.

T6.2 Modeling national ecosystems
Our next step was to develop the conceptual models of the different national music ecosystems. The conceptual model of the different national ecosystems allows us to create a shared understanding of the European music sector and provide a scope of the living labs in the different countries. Assuming our goal to create the conceptual models, we started by characterizing the background music domain, focusing on the specific subdomain of the collective management of background music. After that, we created the first version of the value hierarchy of the European music ecosystem. Finally, we created the general CMO revenue model by following the e3value diagram that shows the different value flows. From the general CMO revenue model, we created national music ecosystem models for the following countries: The Netherlands, Finland, Portugal, and Ireland.

T6.3 Expressing national ecosystems in ecosystem modeler
For each country (Finland, The Netherlands, Ireland, Portugal and Spain), the national ecosystems concerning the provisioning and use of background systems were modelled in the e3value tool for understanding digital ecosystems. The focus is on how value is created, distributed and consumed in the national ecosystems. All this is reflected in D6.3.

T6.4 Defining national field validators
We started designing the experiments in our living labs, determining the indicators and measurement procedures to calculate music's non-monetary and monetary impact. We describe the work progress in

detail for each living lab. Part of the work outlined below is done as task <u>T6.7 Validating the Music360 solution in the national fields</u>, which is ongoing and for a significant part outside this reporting period. For reasons of clarity and transparency, we however already report on the work done so far.

The Netherlands

As researchers from the Vrije Universiteit in Amsterdam, our main focus is conducting the National Living Lab for the Netherlands. For this living lab in the music360 project, we have decided on the research question, "What is the behavioural value of music?" and more specifically, the value of background music for consumer and employee behaviour. Initially, we participated in WP1 by writing a literature review exploring this question and reporting it back to the rest of the consortium. Based on the insights from the literature review, we narrowed this question down to the effect of background music on the behaviour of consumers, employees and their interactions in a retail setting. For this we set up a large countrywide field experiment in cooperation with a retail chain in the Netherlands. In cooperation with the authors rights organisations and the retailer, we developed a research plan focusing on the effects of the tempo of music, as well as whether or not employees had a choice in the selection and playing of music in the store. Currently the 6-week experiment is taking place in which 100+ stores are involved, as part of either the control condition or one of the experimental conditions. Data from the experiment will be available by the end of April, and subsequently will be analyzed before the final report in June. For the experiment we will use data from questionnaires on the employee level as well as weekly store-level data on consumer satisfaction and sales indicators. For the questionnaire we used a number of pre-existing scales to measure various aspects of human behaviour and how this could be connected to the applied background music. This questionnaire has been sent to store employees with the incentive of potentially winning a cinema voucher. After the data collection period results will be analysed and discussed with the project partners and will form the basis of one or more scientific publication(s).

<u>Finland</u>

The goal for the living lab in Finland was to research economic and non-economic values of music in retail. The theoretical base for the living lab is described in work package 1 and the economic and non-economic values are defined with the local commercial partners from their business point of view.

Overview

GTM started mapping potential retailing partners in March 2023. In May 2023 GTM published a press release to inform local entities of the upcoming project and to arouse interest in local retailers. As a result, Mall Voice, an in-mall audio advertising solutions provider, contacted GTM and showed interest in participating in the research. In Finland, Mall Voice is a major player in the shopping center business: Mall Voice operates in 81 shopping centers out of a total of 114 centers. Mall Voice was able to open the doors for GTM to different shopping centers and GTM started negotiating with the help of Mall Voice to 4 to 6 shopping centers. The negotiations deepened in the fall of 2023 and discussions were held with four shopping centers: Jumbo-Flamingo from Vantaa, Kaari from Helsinki, Ratina from Tampere, and Mylly from Raisio.

Shopping centers are a partner that invests in audio and sees it as a part of the servicescape with the help of partners such as Mall Voice. Even so, with so many other elements, music is often last in priorities and the project was seen as an opportunity to get insight and think about what the brand should sound like. The versatile environment of the shopping center could provide a chance to test out the non-economic values of music such as reducing loitering and unwanted behavior or cover noise.

Mall Voice educated us that in a shopping center environment it's not music versus silence, it's music versus noise and it seemed like a big issue and something to explore. BMAT even offered to change their boxes to recognise noise which is not what they usually do. In the end, noise or even loitering were not seen as key issues, and measuring such issues proved to be hard if not impossible. Also, VU reminded us to keep the setup as simple as possible and shopping centers were mainly interested in creating a most comfortable and brand-fitting experience.

During spring 2023, GTM had discussions with other retail partners, such as Indoor Group (the leading company offering home furniture and decoration products in Finland and Estonia), Pirkanmaan Osuuskauppa (a cooperative in Tampere Region in 114 business locations and online with the strength of approximately 3000 people), and Suomalainen Kirjakauppa (Finland's biggest bookstore chain).

Indoor Group represents two major furniture brands Asko and Sotka. Asko is the best-known and most trusted brand of Finnish home furnishing and Sotka is more affordable and easy-going. This partner was particularly interesting because Vani from VU pointed out in her literature review and presentation at workshop 2 that the "white space" to research background music in retail lies in the interaction between consumers and employees. VU's idea was to work with the type of service organization that emphasizes interactions between employees and customers, and where employees are seen as advisors. Also, it would have been an interesting setup to study the effect of high-end and low-end music to challenge the two different brands of Asko and Sotka.

In the fall of 2023, Indoor Group said that they had a lot of changes coming up at the beginning of the year 2024, and running Living Labs in the first quarter would be difficult and they couldn't commit to the given schedule of January–March 2024. We discussed with VU and proposed to Indoor Group that it was possible to do the field study in February–April 2024 instead but in the end, Indoor Group withdrew from the project.

Since Inrood Group started to show less interest toward the end of the year 2023, GTM approached the other candidates and continued discussions with the bookstores and Pirkanmaan cooperative. In November 2023 it was seen that for synergy and budget reasons, it would be best if the bookstores were located at the shopping centers participating in the research. Luckily the bookstores were on board with the plan and could commit to the project and timetable with a comparatively quick schedule. Also, the Pirkanmaan cooperative was interested in carrying out the study in one of their grocery stores in Tampere near the train station called Pendoliino.

Both bookstores and grocery stores use royalty-free music so they were interested to see if real, copyrighted music is more beneficial and effective. The idea of using tempo as a variable was explored but since the big issue for the partners was to see if copyrighted music would bring them more value, it was best to keep the setup as clear as possible. Also, we wouldn't have any control over the royalty-free music playlist provided by a third party.

On top of the retailers, we had discussions with audio and music providers and local market research companies. Since most of the partners, the shopping centers were already working with Audio First and/or Moodmedia and both are part of the Toneco Group it was natural and cost-effective to use them as music providers for all three different partners. Toneco customized and provided playlists based on partners' preferences and brands. Also, Mall Voice helped with audio and installing BMAT-boxes to shopping centers and bookstores at the shopping centers as a favor even though bookstores aren't partners for Mall Voice. We couldn't adapt BMAT technology to the Pendoliino grocery store as there were no valid personnel for installments.

In October 2023 we were mapping for local market research partners and asked for offers from several bigger and smaller organizations. We got rejected from some such as CGI but had three good candidates: Aistila, VibeVision, and Feedbackly. Aistila was pointed out by our Key Account Manager Joonas Piiroinen and our partner Mall Voice. Even though Aistila has done sensory evaluation and market research before even at the shopping center Mylly, they didn't seem to be agile enough for such a versatile experience with many partners and it was out of the subcontracting budget.

GTM has worked with VibeVision and had no complaints from their previous work. However, they didn't seem to have all the necessary equipment and we would have had to use yet another partner for renting. The only partner who could handle the data collecting from the field and managing the project as a whole was Feedbackly. Also, in their pricing, Feedbackly took into account the budget and the general nature of the Music360 project. Feedbackly was also keen to put efforts into PR and is hoping to see beneficial outcomes for all. We are certain that we made the right decision by picking Feedbackly as a partner

because even with a tight schedule they were able to deliver and have a professional approach to all situations so far.

At the turn of the year, GTM had three different retailing partners: four shopping centers, four bookstores at the shopping centers, and one grocery store all located in the Southern parts of Finland. On top of that, we had audio and music experts Mall Voice, Toneco, and BMAT as well as research experts VU and Feedbackly as partners for the Finnish Living Lab.

Risks and actions

Initially and ideally, we were hoping to use video analytics to recognize how customers move around the store and interact with employees. Based on our previous background music studies we knew it was hard to ask questions afterward and people find it hard to recognize or describe their feelings and reactions. Usually, people only comment on music if it's too loud or otherwise annoying. Therefore, it would have been great if you could use video analytics and face recognition to study people's subconscious behavior and emotions. This idea was presented in Valencia workshop 2 by Lauri from GTM but the idea was dropped as a questionable method. Also, the company that previously had offered such a service was no longer offering it.

As a precaution, GTM started negotiations with many different retailers, which was good as Indoor Group withdrew from discussions at a late stage and we were able to replace them easily even in a tight schedule. In turn, simultaneous negotiations and many potential partners could have meant we would have to turn some partners down or run into a conflict of interest or misunderstandings. We managed to find synergy between partners' surveys which was important when trying to find similarities and relations within the research. Good communication and transparency were important as well as good business hygiene practices.

All in all, handling and processing business-sensitive information and personal information was taken very seriously throughout the whole project. Only people relevant to the research or partner management were involved and extra attention was paid to manual data processing. All partners are committed to following good business principles and privacy policies.

Since our commercial partners were interested in seeing if music has a direct effect on sales, we had to build our living labs so that we could try to measure economic values. Businesses in shopping centers are obliged to report their sales monthly so our research setup would have to be adapted to monthly basics. At stores, it would be possible to get sales hourly, but it was seen best to change the variables biweekly to even out contingencies. Because the research period had to be long, we had to take a qualitative approach and use cold stand-alone modules.

Getting enough responses to the surveys was crucial for the living lab and the validity of the sample. Our concern was that cold stand-alone modules wouldn't attract enough attention so we explored different options with our partners. We made posters and floor stickers for the modules and with the help of our Mall Voice an audio advertisement for the shopping centers. Also, we organized a draw to win a 50 euro gift card to the shopping centers (3 gift cards per month per shopping center). The draw prices were a donation from our partner Mall Voice. By placing the draw at the end of the survey, we could try to prevent drop-outs mid-survey and give the opportunity to not participate in the draw.

At bookstores and grocery store, we asked employees to encourage customers to answer the study on the stand-alone module located near the tills. On top of that, at the grocery store, customers received candy from the till as a reward. In the end, we got more responses than expected and we had to upgrade our contract with the local research partner Feedbackly from 10.000 answers to 20.000 answers. This proves that our risk mitigation measures worked and as a result, faced a positive problem. However, this was something we couldn't foresee beforehand and therefore take into account e.g. in budgeting.

Another risk related to data collecting from the field was sabotage, vandalism, or theft of the stand-alone devices or BMAT fingerprinting boxes located at the shopping centers. Shopping centers are meeting places for people from all walks of life so we tried to prepare for different situations and tried to minimize

all kinds of temptations by locating BMAT devices out of reach and placing the stand-alone modules in areas where employees could keep an eye on them. Shopping centers couldn't promise and provide 24/7 surveillance. The only issue with this was customers unplugging the modules to e.g. charge their phones but we could easily see when modules were not connected to the dashboard and ask the shopping center to plug them in again.

We did come across some technical problems with the modules such as not connecting to the dashboard or internet and one of the devices was broken and had to be replaced. Scheduling reasons we couldn't have all the modules at once, and in some locations, the implementation was delayed. At the Pendoliino grocery store, the implementation was delayed due to a misunderstanding. Because of the long three-month research period, these delays were not a big issue and didn't affect the results. Some minor technical setups and even delays were expected and we were prepared for but with the help of Feedbackly customer support and retailers, we could quickly overcome these problems.

Next steps

The data collecting operation on the field will end at the end of April 2024. All partners will send us pre-arranged metrics for analyzing the results and we will share them with the Music360 project group. With the help of our local research partner Feedbackly we will present the result to our commercial partners. We will be doing local PR with our partners most likely in May or June and onwards.

<u>Portugal</u>

Characterizing the distribution of royalties collected from the venues

In the Portuguese Living Lab, we are addressing the challenge of creating a fair distribution of neighbouring and author rights based on the actual use of music. To address the challenge, we have defined four main goals:

1. To understand the music played in venues.
2. Measure the intensity of the usage of the played music and compare it to the intensity of the use in radio and television broadcasting services.
3. The purpose of this study is to compare the distribution of revenues based on radio and TV broadcasting with distribution based on measurements in the living lab.
4. To construct a heat map that will allow rights holders to understand the magnitude of the usage of their music on radio, TV and in venues.

We start by analyzing the sources of music typically used in Venues. The music sources are one or a combination of the following:

1. Radio broadcasted music.
2. Television broadcasted music.
3. Playlists from specialized background music providers [B2B music providers].
4. Playlists from streaming platforms [B2C music providers] – illegal use of music.
5. Playlists curated by the venue's internal staff.
6. Playlists curated by a specialized professional [DJ].
7. Live Performances.

Usually, collective management societies (CMOs) use music usage data collected from radio and television broadcast music and data collected from specialized background music providers to distribute the collected revenues. These information sources are readily available and centralized. The music used in this data source is identified using music monitoring companies and tools.

For the other four relevant data sources, CMOs operate in an environment characterized by incompleteness and asymmetry of information. The environment is characterized this way because tens (hundreds) of thousands of venues use music. At the same time, CMOs can only study a limited number

of Venus to understand the music used (incompleteness). In the venue-CMO relationship, the information about music usage is only organically available to one of the parts - the venues (asymmetry of information).

To deal with the incompleteness and asymmetry of information, CMOs try to create representative lists of music used in venues using the available information (music broadcasted on radios, television and from specialized background music providers B2B). The distribution of royalties is built on the hypothesis that the incompleteness and asymmetry of information can be resolved, assuming that the music used on the known sources of information represents the complete set of music used in public spaces.

In the Portuguese Leaving Lab, we are challenging the hypothesis that the incompleteness and asymmetry of information can be resolved, assuming that the music used on the known sources of information represents the complete set of music used in public spaces.

Identify Venues to Monitor Music

During the reporting period, our first challenge was to create a framework to identify the venues where we wanted to install monitoring devices that would allow us to collect data on music usage in order to challenge our research hypothesis. We developed a framework to choose the venues by typifying all the venues authorized to use music in a two-dimensional conceptual space. The two-dimensional conceptual space is defined by a horizontal dimension where we project the absolute value of royalties being paid and a vertical dimension where we project the venues with a relevant symbolic importance for the right holders. Our next step was to validate the framework; we promoted three meetings with the right holders (musicians) and the Portuguese producer's collective management organization. The framework was validated.

The next step was to organize meetings with the right holders (musicians) to define the venues of relevant symbolic importance. With this information, we typified the venues to be targeted and selected them. The targeted venues are the ones characterized by:

1. Paying a high value for the use of music and are considered symbolic by the right holders.
2. Paying a relatively low value for the use of music but are considered symbolic by the right holders.

We then started a discussion with the venues, targeted as group 1 above, to convince them to participate in the project and start the contractual negotiations. We were able to select ten venues distributed throughout the Portuguese territory, and we are still in the process of signing the agreement that will allow us to install music usage monitoring devices.

We have also started collecting data from five venues (where we have previously installed monitoring devices) and 27 national radios and televisions to use as the reference data source for the distribution analysis and comparison.

Analytical framework

We have also started defining and developing the exploratory analytical framework during the reported period. We have decided to start comparing the data coming from the venues against the data from other sources (radio and television) by producing a heat map of correlations and calculating the p-values under a null hypothesis to conclude that the new source of information is not represented by the current music usage playlist and that it should be added to increase the level of representativeness of the data. We have also decided to compute the clusters of music usage from all the data sources. For the calculation of the clusters of music usage, we have decided to use the following:

1. The elbow method, Silhouette analysis, Gap Statistic, or Bayesian Information Criterion is used to determine the k in the k-means clustering.
2. Create, fit and get the clusters using the k-means clustering.

3. Test whether we need to perform a Principal Component Analysis (PCA) or t-distributed Stochastic Neighbor Emulation (t-SNE) to reduce the data's dimensionality.
4. Map the user data into the cluster space and determine if we need to re-calculate the clusters (the new source of information is relevant) or if the current clusters represent it.

The first exploratory analytical algorithms were developed and tested on a testing sub-set of data coming from radio and television music usage.

Risks

The most significant risks in the Portuguese Living Lab are associated with signing contractual agreements with the venues to install the music monitoring devices.

Next steps

1. The Portuguese Living Lab's next step is to sign the missing agreement with venues.
2. Install the music monitoring devices in the venues.
3. Implement the analytical framework.
4. Test the research question and research hypothesis.

Ireland

The Irish Living Lab will primarily examine the impact of music on employees, specifically to establish whether the presence of-, and type of music has a positive or negative effect on workers in various roles.

Overview

Significant challenges were faced regarding the recruitment of a suitable partner for the Living Labs and this has caused delays in the commencement date of the research. In order to gather sufficient data which was broad enough to provide strong and reliable results, it was necessary to work with a partner that had multiple operations with employees of various ages, both full and part time, both management and non-management positions and dealing with customers at different times of the day. To this end it was agreed that the most suitable premises were hospitality - hotels, restaurants and pubs. Music is an essential element of the atmosphere in bars and venues, influencing not only the mood of the customers but also the work environment of the staff.

Agreement has been reached with a hospitality group to conduct our Living Lab in 10 of its outlets. This comprises 3 restaurants, 3 hotels, 3 bars and 1 club. A series of in-depth interviews will be conducted with bara managers and other key staff and these discussions will aim to gather valuable insights into how music impacts various aspects of bar operations from influencing customer behaviour to affecting staff morale and productivity.

The primary goal of these interviews is to understand the multifaceted role of music within the hospitality sector. By engaging directly with those who manage and interact with the music played we hope to capture detailed qualitative data on the subjective experiences of staff regarding workplace music, identify patterns or trends in how music influences customer retention, spending and overall satisfaction, explore the decision making processes behind music selection and the logistical aspects of music management in bards and solicit feedback on potential improvements or innovative ideas that staff have regarding the use of music in their work environment.

As is evident from the aims and goals of the Living Lab, the scope of the research has stretched slightly outside of the original idea. Given that the Living Lab would be conducted in venues where there were employees, addressing the original goal, but also customers, we have taken the opportunity to explore the impact of the music chosen on the customers as well. When taken into consideration with the choice of music or music playing at the time of the customer answering the survey, a greater and deeper level of insight will be available to us. In addition, we will be able to ascertain whether the management that

chooses the music is fully in tune with the music requirements and desires of the customer or if the music is chosen solely based on the employees musical tastes.

Next Steps

1. In depth interviews will be conducted with management and key staff in all 10 venues chosen;
2. BMAT to install equipment in venues and begin to collect data
3. Technology for customer feedback and input to be installed into each of the 10 venues;
4. Gathering and analysing of data with final report to be produced

<u>Spanish Living Labs</u>

The living labs in Spain are designed by the UPV and comprise three different labs, conducted in different venues and the focus is the non-monetary values of music.

Living lab 1: Festival

The re-enactment festival of "Moros y Cristianos" (Moors and Christians) in Torrent. This festival commemorates events that took place in the XIII Century. It is celebrated in several destinations in Spain although the majority are concentrated in the Region of Valencia. Some of the festivals are officially declared as International Tourist Interest, National Tourist Interest, and Regional and Local Tourist Interest. SGAE, the organisation in Spain that manages the authors' rights, includes a specific fare for the festivals of "Moros y Cristianos." Music accompanies the entrance parades in these festivals played by the music bands.

The festival selected for this living lab is the Entrance Parade of Torrent, a city near Valencia, which celebrates its festivities during the last week of July. Two events participated in this living lab to find differences in music values, the Entrance Parade and a street party. Two surveys with Qualtrics were designed with comparable questions for the two events. The answers collected were 207 and 191, while answers completed for subsequent analysis were 181 and 160. The music values analysed in the survey were cultural, social and emotional. Cultural value in this living lab focuses on music quality and experience, while social value centres on relationships between people, and emotional value on people's well-being.

Work progress in this living lab:

- Literature review and data collection finished.
- elaborating a paper for a peer-reviewed journal, and
- elaborating two communications for congresses, one of them specific about "Moros y Cristianos" festivals.

Living lab 2: Supermarket

The supermarket of this living lab belongs to an important national department store which is the European leader in department stores, with stores in Spain and Portugal. It owns five buildings in different areas of Valencia, and every building includes a supermarket that focuses on high-quality products. The first proposed supermarket cancelled its participation, but we obtained the support of the big department store group.

In this living lab, the music values analysed are cultural and social. The cultural value of this living lab centres on language and memories, while the social value focuses on genre, national artists and years. The data used in the analysis are obtained from interviews in two rounds (3 days) in the supermarket and from the list of recorded music shared with us by the supermarket. The first round involved fifty-five anonymous interviews and the second round twenty-six respondents. Data from interviews was analysed by UPV through qualitative content analysis, and the list used by the supermarket was analysed with the

support of BMAT technology. The results for background music indicated the presence of cultural (for women) and emotional values (relaxing music) but the absence of social and economic values.

Work progress in this living lab:

- Two reports were sent to the supermarket with the main conclusions obtained after the analysis and some recommendations for adapting music to target and improve values.
- A paper has been sent to a peer-reviewed journal, and the answer is pending.
- Elaboration of a communication for a congress, which has been accepted.

Living lab 3: *Hospital*

The hospital of this living lab belongs to the Vithas Group, which is the second group of hospitals in Spain. The UPV has an educational agreement with the hospital, and this enabled the first contact with the hospital.

In this living lab, the main value of music to analyse will be therapeutical, and the method to collect information will be interviews with patients in the Oncology service. Questions in the interview are based on the literature review conducted in WP1 and presented in the deliverable D1.

Work progress in this living lab:

- Literature review and design of the living lab.
- Interviews will be conducted soon.
- A paper for a peer-reviewed journal or a congress will be elaborated.

T6.5 Designing and implementing national data feeds

Each Living Lab worked on the definition of the data to be collected (music usage data, surveys to users and employees, economic data of the venues…).

Regarding the collection of music usage data, the final design for the monitoring devices was developed, and the new devices fabricated, tested, validated, and installed or prepared for installation in the relevant living labs (Finland, Portugal and Ireland), according to the needs and specificities of each Living Lab deployment. For other Living Labs, playlist data from background music providers will be used (The Netherlands, Spain).

BMAT worked on the implementation of the extraction and transformation of the music usage data collected by the music monitoring platform to be later loaded into the Music360 database and be made available to the project's platform, implemented in WP2.
Regarding the economic and non-economic data of the Living Labs, there's a delay in its processing as data feeds. First, the ICT architecture needs to be implemented. We expect that to happen at the end of May 2024.

T6.6 Designing and implementing national Dashboards

The leaders of each Living Lab have been working on the design of the national dashboards according to their needs in collaboration with BMAT, from the definition of the data to be collected to the definition of user stories that will make use of it. Following the requirements of each conceptual model, and for each deployment, the specificities were taken into account in order to establish the customisation of the dashboard for each Living Lab, depending on the information collected and the most important specs to be visualized (e.g. music playlists, audio descriptors, revenue indices…).

Raw music usage data collected from the Living Labs is going to be processed and enriched with audio descriptors metadata from BMAT and rights holders and royalties distribution data from CMOs. BMAT has designed and implemented a pipeline for the enrichment of data with audio descriptors (such as

genre, bpm, vocal/instrumental…), while economic and non-economic data of the Living Labs is expected to be available for the second iteration of the dashboards.

1.2.7 Work Package 7 - Dissemination, communication and exploitation

WP7 - Dissemination, communication and exploitation

Description of work progress

The VU Lead Partner has dedicated a communications person to take care of the communication and distribution tasks in this project. BUMA, BMAT, SENA and the entire consortium, has formed a dedicated communication team that supports WP7, and, among its tasks, the project has the mandate to harmonize and execute the Communication and Dissemination strategy at Programme level. During the first year of the project, our main focus was on establishing a robust framework for communication, dissemination and impact monitoring. This included numerous meetings, stakeholder identification, channel selection and fair distribution of tasks and responsibilities among project partners to ensure comprehensive representation across the different regions.

In the first period of the program, BMAT has set up a complete website to showcase specific results and to report news coming from present and future projects. As we approach our second year and preliminary results are ready for analysis and presentation, the website has improved its content during M12-M15 with information from all partners.

In addition to the website, intended as the heart of the communication strategy, the communications team has agreed to co-manage the web blog, Linkedin and Instagram channels. Presenting Music360 during events also became a shared responsibility of all partners. To facilitate alignment and collaboration between work packages, key highlights and relevant requests were regularly shared during monthly project meetings, promoting synergies and cohesion across the project landscape.

Furthermore, the partners, especially CMOs, also use their corporate newsletters and channels to leverage the synergies between the organizations and increase the reach and impact of these communications for the benefit of the target group and the entire ecosystem.

Amongst others, the work package produced the following:

- Press Release - The first official project press release was issued in March 2023, in Amsterdam, NL. Additionally, partners also released their own internal (company-wide) and external press releases.
- The project website has successfully launched.
- In M6, the Deliverable **D7.1 Plan for the dissemination and exploitation** was delivered on time.
- Dissemination material produced by the consortium and coordinated by SENA.

Tasks

T7.1 Plan for the dissemination and exploitation of results

The task force formulated a comprehensive communications and dissemination strategy to streamline outreach and engagement efforts. This included defining clear communication objectives, identifying stakeholders and strategically choosing communication channels to engage them effectively. Additionally, the strategy includes considerations for maintaining a consistent tone and promoting inclusivity. For a deeper understanding of these strategies, please refer to the relevant Deliverable document.

   Roll-up Banner   Poster   Brochure

T7.2 Project website

The project website has successfully launched, marking the beginning of a continuous endeavor to maintain regular updates. The first release of the website was in M5. During the following months its content was enriched becoming a complete website to promote the value of and are now consistently updating the website. Additionally, we are enhancing its appeal by regularly publishing blog posts, adding a personal touch to the platform. [www.music-360.eu]

T7.3 Communication, e.g. press releases, presence on social media

Music360 has selected LinkedIn, Facebook, and Instagram as its primary social media channels. Moreover, the task force is dedicated to leveraging local media and issuing press releases to enhance local outreach efforts.. [LinkedIn, and Instagram].

T7.4 Dissemination at music industry events

1.Westway lab 2024

The presence in events is a fundamental basis of this project. The Music360 project was featured at Westway lab 2024. Bruno Gaminha, representative of our partner (GDA) presented the Music360 project at this event and explained the importance of addressing challenges related to a fair distribution of neighboring and author rights.

2. Industry Day at Harbor of Music

Lauri Ogawa, CEO of GTM, presented EU Music 360 project overview, progress status and tested the idea of the new digital platform to 130 participants. The title of the presentation was "Demonstrating and making visible the value and benefit of using music through international monitoring and research cooperation".

The audience consisted of Finnish music industry key decision makers such as major and indie record label CEO's, author's and neighboring, publishers, producers, composers', songwriters' society CEO's and directors and also local AAA music producers and musicians.

The original idea and need to create a new music industry expertise sharing event for music professionals was formed in Autumn 2023. GTM took the responsibility to lead the development of the concept and organize the event.

The vision was to bring together people from the music industry and share the knowledge and perspective of our experts, building an attractive content package from these. The purpose of the presentations would be to lay groundwork, inspire, and initiate discussions on interesting topics that could lead to workshops and new creative and interdisciplinary collaborations.

There were 17 different expert speakers presenting their unique and valuable viewpoint for two major themes for the event:

Morning theme: "Artificial Intelligence and metaverses - how do they affect the music industry? How does AI change the daily life of music professionals?"

Afternoon theme: "Changes in the most central ongoing global trends and their impact on the operating environment of music industry companies and organizations"

The general response and feedback for the event and its content offering experience and discussions has been very positive. There is a survey ongoing for the participants to evaluate the feedback more in detail during May 2024.

The main organizing partners:

- Composers' Copyright Society Teosto
- Gramex
- GT Music Licenses
- Music Promotion Foundation MES
- Music Producers – IFPI Finland
- Music Finland
- Finnish Composers

- Finnish Music Publishers
- Finnish Songwriters
- Finnish Musicians' Union
- Copyright Information and Control Center (TTVK)

3. The Value of Your Music - panel art EuroSonic Noorderslag
'The Value of Your Music'
Eurosonic Noorderslag 2024 panel, organized by Music360. Jaap Gordijn and Vani Pilay (VU), presented the scope of the scientific research. The presentations were followed by a panel discussion. The panel included, besides the two VU representatives, two sing&song writers, and Frank Lucassen (BUMA). The panel discussion provided better insights in the requirements of the authors and performers.

4. Measure of Music 2024
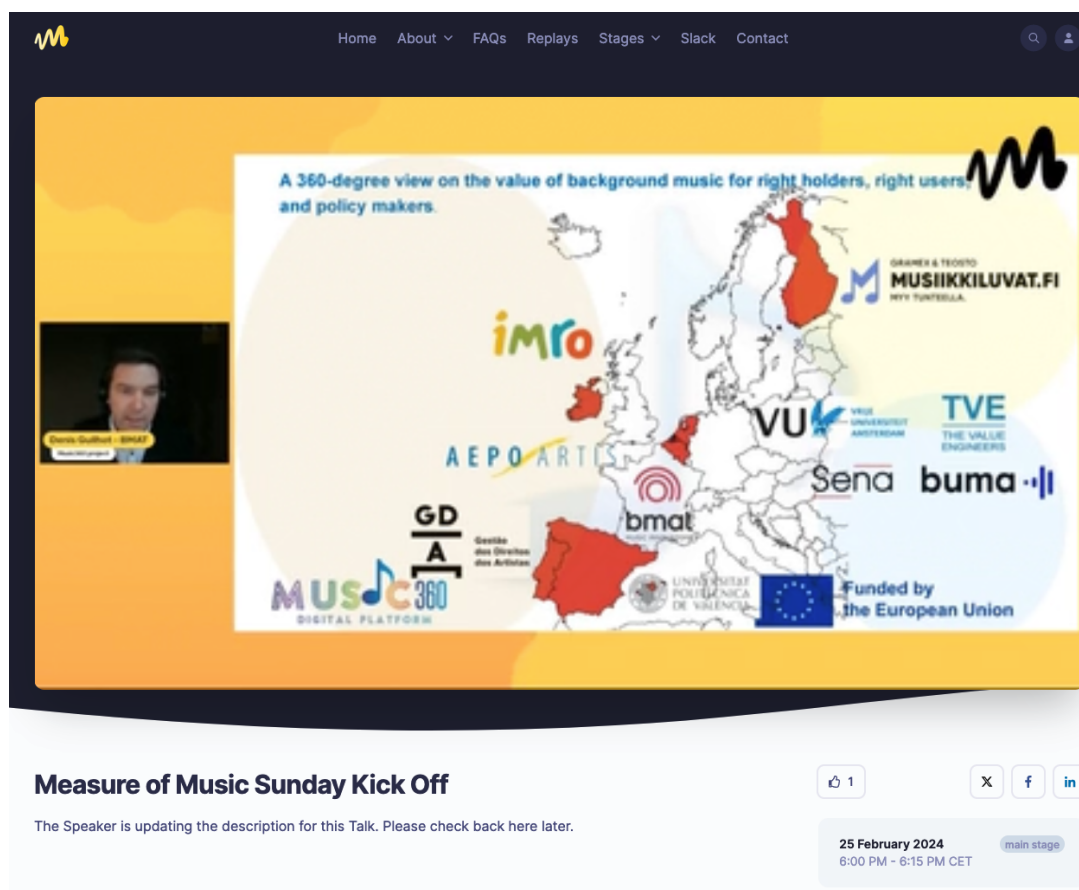Measure of Music (https://measureofmusic.com/) is a virtual three-day weekend program to show the impact & importance of data across the music industry and to give current music execs, music industry hopefuls and industry career changers a crash course in music and data in collaboration with some of the most influential people and companies driving the democratization of music data around the world.

In the 2024 edition, there were 91 project participants, 36 speakers, 6 weekend staff members, 27 mentors, 24 judges, 17 sponsors, and over 2100 spectators. Out of those almost 2500 registrations that disclosed, 67% were people of color or indigenous people, 61% are a gender minority, over one third have a first language other than English, 27% identify as part of the LGBTQ+ community, 51% are under 30 years old, 82 countries are represented and 22 time zones were represented.

BMAT seized the opportunity to introduce the Music360 project in a sponsor talk presentation on the third day of the event, within a direct conversation with the host and organiser, Christine Osazuwa.

Measure of Music Sunday Kick Off

The Speaker is updating the description for this Talk. Please check back here later.

25 February 2024
6:00 PM - 6:15 PM CET — main stage

Link to the recording: https://conference.measureofmusic.com/talks/measure-of-music-sunday-kick-off/

LinkedIn post: https://www.linkedin.com/feed/update/urn:li:activity:7167567642218688512

5. **4th International Workshop on Blockchain and Enterprise Systems**

The case study of Music360 was used by Isaac Da Silva-Torres (PhD candidate VU) to understand the design of cross-organization business processes based on an e3value business model. This resulted in an academic publication that was presented at the 4th International Workshop on Blockchain and Enterprise Systems.

Publication:

Torres, Isaac; Fantinat, Marcelo; Gordijn, Jaap, Fluxing between conceptual models - An experiment from e3 value to BPMN Conference. Proceedings of the 4th International Workshop on Blockchain and Enterprise Systems (BES 2023), 2023.

6. **Meeting of the supervisory board and the board of members of SENA**

The Music360 project was presented to the supervisory board of SENA and board of members in a joint session. Various potential use cases of the Music360 platform were discussed, and provided feedback for the further development of the platform.

7. **Disrupt Open Culture**

On December 16, 2023, Gonçal Calvo, Head of Innovation at BMAT, introduced the project in a keynote about metadata and the music industry of an hackathon aimed at developers and innovators organise in Barcelona by Context, under the name "Disrupt Open Culture - Unleash the Art of Data: Transforming Culture with Innovation".

Link to the event: https://culturehackbcn.com/

8. **Berklee Valencia visit**

Denis Guilhot presented the Music360 project to 25 students and staff of the Berklee Valencia, the first international campus established by the renowned Berklee College of Music, in an event at the BMAT offices in Barcelona. It was a participative session with music industry students to present and learn more about the project and their connection with their studies.

LinkedIn post: https://www.linkedin.com/posts/music-360-eu_today-denis-guilhot-presented-the-music360-activity-7168935632851955712-EvrP

9. **Tarda de Música i I.A. (Music an AI afternoon)**

On November 16, 2023, Gonçal Calvo, Head of Innovation at BMAT, presented the project in the keynote of an event in Barcelona called "Music an AI afternoon" aimed at students, music professionals and software developers interested in the music sector. This event is included in MusicData UPC, a cultural program that combines live music with critical reflections on the impact of algorithmic systems

on digital music and its influence on the visibility of artists, co-produced by Digitalfems, EllESmusic and UPCArts (Universitat Politècnica de Catalunya).

LinkedIn post: https://www.linkedin.com/posts/music-360-eu_bmat-music-innovators-presented-the-music-activity-7142843003806629888-nkVM

Link to the event: https://paral-lel62.cat/en/programacio/tarda-de-musica-i-ia-einessellesmusicmusicdataupc-4/

Link to the summary of the keynote: https://musicdataupc.org/un-viaje-al-mundo-desconocido-de-los-metadatos-musicales/

10. **Les Rencontres de l'innovation dans la musique 2023 (Music Innovation Meetings)**

Denis Guilhot, from BMAT, participated in a round table presenting the project at this event organized by the French Culture Ministry's Centre National de la Musique (CNM), in its second edition on June 15, 2023 at Plaine Images in Tourcoing, France. The round table was titled "Innovating in music: Europe at the forefront?", and had the participation of Deezer, BMAT, CNM and Wallifornia Music-Tech/Music Tech Europe.

Link to the event:https://cnm.fr/evenement/les-rencontres-de-linnovation-dans-la-musique-2e-edition/

Deliverables:

D7.1 Dissemination, communication, and exploitation plan version 1 (Stichting VU) (month 6)(R13)

> The initial version of the Communication, Dissemination, and Exploitation Strategy (D 7.1) has been finalized, and the task force is presently engaged in developing the second iteration (D7.2). The objective is to enhance the strategy by incorporating lessons learned from the first version and refining its components for improved effectiveness

D7.2 Dissemination, communication, and exploitation plan version 2 (Stichting VU) (month 18)(R13)

Ongoing

D7.3 Intermediate Policy Brief (BUMA)(month 15)(R13)

KPIs

Action	Stakeholders	Indicator	KPI	Current status
Create a web page with information about the project, short descriptions and links to results, containing also a closed part of project members only.	Scientific peers, stakeholders and general public	Web page visits/year	25000	Views: 1231 Visitors: 441
We will create social media accounts on Twitter, Facebook, TikTok and other media to spread interesting results of our project. Weekly updates.	Stakeholders, general public	# of followers per account after 3 years	2500	LinkedIn: 103 followers, 3136 impressions Instagram???
Peer-reviewed scientific publications process using an Open Science approach.	Scientific peers	# of publications per year	10	UPV: 2 Accepted; 2 Sent
Wikipedia entry about resulting Platform.	General public, stakeholders	Visits/year	2000	0
Presentations with demo at ESN/Noorderslag, Westwaylab, and other major music events.	Stakeholders	# of events presented at	6	0 with demo 12 without demo
Inform and align with SCAPR, CISAC and other branch organizations about this project and its results.	Stakeholders	Presentation at member meetings	Half yearly	4 (1*GEMA, 3*sister projects)
Create a 10-minute webinar in which stakeholders can learn about the Platform and its benefits.	Stakeholders	Number of times per year	2	0
Create a 20-minute podcast to distribute information about the Platform.	Stakeholders	Downloads/year	1000	0

Create a 5-minute video of the project, professionally produced, that will be made available via the outlets of the project (website, websites of the partners)	Stakeholders	Views/year	1000	0
Press releases for the printed press, radio, and TV.	General public	Frequency	Quarterly	2
Radio & TV appearance	General public	# of appearances	One each	1 (Oscar Pastor UPV)
Demo at university scientific days of the prototype Platform at the end of the project	General public	# of demos per university	One each	0

Events

Name of Event	Type of Event	Date	Objective	Location	Number of participants	Target group	Main Partner
Les Rencontres c	Conference	15/6/23	Dissemination o	Tourcoing	150	Music and Music tech	BMAT
CAISE 2023	Conference	12-16/6/2023	Dissemination o	Zaragoza	200	IT Sector, Research Projects	UPV
BMT 2023	Conference	13-15/7/2023	Dissemination o	Valencia	50	Researchers from technological	UPV
El rall (Apunt rad	Radio program	10/11/2023	Dissemination o	Valencia	42.000	Public regional radio	UPV
Living lab Torren	Press news	8/3/2023	Dissemination o	National press	3.988.582	Spain audience	UPV
UPV participatio	Press news	9/8/2023	Dissemination o	Valencia	32.000	VRAIN and UPV audiences	UPV
SENA RvT en Rv/	Study day	11/13/2023	Dissemination o	Hilversum	20	Decision makers	
Disrupt Open Cu	Hackaton	16/12/2023	Dissemination	Barcelona	30	Music and Music tech	BMAT
Music and IA aft	Conference	16/11/2023	Dissemination	Barcelona	50	Students and developers	BMAT
POEM	Scientific Confer	3 - Dec 1, 2023	Dissemination	Vienna	13	Scientists	
ESNS 2024	Conference	19/1/2024	Dissemination	Groningen	50	Music industry professionals	BumaStemra SEI
Measure of Mus	Conference	25/2/2024	Dissemination	Online	3500	Music industry professionals	BMAT
EC conf event	Conference	22/2/2024	Dissemination	Brussels			TVE
Berklee visit	Presentation	29/2/2024	Dissemination	Barcelona	25	Music industry students and	BMAT
Finnish Living La	Press release	28/3/2024	Dissemination				GTM
Finnish Living La	Press news	28/3/2024	Dissemination				GTM
Finnish Living La	Press news	28/3/2024	Dissemination	Feedbackly			GTM
Finnish Living La	Press news	28/3/2024	Dissemination	Several newspapers			GTM
WestWay Lab	Conference	12/4/2024	Dissemination	Guimarães	20	Music industry professionals	GDA
Harbour of Musi	Conference	19/4/2024	Dissemination	Espoo Musiikin S	150	Music industry professionals	GTM
FILAIE	Conference	4/25/2024	Dissemination	Guatemala	30	Music industry professionals	GDA

Communication Activities

No	Communication Activity Name	Description*	Who? Target audience	How? Communication channel	Outcome	Status
1	Social Media Post	Introduction of Project post	General Audience	Instagram	27 followers	Ongoing
2	Social Media Post	General Music post	General Audience	Instagram	27 followers	Ongoing
3	Social Media Post	Introduction project member	General Audience	Instagram	27 followers	Ongoing
7	Social Media Post	Project activity update	General Audience/Professionals	LinkedIn	140 followers	Ongoing
8	Social Media Post	Repost project partner post	General Audience/Professionals	LinkedIn	140 followers	Ongoing
9	Social Media Post	General Music post	General Audience/Professionals	LinkedIn	140 followers	Ongoing
10	Project website	Project activity update	Researchers and music professionals	VU Website		Completed
11	Partner website	Project activity update	Researchers and music professionals	UPV website	700k Visits/year	Completed
12	Project website	Project activity update	Music professionals	GTM website		Completed
13	El rall (Apunt radio)	Project activity update	General Audience/Professionals	Valencia local radio	42k Listeners/day	Completed
14	Living lab Torrent (Valencia)	Project activity update	Researchers and music professionals	Press News	1,5MM/Month (50k/day)	Completed
15	UPV participation	Project activity update	VRAIN and UPV audiences	Press News	1,5MM/Month (50k/day)	Completed
16	Finnish Living Lab	Project activity update	Music professionals	Press News	100	Completed
17	Finnish Living Lab	Project activity update	Music professionals	Press News	100	Completed
18	Finnish Living Lab	Project activity update	Music professionals	Press News	100	Completed
19	Finnish Living Lab	Project activity update	Music professionals	Press News	100	Completed

1.2.8 Work Package 8 - Project management and data management

WP8 - Project management and data management

The project management is ensured by the coordinator **VU**, and supported by each project partner. M2i created structures and procedures to facilitate the internal management, such as:

- A project workspace (Google drive);
- Monthly Steering Committee meetings (on-line), followed by the distribution and approval of the meeting minutes;
- Larger, physical Steering Committee meetings, taking place every six months and hosted by another project partner;
- A Publication procedure – linked to the activities in WP 7.

Description of work progress

The main objective of WP8 is coordination and general management, in addition to facilitating communication within the project and with the European Commission.Enabling work to proceed smoothly and coherently throughout the project. Project management is ensured by the VU coordinator and supported by each project partner. The main activities in this period are related to the project start up and to ensure that the project runs successfully, that the partners successfully and efficiently collaborate and that the technical objectives are achieved taking care of the time and the costs of the project. The project coordinator (PC) administered the financial contribution, allocating it between the beneficiaries, and activities in accordance with the Grant Agreement. The payments have been done with no delay. The PC kept the records and financial accounting, and informed the European Commission of

the distribution of the EU financial contribution. The PC verifies consistency between the reports and the project tasks and monitors the compliance of beneficiaries with their obligations. The project started successfully in March 2023 and is on course for successful implementation.

<u>WP Highlights</u>

- During the first reporting period the Coordinator negotiated the Consortium Agreement with all the partners,
- Distributed the perfinancing received from the EC
- In M3, the Deliverable D8.1 (Project Handbook) was delivered on time. It includes the management procedures for the proper development and implementation of the project.
- *Im M6,* the Deliverable D8.2 (Data management plan) was delivered on time.
- Facilitated and supported the partners with the preparation of the first reporting period.

<u>Tasks</u>

<u>T8.1 Organise an efficient project structure</u>

In M3, the Deliverable D8.1 (Project Handbook) was delivered on time. It includes the management procedures for the proper development and implementation of the project. VU created structures and procedures to facilitate the internal management, such as:

- A Google Drive repository was set up as an Internal Communication Platform to host the work developed by the Music360 consortium.
- Several mailing lists have been created in order to communicate with the partners (wpleaders.music360-beta@listserver.vu.nl, allpartners.music360-beta@listserver.vu.nl, Ethicsboard.music360-beta@listserver.vu.nl)
- Monthly Steering Committee meetings (on-line), followed by the distribution and approval of the meeting minutes;
- Larger, physical Steering Committee meetings, taking place every six months and hosted by another project partner;
- An internal reporting procedure, every six months;
- A Publication procedure – linked to the activities in WP 7.

<u>T8.2 Project management</u>

The General Assembly (GA) of the project is in charge of the management of activities and monitors progress in achieving the project objectives and Executive Board (EB) is the supervisory body for the execution of the project and is responsible for proper execution and implementation of the decisions of the General Assembly.To support the work of the Consortium and of the Executive Board, a Stakeholder Advisory Board (SAB) is established.

The coordinator has continuously monitoring the progress against milestones and deliverables and is maintaining permanent contact with the **General Assembly** to ensure proper execution of activities specified in the Description of Activities. The coordinator, through the management team of the project, is regularly in contact with the WP leaders discussing the status of each action to be carried out by all the partners and also the status of each milestone and deliverable. These are uploaded in the system by the management team once received from the WP Leader and approved.

In this period (M1-M12) eight plenary meeting were held: the Kick-off Meeting, two project progress

Meetings and five Technical meetings:

- <u>Kick-off Meeting</u> on March 07-09, 2023 in Amsterdam (hosted by VU). This meeting focused on the general aspects of the project, the main objectives and the main activities of each partner. Special efforts were put into working out the best ways of interacting between WP6, WP7

and WP8.
- 2nd plenary meeting on September 04-06, 2023 in Valencia (hosted by UPV). The meeting focused on the first technical deliverables as well as on the approaches for the set up of National Living Labs.
- 3rd plenary meeting on January 16-17, 2024 in Valencia (hosted by UPV). The main topics discussed during the meeting were the planning for the first analysis of national living labs data, and the preparation of the first periodic report and midterm interview. Planning for Policy brief deliverable writing.In this meeting, the approach followed was slightly different, making the whole meeting in plenary mode (instead of combining it with parallel WP-specific sessions), to adapt better to the virtual/remote format.
- In Total five technical meetings were held in this period:
  o Datamodel and IT meeting was held on 07-06-2023 in (Location??).
  o Ontology meeting was held on 05-07-2023 at VU in Amsterdam
  o Dutch music ecosystem(Data structures & IT architecture), meeting was held on 17-07-2023 in (Location??).
  o 2nd Datamodel and IT meeting was held on 10-12-2023 in (Location??).
  o The overall architecture of the Music360 platform meeting was held on 07-02-2024 in Barcelona.
- Monthly online progress meetings are held online each first Tuesday of the month, followed by the distribution and approval of the meeting minutes, usually within one week. The partners are requested to approve the minutes (silent approval) within two weeks of their sending. These meetings take two hours and are scheduled until the end of the project;
- Additional WP-specific meetings were held as necessary,to discuss the general progress on each WP, including special events where corrective measures may be needed.

No	Project meetings	Timeline	Location	Host	Status
1	Kick-off Meeting	March 2023	Amsterdam	VU	Delivered
2	GA + EB + SAB meeting, workshops	Sept 2023	Valencia	UPV	Delivered
3	EB meeting, workshops	Feb 2024	Amsterdam	VU	Delivered
4	EB + GA + SAB meeting, workshops	April 2024	Valencia	UPV	Delivered
	Interim review				Upcoming
5	EB meeting	Feb 2025	Amsterdam	VU	TBD
6	EB + GA meeting +conference	Sept 2025	Valencia	UPV	TBD
7	EB + SAB meeting	Feb 2026	Amsterdam	VU	TBD
	Final review				TBD

T8.3 Report to the European Commission

In its role as Lead Partner, VU coordinated and created the overall implementation of the project activities the framework for regular information exchange and progress monitoring, through special tools such as: - the project shared Google Drive,where all documentation (results, meeting minutes, reports, databases) are shared between partners; - monthly videoconferencing (Zoom meetings); - one Progress Meeting in which the entire consortium participates. The VU took care of the daily project management. This consisted of: - maintaining the project archive on the project shared Google Drive - tracking the partners' activities and delivery of the exits; - ensure that the action points agreed during meetings are understood and that partners deliver them on time and successfully sufficient quality; - organization of interaction between partners through teleconferences and meetings; - advice to partners on specific matters management-related issues on a case-by-case basis. In addition, VU has maintained evidence of project risks and updated the risk matrix when this was necessary.

Furthermore, An internal reporting process was agreed with all partners. The aim is to allow the timely monitoring of the progress towards the deliverables and the associated spending. A training session on reporting was organised by the coordinator VU.

T8.4 Data management

During the 4-year MUSIC360 project data will be collected from various sources, and from these data the project will generate new data of different types. Each type of data requires a different management practice. The Data management plan initial version (Deliverable 8.2) has been delivered on-time and includes a preliminary list of data expected to be collected and all aspects of its management. This MUSIC360 data management plan is tailored to meet the specific needs of the project and its data. It guideshow research data will be (i) collected, (ii) processed, (iii) analyzed, (iv) shared and (v) stored. It also provides guidelines for the management of different types of data. It adheres to the principles of the EU, to be "follows the principle "as open as possible, as closed as necessary" and focuses on encouraging sound data management as an essential part of research best practice. We follow in this report the EU guidelines in the EU Data Management for Horizon 2020 [1].This reflects our commitment to transparency, accessibility, and reproducibility in research.

This data management plan is a living document, accessible for all partners. It will be regularly updated.

The Executive Board has recently assessed the Data Management Plan (D8.2) and made recommendations to improve the Data Management Plan and strengthen the ethical aspects

implications. These would be assessed in August 2024 and included in the Data Management Plan version 2.

1.2.9 Work Package 9 - Ethics requirements

WP9 - Ethics requirements

Description of work progress
Following the advice of the PO, this WP was added to the project in order to ensure the personal data protection of the respondents and potential users of Music360. To achieve this requirement, our first step was to create an External Ethics Board composed by three experts who are giving advice along the different deliverables where personal data is involved. Their recommendations are used to review all the processes and comply with the necessary legal and ethical requirements.

Objectives
The objective is to ensure compliance with the 'ethics requirements' set out in this work package

Deliverables:
- D9.1 H - Requirement No. 1 (Stichting VU) (month 2)

For this deliverable, UPV developed the necessary templates for the informed consent forms and the information sheets (in English) in order to help all the partners to follow them for the living labs. Moreover, these documents were reviewed following the recommendations from the External Board. Both universities have also received the approvals from their Research Ethics Committees.

- D9.2 POPD - Requirement No. 3 (Stichting VU)(month 2)

For this deliverable, UPV developed the procedure for processing the personal data of the participants in the living labs. This procedure was also reviewed with the recommendations from the External Board.

- D9.3 AI - Requirement No. 4 (Stichting VU)(month 2)

The Ethics Handbook deliverable was developed by VU in order to include the general principles that complement and clarify Deliverables 9.1 and 9.2. This deliverable was also reviewed by UPV with the recommendations from the External Board.

- D9. OEI - Requirement No. 5 (Stichting VU)(month 1)

This deliverable was the first step for the Ethics requirements of the project, with the Creation of the External Ethics Board. The consortium looked for three experts that could cover the bunch of ethics aspects requested. These are human involvement, data protection, AI and medical privacy. By now, they have submitted reports in M6 and M14.

- D9.5 OEI - Requirement No. 6 (Stichting VU)(month 6)

The External Ethics Board presented the report 1 after reviewing deliverables 9.1, 9.2 and 9.3. Their recommendations have let us improve those deliverables. We have to take into account that, at this moment, all the living labs have focused only on venues, while the living lab of the hospital has not been developed yet.

- D9.6 OEI - Requirement No. 7 (Stichting VU)(month 13)

Recently, the External Board has presented the report 2 (one month delayed by project reasons). In this report, they have reviewed the Data Management Plan (D8.2) and the participants' information document from the Living Lab in Finland. Moreover, just for information, we sent them the first version of D 2.3 (Secure and trusted sharing of music data). With their recommendations, D8.2 would be reviewed by VU and the participants' information document from Finland would be improved.

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1.3 Impact

Scientific impact:
A first version of an approach to understand the value of music in both a qualitative and quantitative way has been developed. This method is now being tested in the Living Labs (WP6). This will result in a better understanding whether the method is appropriate for providing insight in the complex nature of the value music. Moreover, the Living Labs themselves will provide knowledge about the value of music in various contexts (retail, restaurants, hospital, etc.) and for various stakeholders (e.g. venues, customers, and personnel).

A machine processable ontology on the value of music has been proposed, and an implementation in terms of a meta model has been developed. This model is now implemented as a highly distributed and decentralized ICT architecture. It will provide the platform for innovative use cases of secure multi party computing and homomorphic encryption so secure access to trusted information

Economic and societal impact:
We have started a cooperation with GEMA, which is the German CMO on author rights. GEMA runs a similar project with the focus on the understanding of the value of music. We will coordinate our Living Labs with the experiments of GEMA, so that outcomings become comparable across Europe.

1.4 Update of the plan for exploitation and dissemination of results (if applicable)

The communication, dissemination and exploitation plan presented in the proposal is periodically refined depending on the evolution of the project and the activities considered important. The original plan was

presented in D7.1 [2], together with the first results. D7.2 [1] presented the performance during the initial period of the project, as well as a refinement of the plan for the next period.

During our last meeting in Valencia, the implementation plan for the communication and dissemination tasks was defined. As we approach our second year and preliminary results are ready for analysis and presentation, the website needs to improve its content and post more regularly. and dissemination materials produced for printing and use for the 2024 events.

Guidelines to follow for the coming period can be summarized as follows:

- ➢ Explore how potential synergies should align with SCAPR, CISAC and other branch organizations about this project and its results. In particular, discussions will be maintained to see how dissemination can be maximized, especially concerning the respective websites and involvement of their members. Contact will be promoted by members of the consortium that are also members of those organisms.
- ➢ Update the events list for 2024.
- ➢ Increase number of posts and engagement of the consortium members.
- ➢ Boost the activity on Twitter and linkedin to enhance its reach and attract new followers to the channel.
- ➢ Preparing dissemination material (preparing demo, connecting with entities, creating webinar material, creating podcast material, writing white paper and making video between June and September 2024).
- ➢ Review the plan and target audience for the Wikipedia article on the resulting platform and Instagram. we need to determine whether they are still relevant platforms for the dissemination of our results.
- ➢ Create a 10-minute webinar in which stakeholders can learn about the Platform and its benefits.
- ➢ Create a 20-minute podcast to distribute information about the Platform.
- ➢ Create a 5-minute video of the project, professionally produced, that will be made available via the outlets of the project (website, websites of the partners)
- ➢ Establish a good basis for the follow up as the last year of the project.
- ➢ Demo at university scientific days of the prototype Platform at the end of the project

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2. FOLLOW-UP OF RECOMMENDATIONS AND COMMENTS FROM PREVIOUS REVIEW(S) (IF APPLICABLE)

Not applicable.

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3. EXPLOITATION PRIMARILY IN NON-ASSOCIATED THIRD COUNTRIES (IF APPLICABLE)

Not applicable.

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4. OPEN SCIENCE

In the Music360 project there is a strong policy of Open Science. The Living Labs are experiments that are open to external parties, and participation of such parties is happening right now. The (anonymized) results are available to everyone. We also plan to make packages available to the public with research designs, analysis methods and software tools to encourage reuse and to allow for replication of research. We already are doing so with GEMA, a very large CMO on author rights in Germany.

We will use the public institutional data repositories of the university partners, (VU and UPV_ which guarantee the use of open standard protocols and metadata, with a CC0 or CC4-BY license. All these

repositories comply with the FAIR Data Principles, implement long-term preservation features, run the required security and provide persistent identifiers (DOI).

Similarly, scientific publications will follow a gold open access policy and all the publications will be provided with free open access, publicly available, motivating the open access to research. The peer-reviewed publications will be provided with immediate open access through trusted repositories (at the latest at the time of publication, but earlier when possible: preregistration, registered reports, preprints, etc). The publications will be licensed under CC BY (or equivalent) and only for long-text formats under CC BY-NC/ND (or equivalent). Any research output, tool or instrument needed to validate the conclusions of a publication will be available in a trusted repository with a specific DOI.

The final versions of all the generated software will be made available to the society with open-source licensing when no dependencies exist. To reduce potential licensing limitations when using existing software or libraries, as a general practice, existing open-source software artifacts will be used. An exception is the software developed by TVE: There will be a free community version of the software with limited features, and an enterprise version, which is free for academic institutions, and which require a paid license for companies.

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5. DEVIATIONS FROM ANNEX 1 AND ANNEX 2 (IF APPLICABLE).

5.1 Tasks/objectives

T2.2a Designing and implementing a platform for data collection and representation

The platform is designed and explained in deliverable D2.2 and partially implemented (the relational model). An API in terms of REST services is under development and will be finished by the end of June 2024. It will then be used to demonstrate parts of the Living Labs. We do not foresee any major consequence on the overall project result.

T2.3a Designing and implementing security mechanisms for controlled data access

The security mechanisms are designed and explained in deliverable D2.3. The implementation architecture, based on OAuth 2.0 / OpenID Connect, is under development and will be finished by the end of June 2024. It will then be used to demonstrate parts of the Living Labs. We do not foresee any major consequence on the overall project result.

T3.1a Designing and implementing stakeholder data presentation tools

This task is extended until the end of August 2024. Although we will be able to deliver a working prototype of the dashboard and demonstrate parts of the Living Lab according to the timeline initially planned thanks to the iterative approach we are following in its development, the extension will allow us to integrate features we want to include in the front end of the first release of the dashboard, as a result of the early feedback received from partners and stakeholders. We do not foresee any major consequence on the overall project result.

T3.2a Music360 platform value analysis and reporting tools

This task is delayed until the end of August 2024. Similarly to T3.1a, although we will be able to deliver a working prototype of the dashboard and demonstrate parts of the Living Lab according to the timeline initially planned thanks to the iterative approach we are following in its development, the extension will allow us to integrate features we want to include in the first release of the dashboard, such as the security mechanisms to connect with several resource providers. We do not foresee any major consequence on the overall project result.

T6.5 Designing and implementing national data feeds

This task is extended until the end of July 2024. It is caused by the delay of tasks T2.2a and T2.3a, since to complete the implementation of the national data feeds the implementation of the database and security mechanisms needs to be completed first, and because it took more time than expected to clarify the Irish Living Lab and Spanish Healthcare Living Lab. We do not foresee any major consequence on the overall project result.

T6.6 Designing and implementing national Dashboards

This task is extended until the end of July 2024. It is caused by the delay of tasks T2.2a and T2.3a, and because it took more time than expected to clarify the Irish Living Lab and Spanish Healthcare Living Lab. We do not foresee any major consequence on the overall project result.

T6.7 Validating the Music360 solution in the national fields

This task is extended until the end of July 2024. It is caused by the slow start of the Irish Living Lab. There is no consequence for the rest of the Living Labs. We do not foresee any major consequence on the overall project result.

5.2 Use of resources

For the 1st reporting period there are minor deviations in the use of resources between actual and planned use. That is mainly the result of two points.
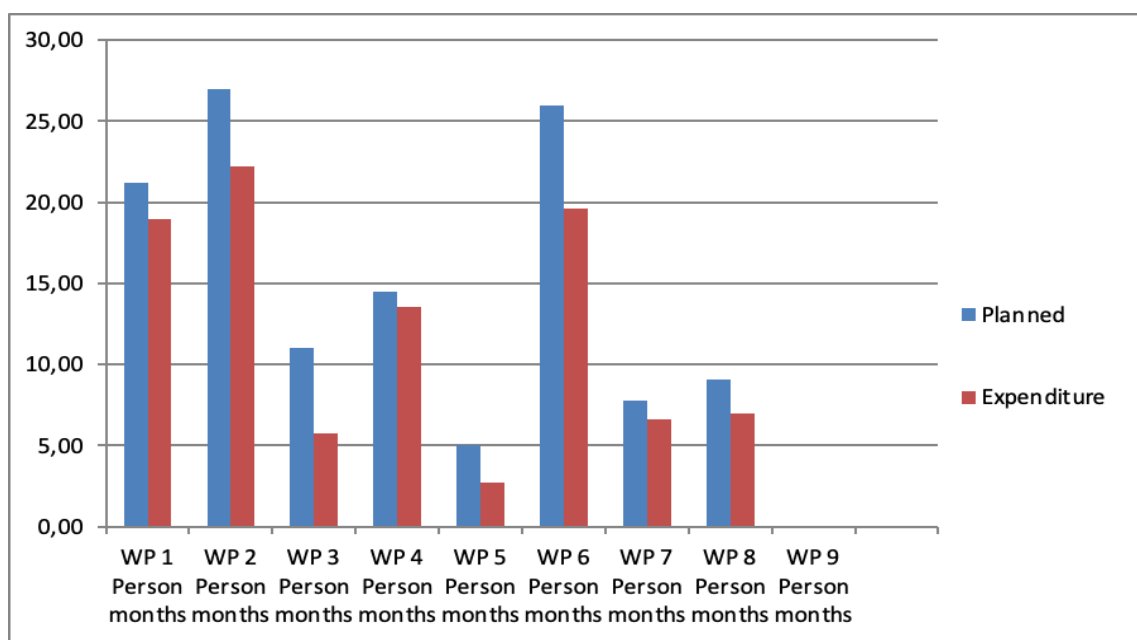
Firstly, recruitment at some partners took longer than planned and staff costs and efforts were lower than expected and as a result, some deliverables were slightly delayed. In most cases, they were submitted to the European Commission official 15 days to 30 days later, after consultation and approval.

Secondly, there is a large deviation from WP6, reflecting the exclusion of the costs of one of the IMRO partners. The error has been discovered in the accounting of staff costs attributed to the Irish Music Rights Organization (IMRO) as part of the Music 360 research project. At the time of writing they are unable to correct the error.
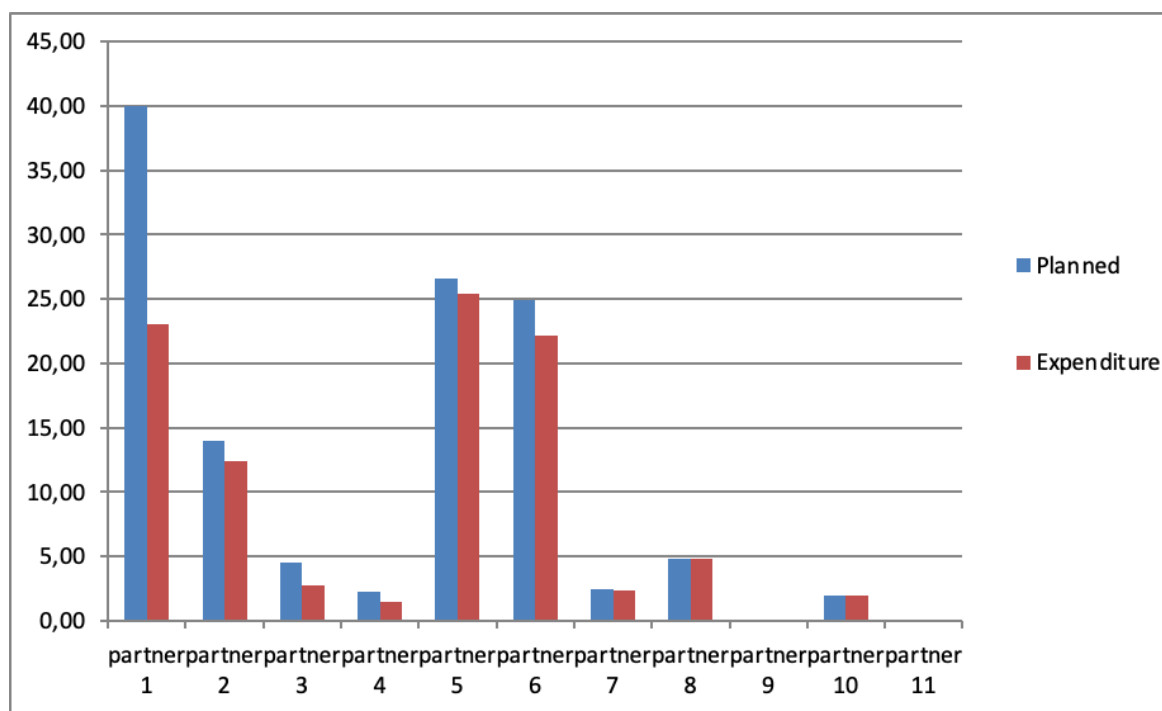
The IMRO employee with access to the required data is currently on annual leave. Therefore, they try to exclude incorrect personnel costs in the portal and submit zero costs so as not to hinder the submission.

It has been decided that if we need to amend this report, they will submit the report, otherwise they plan to combine this claim with our next reporting period.

Total person month per work package

Total person months per partner

5.2.1 Unforeseen subcontracting

BMAT subcontracted a party in Portugal to roll-out their fingerprinting devices. Since it replaces the already planned personnel effort of BMAT it has no financial consequences. This has been discussed with the Project Officer and it was approved by her.

5.2.2 Unforeseen use of in kind contributions

- Not applicable

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HISTORY OF CHANGES		
VERSION	PUBLICATION DATE	CHANGE
1.0	15.12.2021	Initial version (new MFF).
1.1	01.05.2023	Minor updates in Part A. Added section 1.4 on updates to the plan for exploitation and dissemination of results.