



D4.2 – Visual analytics for music

August 31st, 2018

Author/s: Joaquín (Quimi) Luzón (BMAT)

Deliverable Lead Beneficiary: BMAT



This project has been co-funded by the HORIZON 2020 Programme of the European Union. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.

Deliverable number or supporting document title	D4.2 Visual analytics for music
Type	Demonstrator
Dissemination level	Public
Publication date	31-August-2018
Author(s)	Joaquín (Quimi) Luzón (BMAT)
Reviewer(s)	Symeon Papadopoulos (CERTH), Manos Schinas (CERTH), Rebecka Sjöström (PGM), M. Stella Tavella (MMAP)
Keywords	Visualization, Visual, Analytics, Dashboard
Website	www.futurepulse.eu

CHANGE LOG

Version	Date	Description of change	Responsible
V0.1	18/07/2018	Document draft	Quimi Luzón
V0.2	30/08/2018	Document version for review	Quimi Luzón
V1.0	31/08/2018	Final version	Quimi Luzón

Neither the FuturePulse consortium as a whole, nor a certain party of the FuturePulse consortium warrants that the information contained in this document is capable of use, or that use of the information is free from risk and accept no liability for loss or damage suffered by any person using this information.

The commercial use of any information contained in this document may require a license from the proprietor of that information

Table of Contents

1	Executive Summary	4
2	Introduction and Relation to other WPs/Tasks	5
3	Definition and design of visualization engine	6
3.1	FuturePulse Requirements	6
3.1.1	Audience Metrics	7
3.1.2	Music Attributes	7
3.1.3	Additional Metadata	8
3.2	User Stories and Related Requirements	8
3.2.1	Record Label User Stories	8
3.2.2	Live Music User Stories	11
3.2.3	Background Music Platform User Stories	13
4	Visual analytics for music prototype	16
4.1	Dashboard	16
4.2	Elements	17
4.2.1	Pie charts for gender and age data comparison	17
4.2.2	Heatmaps	18
4.2.3	Charts	18
5	Results and Conclusions	20

1 Executive Summary

This deliverable depicts the functionality of the first prototype of the web-based visual engine for music analytics produced by FuturePulse platform.

This document also describes the processes used to define how the information is expected to be represented by and for the pilots so that FuturePulse can be the most effective and easy-to-use tool when drawing conclusions and business decisions from collected data.

The purpose of this document it is also to clarify how, from a previously defined set of functional requirements, we have extracted the indications required for the development of the display components necessary to obtain the demonstrator that we delivered. These components are also described in the respective section.

Finally, this document attempts to reflect the iterative nature of the platform, as well as the user requirements in terms of functionality and visualization, by means of aspects to be addressed after this delivery.

2 Introduction and Relation to other WPs/Tasks

This document accompanies the FuturePulse visualization prototype implemented after the first year of the project, in a web-based application. This demonstrator meets the first needs for a visual analytics and predictions engine, defined iteratively by both technical and business partners, under the supervision and coordination of BMAT.

In our way to meet the envisioned market-ready music platform, it is key to design and develop the user-friendly, highly intuitive and visual web front end that provides the platform's capabilities to music professionals. On one hand, the integrated components in to the platform will produce a set of resources and methods that will provide data in reference of music attributes, audience metrics and additional metadata for tracks, artists and genres. The access to these methods (via API) by the three use cases applications will enable users to notably improve business decision making as well as better understand the demands and trends of a global market. The user must be able to choose the time intervals, geographical regions and other demographic distributions that cover their markets or needs.

The starting point for this task is the definition of the platform requirements (see D1.2 – FuturePulse Requirements), which are intended to meet the needs of the three project use cases, after studying and evaluating the market for online analytics, predictions and recommendations for the music industry. This study was reflected in the first deliverable of WP1, D1.1 – Music Industry Innovation Report v1.

Once the demands of the industry players were clear, we continued with the development and design of the platform through its visualization. To do this, we have worked on defining a series of user stories and workflows that allow us to understand the tools and processes suitable for this visualization. Parallel to this process, the predictive analytics and recommendation framework of FuturePulse has been defined in WP3 (see D3.1 - Predictive analytics and recommendation framework). The conclusions of this framework process have had to be evaluated in order to make the visualization engine more suitable.

On the other hand, the three pilots of the project (carried out on the WP5) need to rely on a graphic and functional support that allows them to carry out the necessary tests and enable the immersion of music professionals in the realm of music data.

3 Definition and design of visualization engine

In order to ensure that users have a tool of value to them, it is necessary to understand meticulously what their needs are. The development of popularity prediction models may prove useless if the end user sees no advantage in their use. In addition, today's marketplace for online applications that provide music consumption data has attractive solutions that, while not meeting the same specifications as FuturePulse, do have attractive visual and easy-to-use applications. If we want to have a market-ready application, we need it to provide not only valuable data but also a user-friendly and intuitive front end.

This chapter aims to describe the methodology and resources needed to design the visual engine of the platform. To guarantee that we meet the user experience desired by our pilot leaders, we conducted an analysis of the user stories that they provided and performed a mapping that relates these stories to the actual requirements. Moreover, these stories served as a milestone to start creating the first user workflows. However, these workflows are still subject to further refinements and re-definitions, based on the progress of the technical work packages, as well as the validation and evaluation phases.

3.1 FuturePulse Requirements

During the first stage of the project, one of the main tasks was to approach stakeholders in the music industry and define iteratively the requirements with which we captured the needs that music industry addresses (see deliverable D1.2 – FuturePulse Requirements).

After defining a wide set of requirements, these were classified into three independent clusters: audience metrics, music attributes and additional metadata. This clustering allowed the technical teams to define a concise strategy to start developing the necessary tools in order to address the challenges presented after the market needs analysis. Some of this development will be presented at the same time as this document in D3.1 – Predictive analytics and recommendation framework.

The whole set of features include analysis that will produce metrics that have to be presented in an understandable way to the final users. Even though the market offers numerous platforms that make use of a large amount of data collected, many actors in the music industry are not experienced users when comparing graphs, schemes or tables.

Encouraging several future end users to use our platform will not be possible without an attractive and effective application to draw conclusions based on the data obtained. The same applies when it comes to the participation of potential pilot testers, who will be much more willing to participate if they have an appealing platform when it comes to both data and ease of use.

The design of the end application is strongly related with the requirements, which will be refined iteratively in the co-design process performed in T1.2. Given that, we related all the current considered requirements with the user stories foreseen by BN, PGM and SYB (and described in 3.2) by means of a mapping (also available in section 3.2). For ease of reference, we have listed each of the clusters below, in Tables 1, 2 and 3.

3.1.1 Audience Metrics

The design of the end application is strongly related to the requirements, which will be refined iteratively in the co-design process performed in T1.2. Given that, we related all the current considered requirements with the user stories foreseen by BN, PGM and SYB (and described in 3.2) by means of a mapping (also available in section 3.2). In order to have the description of each of the requirements present in this document, we have listed each of the clusters below, in Tables 1, 2 and 3.

Requirement	Description
PGM_REQ#1	Predict streaming based on artist reference groups
PGM_REQ#5	Genres trending for each market
PGM_REQ#6	Release day impact on success
PGM_REQ#9	Season related streaming changes
PGM_REQ#11	Blogs & Media vs Streaming & Download & Radio
BN_REQ#5	Artist popularity in a given genre
BN_REQ#6	Growth of artist popularity
BN_REQ#9	Genre popularity
BN_REQ#11	Social media analysis over Live performance & Live event Fanbase Feedback
SYB_REQ#1	Recognition level of a track
SYB_REQ#2	Popularity level of a track
SYB_REQ#15	Genre popularity for each market

Table 1 Audience Metrics Requirements

3.1.2 Music Attributes

This cluster gathers all the requirements related to attributes that will be obtained by music audio analysis.

Requirement	Description
SYB_REQ#4	Genre of a track
SYB_REQ#6	Energy level in a track
SYB_REQ#10	Gender of vocals in a track or instrumental
SYB_REQ#11	Moods related to a track
SYB_REQ#12	BPM in a track
SYB_REQ#13	Fade in and fade out of a track
SYB_REQ#14	Major or minor in a track
BN_REQ#1	Genre of electronic music

Table 2 Music Attributes Requirements

3.1.3 Additional Metadata

This cluster gathers the needs of obtaining several parts of information that must be extracted from the audio files or obtained by the input from FuturePulse users.

Requirement	Description
SYB_REQ#8	Release year of a track
SYB_REQ#9	Origin of a track
BN_REQ#3	Discography and typical visuals per artist
BN_REQ#21	Past gigs
BN_REQ#22	User input to FuturePulse system

Table 3 Additional Metadata Requirements

3.2 User Stories and Related Requirements

We proceeded to describe how we expected to display the outcomes of these requirements by means of a visual analytics engine. For this purpose, we define user stories, a method commonly used in software prototype development. Each of the use cases provided a description of the characteristics they expect to find in what has turned out to be a dashboard by type of user.

However, for this first approach, we considered and pooled all the stories in a first single panel. In this way, we also hope to enrich the process of defining requirements, as the iteration of the platform and its visualization can go hand in hand for greater effectiveness. In addition, graphical support offers a better understanding of the wishes and recommendations of users.

The user stories are structured by the typically used template (As *<a user>*, I want to *<a goal>*, so that *<a reason>*), as follows in this example:

As a **Playlist Editor** I want to **be able to see the genre of a track** so that **I can program playlists in certain genres for genre dependent brands**

Our first approach was trying to relate each user story with one single requirement. Nevertheless, some of them are cross-cutting to various requirements, so we related them to an overall cluster of requirements.

Some of these user stories have not yet been taken into account in the current prototype, as their development is related to the development of requirements that - due to their iterative nature - are planned to be executed later in the project plan.

3.2.1 Record Label User Stories

For the definition of the record label user stories, two different types of user were defined:

- Marketing Team – All actors involved in marketing activities for an artist in a record label roster. This includes managers, DIY artists, etc.
- A&R – Artists and repertoire. All actors responsible for finding talent and monitoring the artistic development for an artist in a record label roster.

Previous studies (see D1.1 – Music Industry Innovation Report v1 and D1.2 – FuturePulse Requirements) have shown the need to collect, analyze and evaluate all the different sources of information in one place. Sources include audio and video streaming, digital and physical sales and traditional, online and social media. This need to be able to analyze data in one place is corroborated by looking at the user stories defined for this use case. The solution that we derived from this study results in a dashboard in which data of a temporal, geographic and demographic kind are organized. This data must be displayed at artist and track level.

The customization of audience metrics analysis by the user is a very important feature in the user stories of the record label use case. The user should be able to compare a selection of data sources in a given time resolution. Moreover, these comparisons should be enriched by the possibility of adding an event in a timeline so that the user could understand its effect in the artists' marketing strategy (i.e. how promotional activities affect the streaming numbers of an artist).

Some of the user stories (PGM_US #11, #15 and #17) in this use case could not have been related to any of the current FuturePulse requirements, and they must be addressed in the further requirements and visualization iterative processes.

User Story	User	Description	Relevant Requirements
PGM_US #1	Marketing Team	As a Marketing Team user, I want to be able to choose which graphs to compare so that a comparison between relevant data is possible based on the need for a specific artist/project	Audience Metrics
PGM_US #2	Marketing Team	As a Marketing Team user, I want to be able to drag and drop different statistics from different platforms to the same graph so that correlations become easier to detect visually	Audience Metrics
PGM_US #3	Marketing Team	As a Marketing Team user, I want to be able to add promotional activities as "events" in the streaming timeline so that correlations become easier to detect	PGM_REQ #6, PGM_REQ #9, PGM_REQ #11
PGM_US #4	Marketing Team	As a Marketing Team user, I want to be able to save effects of such events as statistics so that I can use it in planning future promotional activities and choose the most beneficial timing	PGM_REQ #6, PGM_REQ #9, PGM_REQ #11
PGM_US #5	Marketing Team	As a Marketing Team user, I want to compare streams on Spotify with number of likes/followers on Facebook so that I can understand the correlation, if there is one	Audience Metrics

PGM_US #6	Marketing Team	As a Marketing Team user, I want to compare streams on Spotify with streams on YouTube or other streaming platforms so that I can see what platforms are relevant for what artists	Audience Metrics
PGM_US #7	Marketing Team	As a Marketing Team user, I want to be able to choose a time interval to investigate so that I can look at both the big and small picture, ranging from "all", "2017", last quarter, last month, last week	Audience Metrics
PGM_US #8	Marketing Team	As a Marketing Team user, I want to know what age group in a certain territory uses what streaming platform so that I can spend marketing budgets on the platform where the assumed target group will most likely see it	Audience Metrics
PGM_US #9	Marketing Team	As a Marketing Team user, I want to know how streaming on Spotify grows in age groups, if there is a pattern where for instance young people are early adopters and that the streaming later reaches a wider audience so that I can spend marketing budgets on the right target group	Audience Metrics
PGM_US #10	Marketing Team	As a Marketing Team user, I want to know if Friday is the optimal release day within all genres or if there are exceptions so that I can plan a release schedule that will be as beneficial as possible	PGM_REQ #6
PGM_US #11	Marketing Team	As a Marketing Team user, I want to see adds on Spotify curated playlists in the timeline for a track so that I can follow the impact that such an add might have or not have	Not covered by the current requirements (See PGM_REQ #8 on D2.1)
PGM_US #12	Marketing Team	As a Marketing Team user, I want to see if there is a season or period during the year when streaming on new tracks evolve quicker than others so that I can plan a release schedule that will be as beneficial as possible	Audience Metrics
PGM_US #13	Marketing Team	As a Marketing Team user, I want to be able to add (or have added automatically) live events/concerts as	PGM_REQ #6, PGM_REQ #9, PGM_REQ #11

		"events" in the streaming timeline so that correlations become easier to detect	
PGM_US #14	Marketing Team	As a Marketing Team user, I want to be able to add (or have added automatically) blog posts or big reviews as "events" in the streaming timeline so that correlations become easier to detect	PGM_REQ #11
PGM_US #15	A&R	As an A&R user, I want to listen to trending, unsigned artists so that I can sign them before anyone else does	Not covered by the current requirements
PGM_US #16	A&R	As an A&R user, I want to be able to search for trending artists within a specific territory so as to find something that will work in a specific market	Audience Metrics
PGM_US #17	A&R	As an A&R user, I want to be able to search for trending artists within a specific language so as to find something that will work in a specific market	Not covered by the current requirements (See SYB_REQ #7 on D2.1)
PGM_US #18	A&R	As an A&R user, I want to be able to see social media stats and streaming numbers so that I can investigate the details of a potential artist to sign	Audience Metrics
PGM_US #19	A&R	As an A&R user, I want to know if music trends always move across the territories in a specific pattern so that I can predict that if something is trending in territory X it will soon start trending in territory Y	PGM_REQ #5, SYB_REQ #15

Table 4 Record Label User Stories

3.2.2 Live Music User Stories

For the definition of the live music user stories, several types of user were considered that resulted to the overall stories description: music festival, club, concert venue, Independent music programmer and event. When it came to define the stories, we realized that all users shared virtually all the needs in functionality. Therefore, we have kept only one type of user (Music Festival), interchangeable with the rest of the other types.

In this use case, the stories are strongly related with the whole set of features clustered under the audience metrics requirements cluster. The category of data that emerges as the most important is of the geographical kind: trending artists, identified by means of predictive analytics, should be presented in a single dashboard that includes data for many countries. It is noted that bordering countries take on greater relevance for the live music actors, who carefully consider the preferences of neighboring audiences when programming new events.

After analyzing the user stories provided by Bass Nation, leader of the live music use case, and working in dedicated sessions for the definition of the visualization, the better approach for this use case was a specific dashboard where audience metrics and music attributes and metadata were shown in a very simple way. Normally, the process of finding new artist and genre trends are based in offline processes that involve gut feeling and ticket sales analysis. Most of the actors in this use case are not used to work with advanced analytics and online tools.

User Story	User	Description	Relevant Requirements
BN_US #1	Music Festival	As a Music Festival, I want to be able to identify the trending music or electronic music genres in bordering countries in order to attract and grow international audience in my event.	Audience Metrics
BN_US #2	Music Festival	As a Music Festival, I want to be able to identify the trending music or electronic music genres in my country / region so that I can program the relevant genre for my local / national audience.	Audience Metrics
BN_US #3	Music Festival	As a Music Festival, I want to be able to identify new / upcoming music or electronic music artists in order to program attractive artists in order to grow the audience of my event.	Audience Metrics
BN_US #4	Music Festival	As a Music Festival, I want to be able to identify new / upcoming music or electronic music artists in order to program 20% to 30% or new / emerging talents in my event.	Audience Metrics
BN_US #5	Music Festival	As a Music Festival, I want to be able to view in a single dashboard all relevant information regarding the trending musical or electronic music genres in my region (country + bordering countries).	Audience Metrics
BN_US #6	Music Festival	As a Music Festival, I want to be able to view in a single dashboard all relevant information regarding the new / emerging artists in a specific musical or electronic music genre.	Audience Metrics
BN_US #7	Music Festival	As a Music Festival, I want to be able to know who the next big artist in a specific musical or electronic music genre will be.	Audience Metrics

Table 5 Live Music User Stories

3.2.3 Background Music Platform User Stories

For background music platform use cases, two types of user have been defined:

- Playlist Editor – Those who program playlists for the background music platform clients. These actors are keen to continue studying and exploiting the effects of background music on customer experience and consumption.
- Business Owner – Those who play music in their restaurants, retail stores, bars, gyms, supermarkets, etc. These actors will analyze the effect of the music played on their businesses, as well as they will assess the effect of music selection behavior on customers based on FuturePulse performance.

One of the main demands of this use case is to reduce the manual processes that are still present in the discovery and selection of the right music for each brand and establishment. Therefore, from the point of view of both the playlist editors and the business owners, it is necessary to have a complete overview of the analysis conducted in the three categories in which the requirements are encompassed. In this case, each user story is related to one of the requirements detailed in section 3.1, including requirements from the three clusters described: audience metrics, music attributes and additional metadata.

Despite its valuable input to the design process and its consequent discussions about the common features to be displayed on the platform, a large part of the user stories has not been taken into account for the development of this version of the visualization engine, since Background Music Platform requirements are satisfied by exposing appropriate APIs to be integrated to third party applications (e.g. playlist creation interfaces), which are already used by end users, and not by a new end user interface.

User Story	User	Description	Relevant Requirements
SYB_US #1	Playlist Editor	As a Playlist Editor I want to be able to see the current levels of recognition (0 - 10) of tracks among customers in a certain country, so that I can program playlists with high recognition levels in that country.	SYB_REQ #1
SYB_US #2	Playlist Editor	As a Playlist Editor I want to be able to see the current levels of popularity (0 - 10) for tracks in a certain country so that I can program playlists with high popularity levels in that country.	SYB_REQ #2
SYB_US #3	Playlist Editor	As a Playlist Editor I want to be able to see the genre of a track so that I can program playlists in certain genres for genre dependent brands.	SYB_REQ #4
SYB_US #4	Playlist Editor	As a Playlist Editor I want to be able to see the current general level of genre popularity (0 - 10) in a specific country so	SYB_REQ #15

		that I can program playlists with high genre popularity in that country.	
SYB_US #5	Playlist Editor	As a Playlist Editor I want to be able to see the energy levels of a track (0 - 10) for a certain track so that I can program playlists with high or low energy levels depending on customer intensity.	SYB_REQ #6
SYB_US #6	Playlist Editor	As a Playlist Editor I want to be able to see the release year for a track so that I can have that additional information when programming playlists with a certain "sound".	SYB_REQ #8
SYB_US #7	Playlist Editor	As a Playlist Editor I want to be able to see the original country of release for a track so that I can program playlists with music that is special for that certain country.	SYB_REQ #9
SYB_US #8	Playlist Editor	As a Playlist Editor I want to be able to see whether a track is non-vocal (instrumental), or with dominant male or female vocals so that I can program playlists customized for certain brand images.	SYB_REQ #10
SYB_US #9	Playlist Editor	As a Playlist Editor I want to be able to see the moods related to a track so that I can program playlists that influences customers feelings and moods in store.	SYB_REQ #11
SYB_US #10	Playlist Editor	As a Playlist Editor I want to be able to see the BPM of tracks so that I can program playlists with the same kind of BPM.	SYB_REQ #12
SYB_US #11	Playlist Editor	As a Playlist Editor I want to be able to see if a track has a fade in or a fade out so that I can program playlists that have good transitions between tracks.	SYB_REQ #13
SYB_US #12	Playlist Editor	As a Playlist Editor I want to be able to see if a track is major or minor so that I can program playlists or parts of playlists with the same key.	SYB_REQ #14
SYB_US #13	Business Owner	As a Business Owner I want to be able to see the current levels of recognition (0 - 10) of tracks among my customers, so that I can choose music that my customers recognize.	SYB_REQ #1

SYB_US #14	Business Owner	As a Business Owner I want to be able to see the current levels of popularity (0 - 10) for tracks among my customers so that I can play music that is popular among them.	SYB_REQ #2
SYB_US #15	Business Owner	As a Business Owner I want to be able to see the genre of a track so that I can play music from genres that fit my brand.	SYB_REQ #4
SYB_US #16	Business Owner	As a Business Owner I want to be able to see the current level of genre popularity (0 - 10) among my customers so that I can play music from genres that my customers like.	SYB_REQ #15
SYB_US #17	Business Owner	As a Business Owner I want to be able to see the release year for a track so that I can play time typical music that suits my brand.	SYB_REQ #8
SYB_US #18	Business Owner	As a Business Owner I want to be able to see the original country of release for a track so that I can choose music from countries that suits my brand.	SYB_REQ #9
SYB_US #19	Business Owner	As a Business Owner I want to be able to see whether a track is non-vocal (instrumental), or with dominant male or female vocals so that I can play tracks that suit my brand.	SYB_REQ #10
SYB_US #20	Business Owner	As a Business Owner I want to be able to see the moods related to a track so that I can choose music that influences my customers' feelings and moods towards a higher paying willingness.	SYB_REQ #11
SYB_US #21	Business Owner	As a Business Owner I want to be able to see the BPM of tracks so that I can play music with the same kind of BPM.	SYB_REQ #12
SYB_US #22	Business Owner	As a Business Owner I want to be able to see if a track has a fade in or a fade out so that I can play music without interruptions in amplitude.	SYB_REQ #13
SYB_US #23	Business Owner	As a Business Owner I want to be able to see if a track is major or minor so that I can play music in the key that suits my brand.	SYB_REQ #14

Table 6 Background Music Platform User Stories

4 Visual analytics for music prototype

In this chapter we describe the delivered user dashboard as the first reference in the next phases of the project to continue with the design of the platform and its visualization, the integration of the components and the iterations on the requirements.

This prototype is only the result of the first of the iterations that we will have to carry out periodically so that we can evolve in a correct way the dashboards that cover the needs of the biggest possible type of pilot testers.

In this demonstrator, we include the analytics visualization elements that we believe best fit our goal of showing the data in a clear and simple way.

4.1 Dashboard

These dashboard views are also available after clicking in one of the items in the four charts: Latest Viewed, Latest Release, Most Popular and Trending.

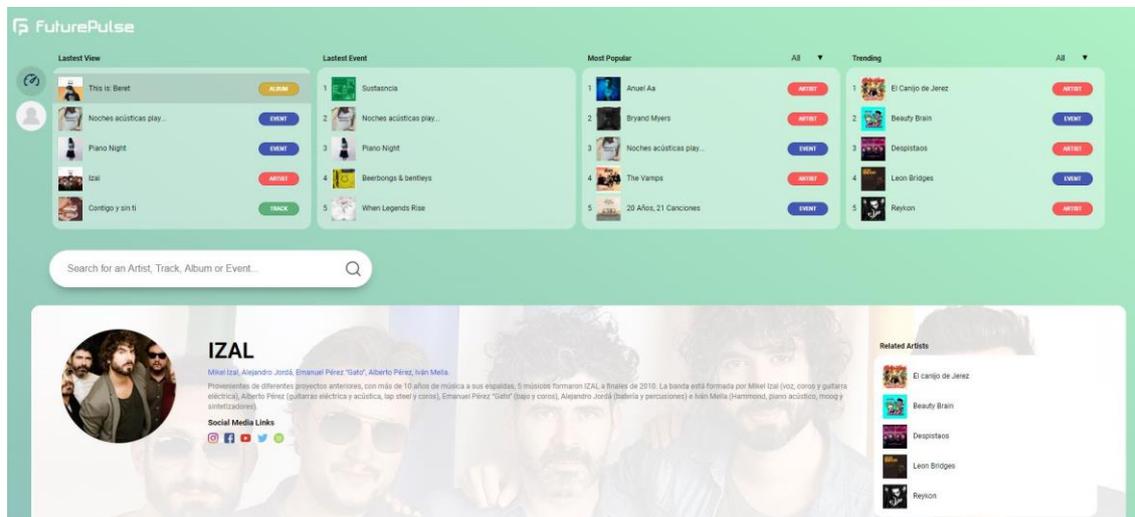


Figure 1. Artist view dashboard



Figure 2 Track view dashboard

4.2 Elements

In this section we describe and show the elements included in the panels.

4.2.1 Pie charts for gender and age data comparison

Metrics distributed by age and gender are shown in pie charts. The user can choose between age or gender and will see the data by platform, as well as the total number of plays in the streaming and radio services.

In the case of gender, the data are distributed between men and women, and those of age are distributed among the ranks:

- Under 13 years of age
- Between 13 and 18 years old
- Between 18 and 25 years old
- Between 25 and 35 years old
- Between 35 and 50 years old
- Over 50 years of age

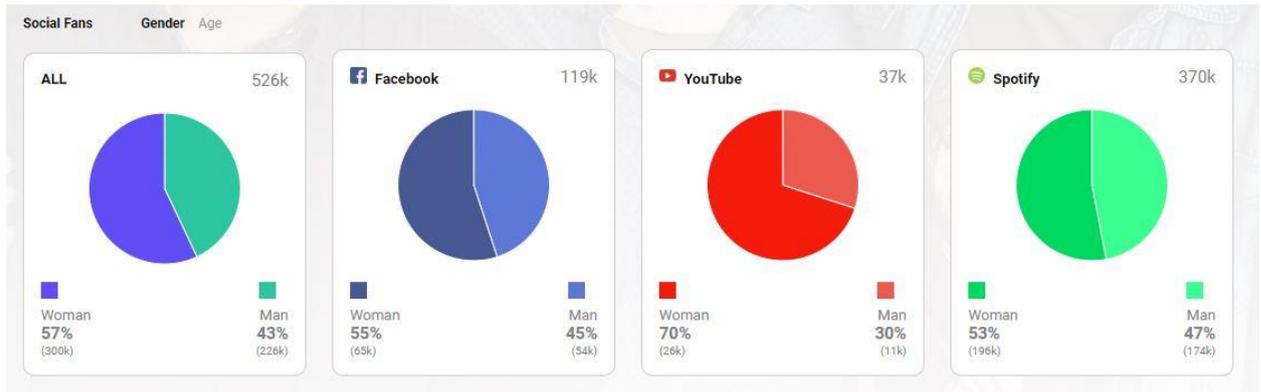


Figure 3 Demographic comparison by gender

4.2.2 Heatmaps

To display geographic data, we use (World) heatmaps with eight gradient values (white, blue, dark green, light green, light yellow, dark yellow, orange and red). The user will be able to see the data history by platform. In future developments this data should be displayed within a certain time frame, as is already happening in the timelines described above.

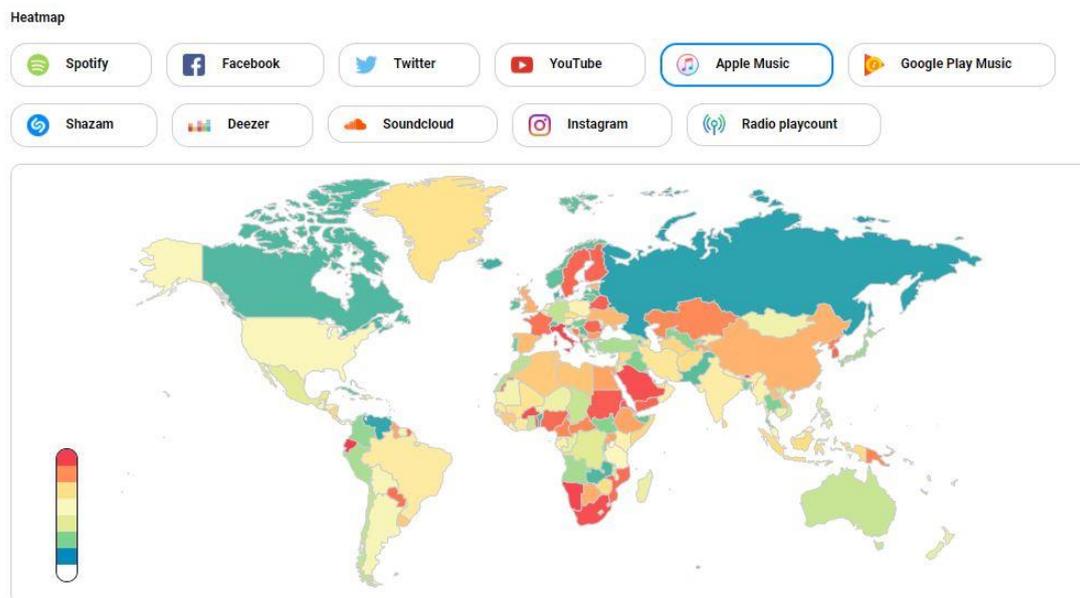


Figure 4 Heatmap with Apple Music data

4.2.3 Charts

The four charts that the user will find available above the panel are the following:

- The last five searches on the platform
- The last five releases among the tracks on the platform
- The five most popular artists or tracks among the assets registered on the platform
- The five most trending artists or tracks among the assets registered on the platform

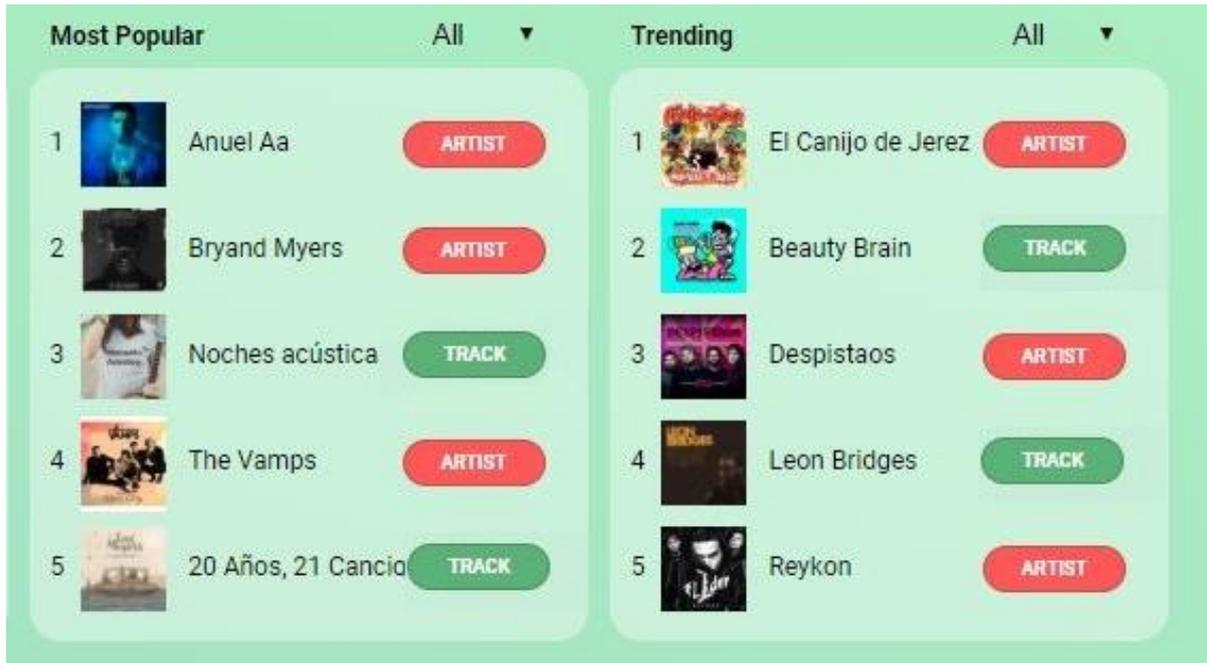


Figure 5 Most Popular and Trending Charts

5 Results and Conclusions

This Deliverable, D4.2 - Visual analytics for music, is part of WP4 – Platform Integration and Application Development, details the processes carried out to design and implement the demonstrator delivered at the same time as this report. As a result of this work, an analytics dashboard has been developed, which meets the first required functionalities of the applications. The prototype provides the necessary tools for visual representation of the data resulting from the data mining processes and prediction statistics that are the outcome of the development carried out during the first year of the project.

This first dashboard is key to the further agreements about visualization data during the project, continuously reviewed by stakeholders and FuturePulse partners. The iterative definition of the requirements and FuturePulse visualization engine will be enriched by working, not only with a graphic idea of the needs and results of the project, but also by being able to count on a series of workflows and user stories along with the analysis of previous requirements.

During the next two years of the project, the visual analytics for music will be presented by means of at least two dashboards, for Record Music Label and Live Music pilots.