FuturePulse

Multimodal Predictive Analytics and Recommendation Services for the Music Industry

D5.5 – Record Label pilot report v2

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Digital Service Provider (DSP) - e.g. Spotify, Apple Music, Deezer
Key Performance Indicator (KPI)
Kontor New Media (KNM)
Playground Music (PGM)

1 Executive Summary

This Pilot report was created as a document to describe and explain all the activities that the Record Label Use Case has been doing in the last year of the project (since the Small Scale Pilot); the Medium and Large Scale Pilots. As we are all aware, this year came with severe changes to the landscape of the music industry due to COVID-19. Many industries suffered huge setbacks and the music industry was not exempt. Although people still consume music during a global pandemic and the primary role of a record label is to sell that music, we still faced some difficulties. Record labels rely on artists being able to play live to showcase and spread their music. The way we are used to working to create PR opportunities and creative marketing campaigns had to change and the day to day business was far from normal. The most difficult part was seeing the artists, managements and other companies we work with struggle. For some time, the goal for us all was to just stay afloat. But as we say in showbiz, "the show must go on" as did the FuturePulse project. We gave our best effort to keep developing and perfecting the platform as well as engage our networks in the work we do.

This deliverable will show the journey from creating an action plan for the last year, through planning and executing the Medium Scale Pilot with 30 internal users; to planning and executing the Large Scale Pilot by inviting 400 users to test an open version of the platform. It will go into detail on the hiccups along the way but, most importantly, it will show all the wins and success the FuturePulse team has achieved.

The three main sources of feedback from pilot users were questionnaires, user action data (Google Analytics data from the platform itself), and workshops where verbal feedback could be collected through discussions. Pilot users have been given demonstrations of the platform; many of them have had several demonstrations throughout the year. All the Large Scale Pilot users were also invited to the FuturePulse open webinar on October 9, 2020. Through these sources we could get a clear picture of what the pilot users thought of the project. One of the hardest parts of the pilots was managing the user expectations. Even though we explained that FuturePulse is a research project, pilot users had a hard time removing their 'professional glasses' when testing the platform and they were strict and honest in their feedback as if it were a commercial product. On the other hand, this gave the technical teams a chance to truly act on the feedback and many updates and further developments were done during the last year; especially regarding the UX and UI which were the most critiqued aspects of the platform.

The fruit of that labour was shown in the Large Scale Pilot where we saw an increase in positive feedback. The platform was easier to navigate, the features better perfected, the system sturdier, and most importantly, the pilot users more satisfied with the application.

2 Preliminary Notes

This chapter provides the context of this deliverable, its relation to other project work packages and tasks, and some relevant information regarding the Record Label Use Case with respect to the Year 3 Action Plan of the project.

2.1 About This Deliverable

This Pilot report is part of Work Package 5 (WP5 Pilots & Evaluation) which serves as the testing ground for the platform to deliver a set of concrete user findings for the FuturePulse consortium. *D5.5 Record Label pilot report v2* is an update of all activities that have taken place in the Record label pilot testing process since D5.2 Record Label pilot report v1. The report will initially explain the Record Label scope and how it fits into the current music industry climate. The Record Label is one of three cases within the project together with live music and background music. The focus of the report is to present the results of the Medium and Large Scale Pilots that have been conducted throughout the last year of the project. It will describe the planning activities for the Medium and Large Scale Pilots as well as the methodology used to carry out the pilots. It will then describe the test activities including a detailed description of the pilot users as well as go through all the requirements tested. An explanation of all the data sources used to gather information will be provided. The last part of this report will contain results from the Medium and Large Scale Pilots as well an analysis and conclusion of all the findings from this year.

2.2 Relation to Other WPs/Tasks

The Future Pulse project is divided into seven (7) work packages. Over the course of the project the different work packages relate to one another in several ways and depend on each other to move forward. This Pilot report is part of work package 5 (WP5 Pilots & Evaluation) and this report and the ongoing feedback from the Record Label Use Case have the objective to serve as a testing ground for the platform and to deliver a set of concrete user findings for the project. Following are descriptions of the other work packages and how they relate to the D5.5 Record Label pilot report v2 focusing on our input during year 3 in the project.

WP1 - Open innovation, User Requirements and Design
The objective of this Work Package is to position FuturePulse in the highly dynamic landscape of online music, to specify its unique and innovative characteristics and to deliver a set of concrete user requirements for FuturePulse. In particular, the Work Package aims at the following:
- create an overview of technological and market trends on predictive analytics and music;
- define the user requirements for each of the three Use Cases addressed by the project, the Record Label, the Live Music, and the Music Platform Use Cases.

The requirements analysis process involves all stakeholders, both representatives of the music industry and technology developers. The involvement of stakeholders is not limited to stakeholders within the consortium, but is extended to stakeholders in the market, who are asked to highlight the major limitations of existing solutions, the opportunities and their expectations from a platform such as FuturePulse.

In WP1 the user requirements have been gathered and refined through the project. D5.5 Record Label pilot report v2 is related to WP1 during year 3 by the active testing of the requirements related to the Record Label Use Case. Through the workshops and pilots conducted feedback about how well the requirements have been met and the design and usability (UI and UX) have been channeled back to the consortium.

Furthermore, D5.5 Record Label pilot report v2 is related to WP1 by serving the WP with music industry business intelligence with a focus towards existing music platforms and applications with similar functionalities and target end users to FuturePulse. This has primarily been achieved by the compiling of the D1.1 Music Industry Innovation Report version 1 and 2 and an ongoing discussion with the WP1 about existing services and platforms.

WP2 - Music Data Collection, Analysis and Indexing

The main objective of Work Package 2 (WP2) is to ensure that all consortium partners have timely access to music data necessary for developing and testing the FuturePulse capabilities. Moreover, WP2 makes sure that such data access complies with pertinent regulations and fully respects the interests of all data owners.

D5.5 Record Label pilot report v2 during year 3 is related to WP2 when it comes to testing what data sources have been implemented and that the crucial data retrieval necessary for the FuturePulse platform is working as desired. During the last year, we have been coordinating the delivery of audio files and metadata. We have also assisted the consortium members in charge of WP2 in establishing routines for data collection, analysis, and indexing since various data sources have changed during the year.

WP3 - Predictive Analytics and Recommendations

The main objective of Work Package 3 (WP3) is to develop methods to leverage the large variety of collected music data (derived from WP2) for supporting decision making by various stakeholders (e.g., artists, labels, and brands).

D5.5 Record Label pilot report v2 reflects PGM's work in evaluating the predictive functions throughout the medium and Large Scale Pilots. Together with WP3, we also developed a new requirement (RL_Req#10A) to recommend suitable Spotify playlists where labels/artists should pitch their music. This was a direct result from the Small Scale Pilot.

WP4 - Platform Integration and Application Development
The main objective of Work Package 4 (WP4) is to thoroughly define the integrated FuturePulse architecture, to develop all necessary applications and APIs towards the integrated FuturePulse complete platform, and to produce a competitive UI and UX.

D5.5 Record Label pilot report v2 reflects the close contact PGM has had to WP4 during the final year of the project, providing feedback on the user interface and user experience. Through internal workshops outside of the scheduled pilot tests we have evaluated what was built and gathered input about how to proceed.

WP6 - Innovation Management, Dissemination and Exploitation
The main objective of Work Package 6 (WP6) is two-fold:
- to generate awareness about the project, its achievements in the general public and in communities of interest.
- to pave a clear path for exploitation and sustainability for the project.

This deliverable is closely related to WP6 as the feedback provided about the music industry and markets needs for the specific Use Cases is essential for dissemination and exploitation purposes. During year 3 we have been participating in the WP6 work and we believe that our contacts in the music industry community including trade bodies and organizations have proven to be of good use and will continue to be so once the FuturePulse project is finalized and the commercialization of the platform and findings will take place. We have been participating at panels and webinars and our knowledge in social media marketing has also been shared with the WP6.

WP7 - Project Management
The main objective of Work Package 7 (WP7) is to support the project in succeeding its goals through strong coordination and continuous monitoring, assessment and reporting.

D5.5 Record Label pilot report v2 and WP7 are closely related as there is an ongoing exchange of information regarding the overall process and development. By developing the list of Action Items and Deliverables as well as structuring a weekly Pilot Group meeting, WP7 has been steering the combined efforts of the Use Cases and the pilot tests to ensure that we work alongside the technical partners to fine tune the platform.

2.3 Differences between public and confidential versions of this deliverable

Other than more explicit details about participants in the pilot tests (names, etc.), there are no differences between the public and confidential version of this deliverable. No sensitive information or data nor company secrets are presented in either report.

2.4 Year 3 Action Plan

At the 2nd project review held in Brussels on October 22, 2019, the reviewers requested the project to develop an action plan for the last year of the project. In the Year 3 Action Plan that was developed, it was established that in order to test all the features and requirements for the Record Label Use Case, the FuturePulse platform needed to process two kinds of input data: public data (e.g. Spotify popularity or Facebook fans) and private data that can only be obtained through the rights holders (e.g. Apple Music streams or audio descriptors, for which the audio file is needed). Due to some data limitations (further explained later in this report), the project couldn't deliver on the private data obtained through other rights holders than PGM's catalogue. PGM therefore had to limit the testing to their catalogue's private data for most of the pilot users and use public data for the rest of them. This limited the ability to test certain features and requirements. This had an impact on the overall assessment of FuturePulse and it pushed back the Medium Scale Pilot several months, delaying the gathering of data and, thus, delaying giving feedback to the technical team for further improvements, which gave us less time than expected to make major adjustments or changes to the platform based on the feedback from the questionnaires. However, since the Medium Scale Pilot started in March 2020 and workshops had been held, PGM was able to give the technical team continuous feedback throughout the spring and summer, which lead to a major version upgrade of the platform by April 2020 including considerable improvements on usability with a visual dashboard and new features, followed by several frequent updates until October.

The data restrictions have also impacted the Large Scale Pilot which, according to the Year 3 Action Plan, was set to begin in April 2020. This was also a direct cause of the global pandemic. The actual start date for the Large Scale Pilot was instead moved to early October 2020. It also made us move from a 'qualitative' plan towards a slightly more 'quantitative' plan. In the Year 3 Action Plan, the partners decided that the goal for the Large Scale Pilot was to expand beyond the circle of PGM artists and that the aim would be to get access to a larger dataset of restricted data in order to be able to invite other labels, managements and experts within the recording industry for a full showcase of the platform.

Each digital aggregator has their ways of exposing the private data received from the digital service providers (DSPs) to their customers (via a web-based dashboard, via API, via data exports). Since PGM distributes its content through Kontor New Media (KNM), the digital distributor that PGM uses for their repertoire. FuturePulse integrates with KNM's backend to feed the FuturePulse datasets on a daily basis with data related to PGM catalogue. To ease operations and integration costs, it was proposed to invite some of the other thousands of labels distributing their content through KNM for the Large Scale Pilot. However, the consortium along with PGM decided against this due to the fact that it would turn out too expensive to actually onboard any more external data outside of the data provided by PGM. Nonetheless, the consortium is now looking into

ways to onboard certain interested parties with third party private data in the context of further exploitation discussions.

Instead, PGM shifted focus towards inviting a larger number of pilot users to test the public data version of the platform. Instead of inviting 100 pilot users to onboard the platform using their own data, PGM invited approximately 400. When it was decided that one of the dissemination activities would be an open webinar[1], PGM seized the opportunity to use that as a starting point for the invited pilot users to get a demo of the platform. PGM then invited them separately through email. In the Year 3 Action Plan, it was decided that we would follow up with the pilot users on a weekly basis to ensure as many responses to the questionnaire as possible. This has been done, both by updating the pilot users on project activities, for example, the Music Business Worldwide article[2] that was published, as well as regular reminders. In addition to this, we wanted to add another source of user data that was more objective compared to the sources already used. That is why we have added user action data -- statistical data showing the pilot user's interaction with the platform. This was collected through the backend of the platform as well as through Google Analytics. This was not initially intended when the Year 3 Action Plan was written.

Feb - Mar 2020

Define large scale requirements (based on previous feedback)

Define pilot users (labels outside PGM if possible, etc.)

Review/adjust questionnaires for large scale

Apr - May 2020

Send questionnaires to large scale pilot users

Define demo structure for large scale pilot users

Provide demo for large scale pilot users

Users fill out questionnaires

Jun - Jul 2020

Outreach to users to return questionnaires

Collect questionnaires; analyze feedback

Conclusions, reporting, present findings to consortium

Complete final report

Figure 1: Schedule for Large Scale Pilots as per the Year 3 Action Plan.

Mar – Jun 2020	Jul – Sep 2020	Oct 2020
Work with the technical team to solve data issues. Workshops and discussions with pilot users. Define Large Scale Pilot methodology, structure and pilot	Prepare and initiate the Medium Scale Pilot. Pilot webinar, Aug 12 Send questionnaire to medium scale pilot users	Provide demo for Large Scale Pilot users. Invite pilot users to the Large Scale Pilot + send out questionnaire Collect questionnaires; analyze findings

[1] Open webinar: https://www.youtube.com/watch?v=mDeuAKW98Bo

[2] MBW article: https://www.musicbusinessworldwide.com/futurepulse-just-released-a-music-forecasting-platform-but-needs-the-industrys-help/?fbclid=IwAR0D-2-613-kS7UyS4du1cxWD_n7TtLhFtSH1zlQMlSVYNQRDjFWb228aFc

| users. | Testing of platform and feedback through questionnaire | Conclusions and reporting |
| | Collect questionnaires; analyze feedback | |

Figure 2: The amended Medium and Large Scale Pilot schedule.

2.5 Extension Granted due to Global Pandemic

The project was granted a three-month extension due to COVID-19. It was an obstacle that hit hard, not only for the project, but our industry as a whole. The execution of the project had to adapt to the new reality and we had a hard time engaging some of the pilot users; some were on furlough and others had to shift their business focus.

3 Use Case Scope

3.1 FuturePulse: Business Concept

The Global Recorded Music Market
In 2019, global recorded music revenues saw a growth of 8.2%. This was the fifth consecutive year of global growth. Revenues increased in many markets and in nine of the global top 10 markets. Digital revenues have increased steadily over the past few years and streaming revenues alone now account for more than half (56.1%) of the global recorded music market after increasing by 22.9% in 2019. By the end of that year, there were 341 million users of subscription streaming accounts globally. US$20.2bn was the total value of the recording industry in 2019. 56.1% of global industry revenues comes from streaming and $5.8bn is invested in A&R and marketing by record labels annually.

The global digital market is now seeing services develop and extending their offerings around the world. These developments are expanding the streaming base, providing fans with a more varied, richer experience and bringing streaming to new audiences and new territories. There was a +24.1% growth in paid streaming revenues in 2019. The digitalization has created an enormously exciting environment for music fans who are benefitting from new and evolving services and accessing more music than ever before. In turn, artists have more ways to connect with their fans and more opportunities to share their work in diverse and creative ways.

For record companies, the transformation during the last decade from CDs to the digital market was challenging at first. The industry experienced large falls due to issues such as piracy and copyright infringements. But eventually it has become beneficial and presented a lot of opportunities to the industry. However, the cost of marketing and promotion is still high and record labels take huge financial risks when signing artists. The DSPs are also diluted with enormous amounts of music released everyday by labels and DIY artists; Spotify alone handles up to 40,000 releases per day.[3] The long tail has emerged and the variety of content that is available to consumers is huge with an endless amount of music the consumer can choose to listen to and they can also choose to do it for free or via a subscription model. Needless to say, the competition for artists is tough.

3.1.1 Key Customer Questions

Who is the customer?
FuturePulse was created with a range of music industry professionals in mind. For the Record Label Use Case, anyone who is working with artists on some level could benefit from the platform; from record labels and music companies to management and artists themselves. Within these sectors, different professions can find the platform useful;

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[3] https://www.musicbusinessworldwide.com/nearly-40000-tracks-are-now-being-added-to-spotify-every-single-day/

A&Rs, marketers, PR representatives etc. The customer of the Record Label Use Case for FuturePulse is the exact same as the pilot users invited to test the platform. Under the section 'Pilot Users' in this report, we go into further detail describing the potential customer.

What is the customer problem or opportunity?
The digitalisation of the industry and increased competition resulting from that, those that work with artists have been faced with challenges. Not only do they have to know what kind of music consumers listen to and their behaviour when they do it, they also have to try and predict how that behaviour will develop over time. In addition to that, it is even harder to reach through all the buzz, influence consumers and gatekeepers, and make sure that the music is listened to and eventually yields revenues. This is where data plays a huge role. The digitalisation of the industry also means that we now have access to large amounts of data from various sources. By knowing how to analyse this data you will immediately gain competitive advantage. With that said, the industry is fairly new to using data as a source of information. It is also expensive and complicated to build systems that can collect and display large amounts of data. That is why most labels and industry professionals need to rely on third parties to do so.

What is the most important customer benefit?
For many customers, especially smaller businesses with limited resources, the most important customer benefit is gathering data from multiple sources and displaying data in one place in a user-friendly way. While there are services on the market today providing this, none of them have the same granular type of data that FuturePulse can offer where a label can onboard the platform with detailed information and get it analysed and presented in so many different ways. Also, if you add the state of the art functions that FuturePulse has developed, such as the predictive functionality, it is definitely a force to be reckoned with.

How do you know what customers want?
From the beginning of the project, many high-level industry professionals with multiple years of experience have been involved in creating the FuturePulse offer. Throughout the course of the project, a lot of work has been done to keep the project up to date with current industry trends and needs. Also, within all three Use Cases, a lot of focus has been directed towards getting to know the consumer needs. All this information and user feedback has been what has been driving the development of the platform.

What does the customer experience look like?
While most customers today understand that digitalisation of the industry has shifted it towards becoming more data driven and they are aware of the importance of looking at data, many of them are overwhelmed with the amount of data available and have a hard time knowing where to look for what, and why. Also, as mentioned above, a lot of the independent labels and companies do not have enough resources to 1) have time or experience to source, gather and display data and 2) to afford analysts that can focus solely on this work.

3.2 Testing Environment: FuturePulse Platform

The FuturePulse platform has an open version that allows anyone to create an account and test it. It can be found here: https://app.futurepulse.eu

The first page of the platform is a dashboard that can be customized to meet the user's individual needs. It displays artists, trending tracks and trending genres. To the left, the users can find a sidebar menu that takes them to each key functions of the platform. These are artists, tracks, playlists, genres, gigs. In addition to that they can find an about page where the project is described and contact information, a FAQ page where the key functions and features are explained as well as a feedback tab that takes the user to the Large Scale Pilot Questionnaire. Every user that creates an account has to agree that FuturePulse collects their data and platform movements through Google Analytics.

There are multiple input data sources displayed on the platform and there is a difference between the open version of the platform available to all and the private version available to PGM employees. The private version includes confidential data from aggregators/distributors such as streaming data and artist demography data. The open version displays data and information on Spotify playlists, selected social media data where there is an open API available, Spotify popularity data as well as FuturePulse popularity data (which is our own generated score), detailed genre information and selected events information. All these sources have then been used to analyse performance and create all the functions and features of FuturePulse.

The majority of the pilot users tested the open version of the platform.

4 Methodology

This section explains the methodology behind the design of the pilot for the Record Label Use Case, the evaluation methodology, the reasoning behind the selection of pilot users, the relevant features of the platform that this Use Case's pilot users tested and how, and a description of the data sources used to gather this information.

4.1 General Methodology & Background

During the Small Scale Pilot, the Record Label Use Case tested the earliest version of FuturePulse internally. The main focus was evaluating if the gathered data was coming from the correct sources as well as appeared to be sourced in a correct manner. The focus was testing those features that had been added to the platform at the point. Focus was therefore put on testing and evaluating the user experience and design of the platform. The conclusion was that it held all the information and functions available at the time but still needed work on the usability. Another major conclusion from the Small Scale Pilot was the need for a closer communication between the pilot leaders and technical team to get a better understanding of the highly advanced technical features and functions developed. This is something that has been taken into consideration during the continuation of the project and has been beneficial to the pilot.

4.1.1 Specific Methodology (Medium Scale Pilot)

The plan to expand the scope of the pilots has been followed exponentially, with an increase to 30 pilot users in the medium scale. This took into account the recommendation from the reviewers to increase feedback from pilot users at the B2B and potential future customer level.

The requirements were tested through pilot users who are music industry professionals. In addition to testing the requirements the platform has been tested and evaluated as a whole. Furthermore, we have had five workshops where the platform and requirements have been discussed and evaluated.

The Medium Scale Pilot was aimed to test specific requirements mentioned below. In addition to that the aim was also to test the whole platform and its usability for industry professionals' day-to-day business. As planned, the medium scale testing was a further development and larger scope of the Small Scale Pilot.

Test Activities:
Pilot users were given access to a pre-pilot questionnaire which was aimed to collect general feedback about the pilot users and their habits and experience when it comes to similar analytical platforms as well as the kind of information they look for in their line of work. We wanted this information to determine the potential need for a platform like FuturePulse.

Pilot users were then given demonstrations of the platform and its current capabilities, both through the workshops as well as a larger webinar held on August 13, 2020 attended by 25 of the pilot users. The demonstrations showed all aspects and features of the platform in depth and included cases of how it can be used. The pilot users were then asked to create user accounts, explore the platform and then complete questionnaires on their impressions of the platform as well as their professional background so the pilot leaders could analyze their responses in the context of their sectors and job functions.

The workshops held were aimed at creating open discussions about the platform and its features. Pilot leaders showed some of the key features and asked for feedback. The pilot leaders also asked open questions about what they were missing from the platform as well as what kind of functions they would like to see in order to help them in their day-to-day business. This led to a lot of great verbal feedback to analyze in addition to the questionnaires collected.

The Medium Scale Pilot was structured accordingly in order to have the pilot users be able to fully test the platform using data that they are familiar with; in other words, data that is connected to their artists/projects. By having a webinar and workshops we could also present the platform and key features in a comprehensive way for the pilot users and explain the process and usability behind each functionality. This made it easier to enable open discussions and collect feedback that way.

We faced a couple of technical limitations during the course of the year. The KNM data dump that PGM usually receives at a track level turned out not to be as useful as originally expected. The data that did arrive was mostly obtained through Spotify Analytics directly at the time. The little data that could not be found in Spotify would require an incredible amount of technical labor to make it useful (e.g., the skip rate needed to be calculated individually, track by track). This postponed the pilot and we had to re-think certain aspects of the pilots; testing up-to-date data. Additionally, Spotify Analytics closed down[4] and limited their use of open APIs. This further hindered us from receiving relevant data needed for the pilot. Focus therefore shifted from testing features with up-to-date data to testing the features from a business and usability perspective.

4.1.2 Specific Methodology (Large Scale Pilot)

The obstacles during the Medium Scale Pilot also made us have to change the course of the Large Scale Pilot from having pilot users test the platform using their own data to pilot users testing the open version of the platform available to all. Although the webinars all demonstrated the platform showing the full possibilities and capabilities using PGM's private data, most of the Large Scale pilot users had to test the platform using open, public data. This was due to PGM's internal confidentiality clauses. This shifted the focus

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[4] https://artists.spotify.com/blog/S4A-all-together-now

from testing unique features of the platform on specific artists to testing the platform as a whole in its current state. Despite this, we do believe that this was a better method of testing how market ready a product is and in the end getting more accurate feedback. 400 pilot users were invited to the Large Scale Pilot and 80 participated in trying out the platform.

For the Large Scale Pilot, users were invited to the open webinar held on October 9, 2020. The open webinar was a dissemination event held by the FuturePulse consortium which the pilot leaders saw as a good opportunity to invite the pilot users as it was an in-depth demonstration of the platform as well as an introduction to the FuturePulse project. At the webinar, everyone invited were given the opportunity to log in to the platform and test it. They were also asked to give feedback under the feedback tab included in the web application. In addition to that, the pilot users were separately invited and given a questionnaire to follow for feedback after they logged on to and tested the platform. Regular follow-ups and reminders were made to the pilot users.

In addition to the pilot users invited to test the platform, we have continued to have close talks with the team that has been a part of the pilot since the small and medium scale. This in order to be able to discuss the platform in a more thorough way and thus be given valuable feedback as the project is ongoing.

From the day of the open webinar, which was the day the platform was officially open to the public, we have also been collecting user action data logged by the platform backend and statistical web usage through Google Analytics.

4.2 Pilot Users

In the Record Label Use Case the target pilot users are record labels employees, managers, DIY artists or anyone seeking to collect data on an artist or release or make predictions within the recorded music industry.

For the Small Scale Pilot, PGM engaged members of their own staff and people from closely related labels as pilot users. Each person was given a face-to-face demonstration of the platform and was then given dedicated areas of testing concentrated to confirm that all data is being collected from correct sources/accounts and meeting the project requirements.

PGM staff involved in the Small Scale Pilot were PGM's CEO, PGM's Head of Social Media Marketing, PGM's Marketing & Communication Manager, PGM's Information Manager, PGM's Head of Digital Operations and PGM's Digital Operations / Digital Content Manager.

4.2.1 Pilot User Profile for Medium Scale Pilot

For the Medium Scale Pilot, PGM aimed to involve a larger number of music business professionals to test the now added features of the platform. Testing that would require access to closed and confidential data from the participants' own catalogues of repertoire. The possibility to onboard catalogues and confidential data from other sources than PGM was not possible at this point so it was decided to continue the Medium Scale Pilot with an extended group of people and companies that has a professional relation to PGM (i.e. their music distributed by or licensed to PGM) so that we could overcome the issue with closed data.

This led to a list of 30 pilot users; a combination of personnel at the PGM branches in Sweden, Denmark, Norway and Finland as well as external but related label partners and management with association to PGM. Our aim when choosing the pilot users was to have people representing a broad spectrum of functions at a record label.

Based on the pre-pilot questionnaire we learnt that most of the Medium Scale Pilot users are looking for daily updated information about their releases. They are looking for information at social media platforms but are also looking at radio plays and press mentions. The majority say that they want the information in order to make and evaluate marketing decisions and efforts. The most requested ability for a service providing analytics is to be able to see a collected view of data and metrics from multiple sources.

Here are the people we involved, their job titles and functions, and the reasons why:

Management/Economy/Back Office functions
In order to make your companies' future budget/business plans and to have a picture of how your repertoire is performing, statistical tools can be of great help and importance.

Digital Content Management
Involved in the day-to-day work with handling all digital assets, uploading content to DSPs and organizing correct metadata exchange in order to claim assets and secure accurate income. Having access to statistics is very useful when you are investigating and tracking generated earnings from your recordings and assets.

Label Managers representing International Repertoire
When working with marketing and promotion of international catalogue, it is crucial to be able to keep track of how your campaigns are paying off. It is common that you ask the repertoire-owner for marketing budgets and if you can provide good feedback on money spent that is very well received.

Local Marketing and Promotion
As mentioned earlier, it is crucial to know where your marketing resources are best spent. You want to see the correlation between promotion actions/marketing campaigns and actual increase in sales. You want to have as early indications as possible that your artist/track is developing as desired.

International Exploitation, Marketing and Promotion
In the digital world, a release on a DSP means that your product is going global. If you try to market and promote outside your home territory you need to know where to do so and what actions work. It is similar to what you would do in your local market but even more challenging when you are in foreign waters.

Artists and repertoire (A&R)
When scouting for new talent or when you look for good collaborations for your signed artists, you need to know what is trending or what is likely to be trending in the future. Going to a showcase or a club is nice of course, but mostly you spend time on the internet seeking out what is happening on various platforms such as Spotify or social media. Finding emerging success or new trends is crucial.

All the pilot users had varying levels of experience when it comes to using statistical tools similar to FuturePulse but all have very good experience and knowledge about the day-to-day work at a record label and/or promoting & managing artists' careers.

4.2.2 Pilot User Profile for Large Scale Pilot

In order to expand the group of pilot users to the Large Scale Pilot while adapting to the fact that confidential data from individual labels (other than PGM) would not be available, the testing was done on the public version of the platform, while more controlled showcasing/webinars were made by inviting specific stakeholders in the music industry. This action is also a step in the exploitation efforts and is being coordinated in WP6. One immediate action to invite pilot users for the Large Scale Pilots to follow up on the webinar from October 9, 2020 where PGM invited a large number of industry professionals, approximately 350 persons from Sweden; members of the Swedish Independent Label association (SOM[5]) as well as other pilot users from PGM's local network, and another 50 from PGM's international network. A total of 298 SOM labels were invited to test the platform.

The members of SOM that we find in this group are primarily small independent record labels, many of them DIY-artists. They have a need to find effective tools for their marketing and promotion and to increase their know-how about how to work the digital music business space in a cost-efficient and successful way.

In this group, we also have several artist managers that have similar profiles to the small labels. Some of them work on the international arena and have a need for business intelligence when it comes to trends and movements in genres territory by territory, including what is going on in the live scene. They are often involved in overseeing promotion and marketing efforts done by their label partners.

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[5] http://som.se/english

Our international network represents a number of some of the most prominent independent labels who also represent possible targets for the marketing of the FuturePulse platform. Among these labels we have: Beggars Group, Matador, XL Recordings, Epitaph, Edel, Domino and Cooking Vinyl.

What we wanted to obtain from the pilot users was initially knowledge about what services and applications they are using today in order to gather information about the music marketplace in relation to their artists and products. We wanted to know what specific intel they value and what type of information they lack in their currently used sources of information.

The responses from the pilot users also validated our own input to the project as the Record Label Use Case by gathering facts and needs from a broader base.

We have been addressing companies and individuals from different countries and from different business environments; small DIY artist driven companies as well as some of the bigger European independent companies. Also, in the mix we have added artist managers and people involved in music publishing that may have a slightly different approach and needs in their line of business. An artist manager has to have good knowledge about the live scene and a music publisher has another type of focus since their earnings primarily are generated from a mix of recordings and public performance.

4.3 Requirements Tested and Use Case Scenarios

Although the project has been built on requirements, many of the requirements have been transformed into one or multiple features of the platform. That is why we also wanted to make sure that the testing didn't exclude any functions as well as make sure that the platform was tested as a whole entity; both when it comes to functions but also design and user friendliness. This applies to both medium and Large Scale. We have tested the dashboard, artist demographics tab, timelines, the general artists and tracks features etc.

4.3.1 Medium Scale Requirements

Use Case #1 (RL_REQ#1): Predict success of track based on initial response
Based on initial data gain the ability to predict the success of a track. This initial data would be based on a set of parameters that would be tracked across all DSPs.

User story:
When releasing and working a track, the first days are most crucial to monitor in order to get a feel for 'where' a track is heading; its success. It is therefore of importance to gather as much data and intel as possible during the first days. This data includes streaming numbers, social media mentions, social media engagement, radio plays, skip rate, saves to library, Spotify followers etc.

Background and status of this requirement:
Due to the fact that we no longer acquire certain data this requirement was harder to test in practice but we managed to do so partially by testing the overall function of the combined visual timeline as well as the data gathered from other sources such as social media and radio counts. The ambition here was to achieve a quick response about the progress of a track as close as possible to its release. Typically tracks are released on Spotify on a Friday and the ambition was to have initial feedback on the coming Monday. This requirement could not be totally met due to mainly incomplete API from KNM. The usability of KNM's API was limited as regards tracks, so it was difficult from a technical perspective to integrate it. Also, when Spotify Analytics closed down it was even harder to acquire up to date data.

Use Case #2 (RL_REQ#2): Combined visual timeline for streaming statistics of an artist / track
Statistics from social media, YouTube and DSPs visualized in a combined interactive graph. Events that can be added automatically should be in the timeline, such as "release date". The solution should also include the possibility to manually enter "events", as simple marks in the timeline, that could influence streaming quantities, such as the start of an ad campaign, an addition of a song to a playlist, or other events. Stats represented should be both number of listeners and number of streams, on a daily basis. The timeline would make it possible to compare different streaming platforms with each other, for individual artists. It would make it possible to understand how YouTube consumption translates into streaming on other DSPs (Spotify, Apple Music etc.). It would also make it possible to understand the effect of different forms of events, such as campaigns, live performances, playlist additions, etc. The effects of such events should be saved for each artist, making it possible to create forecasts of how a likewise future event could influence streaming on different platforms.

User story:
When you are working with an artist or track you have to consider more than streaming/sales numbers. It is important to look at data from multiple sources in order to understand how a track or artist is doing. It is also important to research how different data sources collate with each other. This is especially helpful if you are a marketer or project manager; you want to know the cause and effect of certain movements in order to make valid decisions going forward.

Background and status of this requirement:
The combined visual timeline that FuturePulse has created is the best (and probably the only one) on the market. We therefore wanted to make sure that we presented it to the pilot users and that we were given feedback on it.

4.3.2 Large Scale Requirements

During the Large Scale pilot, all Medium Scale requirements were tested in addition to those below:

Use Case #3 (RL_REQ#5): Genres trending for each market

Predict trending genres in different territories and investigate recurring patterns. Do genre trends that are big in Europe always follow North America? Where do trends start and how do they expand - are there common denominators? Present movements on timeline to visualize the trends on a global level. Most useful way to get this data is possibly through the Spotify Viral charts. They need to be manually categorized in clusters such as "Europe" or "English speaking countries".

User story:

As an A&R at a record label it is of importance to know not only what is happening in terms of trends on a market but also having a feeling for and knowing about emerging trends. Predicting trends on certain markets could help record labels and managements with the A&R process and to make better decisions on what type of artists to sign. It could also help with the export process of an artist; knowing what territories could work for a type of artist. In addition, this is also helpful to understand where to spend marketing budget for local acts in certain foreign territories.

Background and status of this requirement:

This requirement has been tested through the prediction function of FuturePulse in combination with the combined timelines as well as the possibility to sort information based on country.

Use Case #4 (RL_REQ#10A): Recommend playlists to pitch to based on a track's audio profile

This requirement is a development from RL_REQ#10 and brought to our attention by the Small Scale Pilot and tested in the Large Scale Pilot.

By matching the audio profile of a track with the audio profile of playlists the intention is that the platform should be able to recommend suitable playlists for a specific track.

(This requirement was a development of RL_REQ#10- Playlist related streaming. If a song is featured in a specific playlist e.g. Spotify curated playlist – how many streams will that playlist generate. We can see that certain playlists are very important when growing streams – what's the common denominator.)

User story:

In today's music industry climate, Playlists play an important role as they can help a track be distributed to a lot of consumers. Often, the biggest playlists are run by the DSPs and therefore premiered and marketed heavily by them. Our job as a record label is to pitch unreleased tracks to appropriate genres, this is done before release, as well as pitch it to playlists (can be done post release). Also, by having as much information about a playlist, for example how many days a track is expected to stay on it or how many streams it usually generates, it will help when creating a playlist strategy and marketing strategy for a track.

Background and status of this requirement:

This requirement has been tested through the FuturePulse playlist feature and especially the audio profile function. This in coalition together with the track descriptors will help determine which track is suitable for what playlist. Currently however, it is not possible through FuturePulse to get audio descriptors of a track before it is released and can therefore only be used as a tool post release as well as a proof of concept.

Use Case #5 (RL_REQ#7): Show trending tracks and artists for discovery
FuturePulse would discover trending tracks and artists and discover those who are currently having a statistical upswing or doing particularly 'good'.

User story:
As a repertoire owner, you sometimes represent thousands of tracks and hundreds of artists. It is therefore not possible to stay updated on every single track. That is why it would be helpful if there was a way to get a notification of when a particular track or artist is doing well or performing out of the ordinary.

Background and status of this requirement:
There is a feature that ranks artists and tracks by growth and relative growth. Relative growth gives at the first positions artists with an outstanding performance (i.e. a non-ordinary increase of popularity). This information is found through the dashboard and the tracks function of the dashboard. It allows you to find this information through multiple filter searches such as genre or favourites library. While the platform does not notify you of growth changes, the information is there and easily accessible. It was tested through the dashboard, artists and tracks functions.

Use Case #6 (RL_REQ#C): Have access to up-to-date catalog of released artists/tracks in FuturePulse (no older than 24 hours)
This requirement was added with the Year 3 Action Plan on request from pilot leaders and Small Scale Pilot users.

User story:
The industry as we know it today operates at a fast pace since becoming a mostly digitized market. Instead of looking at sales numbers once a week or month for physical records sold, we are now able to attain data from various sources in almost real time. When looking at data, you always want to be looking at the latest data available. This is crucial to be able to make informed and up to speed decisions. Anything can happen within the course of a day and that is why it is important to stay updated.

Background and status of this requirement:
As of now, the platform is updated with new information daily or weekly depending on the type of data. As a general rule, confidential data or data feeds the platform on a daily basis, while in the case of publicly accessible data, the data crawling needs to be spread throughout the week to satisfy access quotas and limits of third party APIs. As mentioned above, it is also worth mentioning that it was not possible to obtain and

source data faster mainly due to an incomplete API from KNM. The usability of KNM's API was limited as regards tracks, so it was difficult from a technical perspective to integrate it.

This is how the platform is being updated currently:
- Genre popularity: Spotify Top 200 charts are collected weekly every Wednesday, and we calculate genre popularities at the end of that day, which means that updated genre popularities are available every Thursday.
- Artist popularity: Data is collected from all sources weekly. Each artist is tracked on a different time point of the week to ensure that we distribute the requests throughout the whole week period. Artist popularity calculation starts on Saturday and runs until Sunday so we can present the updated artist popularity score every Monday.
- Track popularity: We gather and update track popularity scores and predictions on a daily basis.
- Label tracks (from distributor): We insert new releases every Saturday (as new products are usually released on Fridays).[6]
- Audio descriptors: Audio analysis of new tracks takes place on Sundays.
- Playlist data: Data is collected from all sources daily, weekly, or every two weeks based on the number of followers of the playlist. In that way, popular playlists are tracked more often than less important playlists. Each playlist is tracked on a different time point of the day or week to ensure that we distribute the requests throughout the whole period.

4.4 Data Sources for Evaluation

4.4.1 Questionnaire

As described in the previous report, the questionnaires for the medium and Large Scale Pilots are based on the GQM measurement model which defined as a model on three levels: the pilot leaders define a goal (G) for the questionnaire -- what information should be gathered to best evaluate the feasibility of FuturePulse as a platform and its individual technologies/features. Then, with input and coordination with the other pilot leaders in the Record Label and Background Music Platform Use Cases, the Live Music Use Case develops a set of questions (Q) to guide pilot users towards achieving that goal. Finally,

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[6] Label tracks and audio descriptors were updated on a weekly basis for the PGM catalog until Spotify stopped Spotify Analytics API around August 2020, since this was the way CERTH was informed of which were the new tracks. Since fixing the automation would mean to over-engineer the solution so close to the end of the project, we agreed with CERTH to manage this manually from a list of new entries (CSV) provided by PGM, to feed the data workflow.

the findings from the questions are measured through a set of metrics (M). Further detail has been provided on previous reports.

The questionnaires contain both qualitative and quantitative data, both of which were analyzed based on the Record Label Use Case leaders' expertise in their sector with input from the other Use Cases. The Medium Scale Questionnaire was used to get a feeling for the pilot users' needs and their intentions. The questionnaires had two purposes: 1) understanding the pilot users current behaviour and needs, 2) having the user evaluate the platform and its functions. The medium scale questionnaire was sent out to thirty pilot users and answered by 25 pilot users.

The Large Scale questionnaire was designed similar to the Medium Scale questionnaire; to understand the pilot users' current behaviours and needs as well as get overall feedback of the platform from the pilot users. The difference between the Medium and Large Scale questionnaire is that the Large Scale questionnaire goes into the different features more in depth.

Both questionnaires were designed so that the pilot users could rate the features on a scale from "very poor" to "excellent" with five options in total. In addition to rating some questions were left open for the pilot users to give their comments and opinions. Questions about their current behaviour and were multiple choice.

4.4.2 User Action Data (Google Analytics, FuturePulse backend)

As a complement to the questionnaire, the Record Label Use Case also collected user action data from the FuturePulse backend and Google Analytics. These sources keep an account of a variety of data, including but not limited to number and target of user actions. This data has been updating in real time over the past year.

Google Analytics data shows an aggregate of user activity and, as such, has been used to inform pilot leaders which are the most used pages. However, since Google Analytics data is anonymized, there was no way to differentiate between different pilot users and, therefore, different pilots. The only restriction to allow for differentiation is to use dates to separate the phases - Medium Scale from Large Scale. However, due to technical issues, certain data that was essential for the medium scale test was not available during the planned time for the PGM Medium Scale Pilot. The pilot had to therefore be pushed back to August 12, 2020 and ended up overlapping with the launch of the planned Large Scale Pilot. Due to these limitations, Google Analytics data is being used only to report on the *overall* activity on the platform, regardless of use case or pilot phase. It is still useful, as it can provide general popularity of pages and features for *all* pilot users.

Both Medium Scale and Large Scale data from Google Analytics was gathered between August 12, 2020 and October 19, 2020.

To get more specific data by pilot and phase, the use case leaders are using the FuturePulse backend data, which is collected internally by the technical partners and provides information on user actions conducted per username. That way, the pilots have been able to filter out non-pilot user activity to provide accurate analysis. Because of this advantage, the backend user action data is not time restricted -- the current data analyzed covers a year period, between October 1, 2019 through October 19, 2020.

To differentiate between the Medium and Large Scale pilot phases, Medium Scale data for PGM was collected based on a select group of users whereas the Large Scale data was collected on all users that registered for the open platform and who identified as members of the record label use case. This information was cross referenced from questionnaire responses and from comparing the list of users against PGM's own outreach list they used to invite pilot users for the Large Scale pilot. In addition, PGM developed different Medium Scale and Large Scale questionnaires. That way, PGM was able to differentiate between the two groups of overlapping users.

4.4.3 Workshops

As a complement to the questionnaires and user action data, the Record Label Use Case has also collected feedback for the pilots from pilot users through workshops including open discussions and leading questions. This has been applied to both Medium and Large Scale Pilots and requirements. During the workshops, we have involved pilot users from all Nordic PGM branches. It has often been to show a new feature or function of the platform and then openly discuss the course of the project.

In addition to these three data sources, feedback has also been given directly to the pilot leaders verbally or through email. These opinions have also been taken into account.

4.5 Evaluation Methodology

For each of the project objectives, the evaluation methodology defines how the Use Case leaders will design the evaluation methods (questionnaires) as well as how they will evaluate the responses. This methodology is based along the following dimensions:

User Perception
- Completeness of the evaluation assets against the functional requirements
- Effectiveness of the evaluation assets to address the accountability attributes
- Capability of the evaluation assets to implement the accountability support services
- Accuracy of the evaluation assets to deliver the expected artefacts

User Acceptance
- Usefulness of the evaluation assets

- Alignment of the evaluation assets to current business practices
- Overhead of the evaluation assets for knowledge transfer
- Increased trust in accomplishing the objectives

Impact Assessment
- Benefits brought by the evaluation assets to current business practices
- Barriers raised by the evaluation assets further wider adoption of the solution framework
- Coverage of the data protection requirements in current cloud markets
- Willingness to leverage the use of the FuturePulse platform and applications
- Overall satisfaction

5 Analysis & Findings

Despite the unexpected turn of events this year, we still managed to get useful results from the pilots. Much due to the fact that the technical teams did a great job developing and implementing impressive features to the platform. Since the Small Scale Pilot a lot of feedback has been brought back to the technical team regarding UI/UX and the usability of the platform. They have done an excellent job of implementing changes and updating the platform. The result is that we have a well-functioning platform that is very different and much better than the initial platform. Every time there has been an update to the platform we have been given a detailed list of the changes and improvements made. This has made it very easy for the pilot leaders to follow up on changes as well as communicate them to the pilot users. It is by far the most visible success of the platform. The Large Scale Pilot is still ongoing and will continue to be so until the end of the project. We will keep collecting data and making improvements.

5.1 Requirements

RL_REQ#1: Predict success of track based on initial response
While pilot users found the prediction function helpful in order to see where a track or artist is heading in general as well as having a combined visual timeline for it, many still felt that a lot of data that they are used to looking at to evaluate the initial response of a track was missing. During the workshops, it was brought up several times that there is some crucial data missing to fully meet this requirement. This data includes skip rates, saves to the library and adds to own playlists which were not able to be incorporated into the platform. Mainly due to the fact that this data is not available in this form from any data source, neither from previous Spotify Analytics nor KNM.
In KNMs data you get the play duration of each user's play. I.e., you have to first define what a skip is and then compute the skip count by an algorithm you devised yourself across all the pilot users and then derive a skip rate. The playlist / library data is not available from KNMs export, therefore also no saves to library. Given that and that the more relevant data was available from Spotify Analytics, we went for integrating Spotify Analytics rather than KNM. We could not have expected at the time that it would be shut down in July 2020.

When asked 'what is FuturePulse missing' and 'what aspects of FuturePulse needs the most improvement' during the medium scale questionnaire, the most common feedback was data. That of course includes the lack of data we are aware of, but also data that would help pilot users analyse the initial response of a track mentioned above. Also, pilot users are expecting the platform to be more interactive and include suggestions and solutions for the user. One pilot user stated the following,

"I want to get better data to see where an artist or track is heading.
Right now, there's no way to find out what direction to go and where
to put your efforts and energy towards."

Another pilot user stated,

"I would like to see a solution to finding paths for the artists in order to increase their value and fan base."

However, this is considered very difficult. All artists and tracks have different conditions and success is measured differently for each case. It is therefore up to every industry professional to interpret the data and solutions FuturePulse provides; FuturePulse is the tool provided for the pilot users to be able to make deliberate decisions.

During the Large Scale Pilot the possibility to see growth and relative growth of a track was added to the platform. This was found to be helpful when monitoring a track within the first couple of weeks. Also, the predictive function was said to be highly helpful for this purpose. One user made the comment that,

"FuturePulse is a good way of predicting future hits and artists on the rise."

RL REQ#2 Combined visual timeline for streaming statistics of an artist / track

This requirement was the most highly anticipated feature of the platform. When asked in the Medium Scale Questionnaire, 91% of the pilot users stated that they were expecting a way to see a collected view of data and metrics. Pilot users were impressed with the combined visual timeline and rated it overall good. That was also the overall feedback during the workshops. Combining so many sources into one vision and graph would add value and ease their work. Today, the same information is gathered from multiple sources. They also found it helpful to be able to normalize the data points so that it is easier to find accurate correlations in between the different sources.
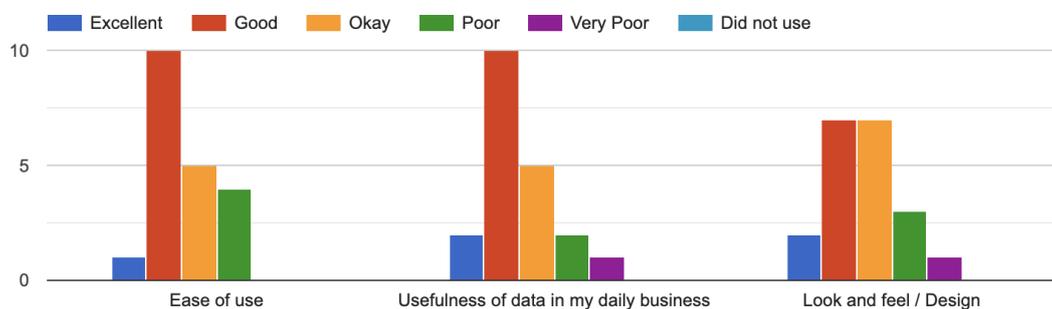

Figure 3: Graph from the Medium Scale questionnaire showing how pilot users rated the combined visual timelines

The constructive feedback was that the timelines could feel a bit messy at times. Some pilot users also had a hard time 'trusting' that the data/results they see is accurate. One user said,

*"The data must be more accurate. [...] Future Pulse popularity
jumps up and down without (obvious) reason"*

During the Large Scale Pilot, it became evident that the combined visual timeline is one of the most appreciated functions of FuturePulse. Pilot users stated that seeing so much data and so many data sources in one place was very useful and valuable. This together with the predictive functionalities displayed in the timelines was often commented on as the best aspect of FuturePulse. The pilot users who were testing the open version of the platform only wished that they had access to streaming data as well.

*"The prediction curve is probably the key feature and should be
focused a lot on [...], but with Spotify not being included I guess it's
more difficult to comprehend."*

RL_REQ#5 Genres trending for each market

Pilot users like the ability to compare genres to each other on different markets as well as compare trends for the same genres on different markets. One user however, pointed out that much more genres could be added to the genre taxonomy.[7] Many pilot users appreciate the popularity scores, especially when it comes to genres. 55% of the Large Scale pilot users found the genre popularity useful where 90% found the geographical information useful.

Feedback during the workshops was given that for this particular metric (genres) they would have liked the prediction to be made longer into the future. They would not mind the prediction not being as accurate in this case but more of a 'loose prediction/hint'. This due to the fact that the A&R process is a long one and the 12 weeks' prediction that is possible to date is considered too short.

RL_REQ#10A - Recommend playlists to pitch to based on a track's audio profile

Findings from the Large Scale questionnaire shows that the playlist function of FuturePulse is highly useful. Many pilot users rated the usefulness as excellent and good. However, only 13% of the pilot users found the audio descriptors to be of importance. This means that there is probably a gap between the functions of the platform and the actual requirement. This could also mean that the requirement is not considered useful due to the fact that they cannot be generated pre-release.

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[7] FuturePulse offers two kind of genre taxonomies: a taxonomy from Spotify including more than 3000 genres (e.g., Rap Lionnais or Barnemusikk) and its own FuturePulse taxonomy with a reduced number of the 63 most relevant top-level genres, more appropriate for some Use Cases, as a result of the work within the different partners of the consortium.
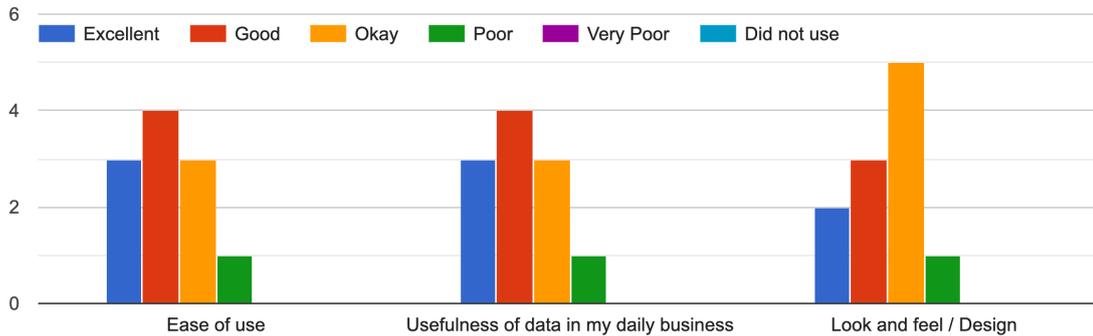
Playlists

Figure 4: Large Scale questionnaire findings of the playlist function

Other findings

According to the Medium Scale Questionnaire the features and functions of FuturePulse have been rated overall 'okay' which is the option in the middle of the scale. Pilot users were impressed by some of the key functions such as artist/track popularity and predictive functionalities. Many pilot users found that the interface was lagging and hard to use and not very user friendly. Some pilot users felt overwhelmed getting into the platform and would like a better flow of information as well as background information to what they are actually looking at the platform.

During the Large Scale Pilot, we can see that the updates and improvements to the usability of the platform also have impacted the pilot users' opinions. Many pilot users during the Large Scale Pilot found the platform easy to use, two pilot users even mentioned it as the best aspect of the platform. In addition to that, they were impressed with the amount of data available and the broad spectrum of features. One user wrote:

> *"FuturePulse is a one stop shop for all data regarding
> streaming numbers and socials"*

They also commented that a lot of facts and information can be found on the platform and that it has your daily information needed at your fingertips. One user wrote,

> *"FuturePulse had a lot of information concentrated in one place
> with easy access and segmentation"*

Their experience working with the current version of the platform indicates that it still needs a lot of improvements before it can be considered a market-ready product. While the pilot users are aware of the fact that FuturePulse is a research project, it has been proven hard to manage their expectations, especially when research findings are presented in a fully functional platform. Many pilot users are comparing it to already existing commercial platforms such as Chartmetric or Soundcharts; seen both during

workshops as well as comments in the Large Scale questionnaire. Despite that, pilot users are still intrigued and hopeful toward FuturePulse's potential. Many pilot users said that a tool like FuturePulse would be highly beneficial to their work, especially the predictive functionality. They are also impressed with the research and technical development behind the features and are interested to start applying it to their daily work.

5.2 User Perception

Completeness

As mentioned above, industry professionals are expecting a product that is more complete, especially when asked to test it.

According to the medium scale questionnaire the usefulness of the platform was rated 'okay'. Many pilot users implied that the platform needs more up to date and accurate data to make it usable to its fullest potential. They are also missing data such as skips and saves (something that was also brought up during the workshops) that they are used to looking at and consider a highly important data source.

Most pilot users enjoyed the key features. They said that some of the best features of FuturePulse and a unique one was the fact that information from multiple places and sources are gathered in one place. They also liked the combined visual timeline as well as the possibility to compare different artists and tracks. If FuturePulse was market ready and had all the latest data in place, the tool would cover most pilot users' needs.

Findings from the Large Scale Pilot tells us that new analytical platforms and ways of taking advantage of all the data available is welcome. 90% of pilot users said they would use FuturePulse daily if they had access to it but many would not pay over 50€/month to do so. When asked what information and data they are missing from current platforms available on the market, one user stated a platform that reveals the 'big picture' and collects all the data in one place. This is one of the unique offers of FuturePulse. All Large Scale pilot users have been demonstrated the 'private data' version of FuturePulse but not all of them were able to test that version due to PGM's confidentiality clauses. Many pilot users were therefore saying they wished they could use the platform with private data as it would fulfill their needs even more. Even though they could not test some functions in practice, in theory they were appreciative of their existence, such as streaming data and demographic data.

Effectiveness

Throughout the Medium Scale Questionnaire, the ease of use was rated 'okay' to 'good'. The 'look and feel' and design of the platform was also rated 'okay' to 'poor'. As it was when the Medium Scale Pilot's tests were run, the platform was perceived as slow and lagging. When it comes to the features, FuturePulse can be considered very effective. Pilot users highly appreciate having so much data gathered in one place. This data would usually be looked at multiple platforms. The combined visual timeline also saves the user

a lot of time when looking into correlations between different data sources. Pilot users have said that the timeline would be highly effective to their work.

Findings from the Large Scale Pilot shows us that, there has been notable improvements done to the UX and UI. When asking them to rate the use and feel/design of the platform, it was rated higher than during the Medium Scale with ratings from good to excellent. There were hardly any comments during the Large Scale Pilot mentioning this issue that was one of the predominant issues during the Medium Scale Pilot. From this we can draw the conclusion that the platform in its current state is considered much more effective.

5.3 User Acceptance

The feedback from the Medium Scale Pilot had a lot to do with too much data missing or being inaccurate and the interface was perceived as a bit lagging and hard to use at times. Pilot users also asked for more ways to customize the features to get a better personalized overview of the information. However, that was also the largest scope of feedback given and this is an issue the FuturePulse team is well aware of. Another major feedback is the need to improve design. However, that is not a feedback directed toward the actual features of the platform. Pilot users are overall happy with the features and functions that FuturePulse has developed and implemented into the platform.

Findings from the Large Scale Pilot suggest that the pilot users have a better acceptance of FuturePulse. They understand the concept and research behind it and can see the value it could add to their work if it was a commercial product. Even though pilot users would like to see more data to the platform, it is more of a suggestion and does not have the same 'negative undertone' that could be found with the Medium Scale pilot users. Instead we saw a lot of positive feedback during the Large Scale Pilot indicating that the platform has a lot of potential. One user called it a "straight forward tool for artist and genre analytics".

Usefulness
The feedback given during the Medium Scale Pilot was that if FuturePulse could sort out the data issues and fine-tune the interface as well as add a couple of additional data sources it would be a very powerful and useful tool for their daily business practices. However, the platform at its current state is lacking too much data to be able to use properly.

> *"When the service works properly and is fully operational I'd*
> *use it on a weekly basis. The current version is not useful in my daily*
> *work until all data and our latest releases are available... The overall*
> *feel is a little messy."*

The design and functionality of the platform also had a negative impact on how useful the platform was perceived.

As mentioned above, Large Scale pilot users are more satisfied with the platform and the ratings about usefulness are rated 'good' to 'excellent' One user even said:

"[FuturePulse] is a great initiative, very useful for the industry!"

When looking at findings from the Large Scale questionnaire, pilot users stated that they want the following function in an analytical platform: 67% said they wanted the ability to see a collected view of data and other metrics. 66% they want to be able to compare artists' performance to itself and other artists. These are two key functions that FuturePulse offer. These two features were also rated good to excellent in the questionnaire. Another highly useful function of FuturePulse according to the Large Scale pilot users is the possibility to have so much information gathered in one place and that it is easy to navigate. One user wrote:

"The best aspect of FuturePulse is that there is a lot of information concentrated in one place with easy access and segmentation."

Alignment to current business practices
Some of the features of FuturePulse are unique to the music industry - such as the combined timeline. If we look at where pilot users currently source their data and find their information needed, FuturePulse has included almost all of those sources into its platform. A relevant source missing that was pointed out by many pilot users was more in-depth and private data from social media and the possibility to connect your social media accounts to FuturePulse in order to better track data from social media sources. Others would find it useful to be able to upload their CRM data into the platform as well as CSV files of information to be included in the analysis. During the workshop, it also came up that it would be beneficial to include self-service campaign data into the platform to be used together with the other features. When looking at current market practices and competitors, this is something that is not available currently. To implement this type of data into the platform would require very complex data sourcing and coding as well as complicated agreements with multiple third parties. Some pilot users also found that they were missing information from smaller local DSP services such as Tidal and YouSee Music - services that might not be of importance globally but nonetheless locally.

Seeing that FuturePulse is a research project, the research and technical developments done within the project can be considered very aligned with current business practices and useful for the industry. However, the platform where these findings are presented cannot be considered a competitive market-ready product; but that was never the intent either.

Increased trust
The pilots have shown that pilot users are hopeful and enthusiastic when it comes to FuturePulse. They acknowledge the impressive research and technical development done behind the features of the platform as well as the ideas and functionality so far. They are excited to see all the data being sorted and the features to be finely tuned in

order for FuturePulse to become a tool that can be trusted to use for their daily business purposes.

5.4 Impact Assessment

Benefits to current business practices

The major benefit to current business practices is that FuturePulse gathers a lot of information from different sources into one platform and displays it a unique way. The combined visual timeline is a unique feature yet to be found on the market. The same can be said for the predictive functionalities. These two things would help music industry professionals analyse data and draw conclusions from it in a faster and more accurate way. The popularity score that FuturePulse has developed is also beneficial, especially when it comes to genre popularity in combination with the predictive functionalities. These two features (popularity score and predictive functionalities) were rated highest when it comes to usefulness.

In the Medium Scale Questionnaire, one user described FuturePulse as 'a tool for action'. Another said FuturePulse would help them get a better overview of an artist's fan base and brand. We have also seen great feedback when it comes to the Playlist functions; four pilot users stated that it is the best aspect of FuturePulse.

User Action Data findings

The Record Label Use Case conducted 10.1% of all artist searches, 13.1% of all track searches, 11.7% of all playlist searches and 14.1% of all genre searches.

It is evident that the pilot users want to do a broad search which is understandable since this is their first encounter with the platform. But we can also see that knowledge about trends in genres is a sought-after feature.

There were also a number of "unknown" pilot users not classified under any specific Use Case. When looking at the data with them included we can see that the most commonly visited pages were individual artist pages (27.4% of all page views). The most commonly visited single pages were the artist table (19.7%) and the dashboard (19.0%), followed by the genres tab (10.8%). This indicates that these pilot users conduct their work from an artist-centric perspective and find that a good starting point. From this we can draw the conclusion that creating your own dashboard with your own preferred artists is a well-planned feature.

Willingness to leverage the use of the FuturePulse platform and applications

Pilot users stated that if they had access to FuturePulse 56% would use a tool like FuturePulse on a daily basis and 30% on a weekly basis.
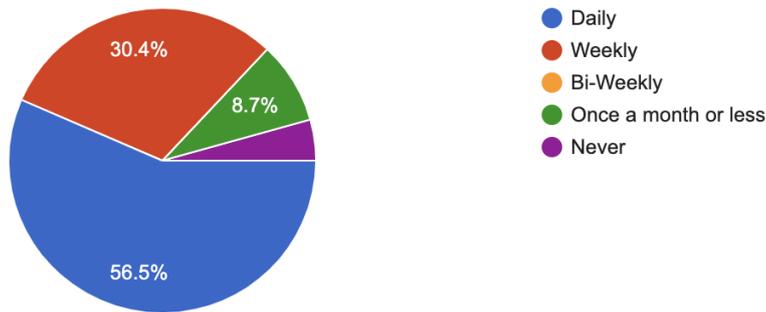
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Figure 5: Graph from Large Scale Questionnaire showing how often pilot users would use FuturePulse

However, few pilot users would pay over €49 per month for it. During the workshops, it was established that the platform needed to be more fine-tuned in order to compete with other sources where they currently gather information and data. In the questionnaire, all features had an overall rate of 'okay' to 'good' when it comes to usefulness. However, when looking at the feedback is it evident that the pilot users are looking at the platform as an alpha version. Wording as 'when all data will be in place', 'these options need to be added' and 'the design needs improvements to be user friendly' indicates that they do not find the platform market-ready at its current state. This does not mean that they do not think it has potential or will be. One user said,

"If the data and algorithms works, the system will be a great tool."

Another user brought up the competition and the fact that so much has happened on the music market when it comes to data gathering and analysis in the last years and it is therefore crucial to fine-tune our offer:

"You have to offer something very new as there is Chartmetric, Beatchain, Songstats, ForTunes, Next Big Sound, Soundcharts etc."

Another one wrote,

"Insights are always welcome, but there are so many platforms right now that offer all this data-collection practically free, or in exchange of a very low fee."

Overall Satisfaction

In the Medium Scale Questionnaire, the overall satisfaction of FuturePulse was rated 'okay' (3 out of 5 on the Likert scale).
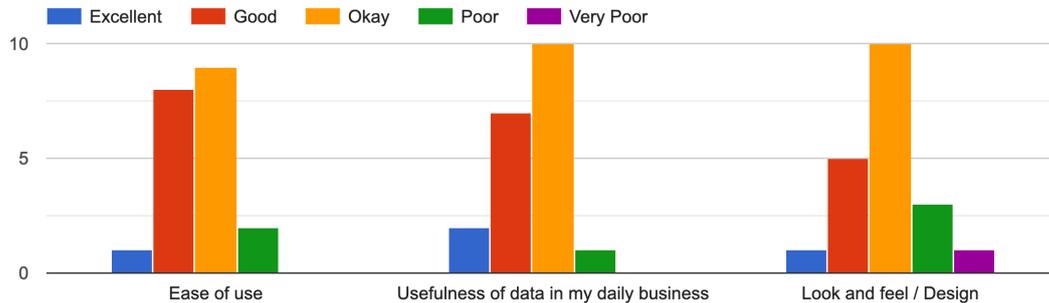
FuturePulse as a whole

Figure 6: Graph from the medium scale questionnaire showing the overall ratings of FuturePulse as a whole

Pilot users felt uncertain about having FuturePulse be their token place to go to get the information they need. They would probably be willing to use certain features of FuturePulse but not use it as a complete entity. They agreed that the platform would need accurate information and data in order for them to want to use the platform. Pilot users also stated that the platform design and user-friendliness needs work. Comments such as below were given:

"The part of FuturePulse that needs most improvement is the look, design and the overall function. A lot of time was spent waiting for the platform to collect data and actually show some results."

"The overall use needs improvement - it is lagging a lot."

Another aspect that was asked to work on is the ability to translate the complex research and technical developments into practical tools. Even though most pilot users are experienced when it comes to looking at analytical platforms, many were still uncertain about what in fact they were looking at on the FuturePulse platform. One user aired their confusion,

"I'm not sure what I'm looking at in terms of "Growth" and "Relative Growth"… Streams, Popularity score, Spotify popularity score, FP popularity??"

The fact that a lot of pilot users also were not happy with the user friendliness indicates that FuturePulse and its functions needed to be better displayed and explained.
This feedback has been taken into consideration before the Large Scale Pilot. An "About" page and a "FAQ" page have been added both to give context and explain all functions and features. Multiple updates have been made as well to the UX and UI, and the platform has been continuously improving. The results from the Large Scale Pilot show us that the overall satisfaction has shifted from ratings of 'okay' to ratings of 'good' and

many times even 'excellent'. The platform has matured in a way that makes it easier for pilot users to navigate the platform, use its functions and see the possibilities of the research. One user wrote:

> *"I feel like the work behind the platform and its functions is very unique and state of the art."*
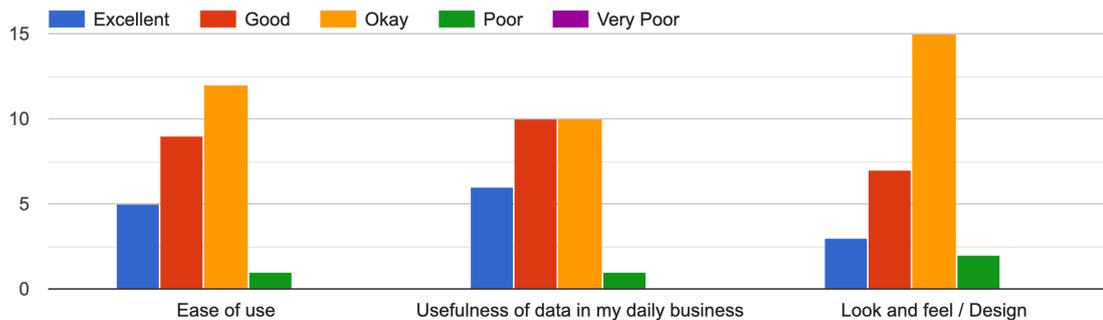
FuturePulse as a whole

Figure 7: Graph from the Large Scale questionnaire showing the overall ratings of FuturePulse as a whole

5.4.1 Coverage of data protection requirements in current cloud markets

Through the platform the consortium does not collect personal data beyond the email address, and the user actions stored which are temporarily in the backend with the purpose of analysing them in an aggregated fashion to extract conclusions and insights. When the user signs in, they are prompted to check the "informed consent" and the "privacy policy" boxes after reading. The user is also asked to accept the cookies necessary for Google Analytics.

In the questionnaires, we do ask pilot users for names & email addresses in order to better analyze their actions, link them to questionnaires if need be, and follow up on pilot users with incomplete questionnaires. This information is not shared with anyone outside of the project. The answers to specific questions cannot be traced back to an individual.

5.5 Technical Feedback

The way to give feedback established after the Small Scale Pilot was again used in the Medium Scale Pilot. We have structured this by posting the requirements in a shared document where the technical partners have been able to read our comments and addressing these in the ongoing technical meetings. We have also maintained a list of internal requirements to improve the platform. This helped keep the pilot leaders and the technical team aware of necessary improvements and led to some improvements, such

as reducing the platform data update time with the Record Label Use Case's typical release schedule (Fridays). To keep track of all action points, we have been using the project management tool Asana where we have been able to communicate about each topic. We especially focused on the evaluation and testing of the user experience (UX) and in this process, Asana provided a very controlled iterative workflow.

Weekly pilot coordination meetings led by BMAT helped the Record Label Platform Use Case identify and discuss technical issues that arose in the execution of the pilot. With BMAT taking over the pilot coordination activities after Bass Nation left the project, the pilot team was kept better aware of technical changes in the pilot process. Regular communication with the technical team was maintained through biweekly General Assembly meetings as well.

5.6 Indicators and KPIs

The KPIs in the project have served as a quantitative way to validate the technical performance and also as a measurement of the actions within the Pilot tests. These KPIs together with the detailed requirements have given us a good overview over the successful implementations and developments of the project and platform.

Number of artists
The KPIs for the number of artists on the platform have been met.
KPIs stated in the initial pilot plan regarding number of artists populating the platform:
- Medium Scale: 350+ artists on the platform
- Large Scale: 600+ artists on the platform

We have more than 100,000 artists on the platform today. As of October 15, 2020, 292 unique artists have been directly tested by pilot users a combined total of 6,152 times.

Number of pilot users
The Year 3 Action Plan stated, in line with the KPI's, that in the last phase of the project and when conducting the Large Scale Pilot, we should increase the number of pilot users to 100 pilot users. These pilot users should be linked to labels that work with a large number of artists which means we will be able to use 500-1,000 artists as cases when evaluating the platform in its final stage. The goal was to expand beyond the circle of PGM artists.

We noticed early, when we were initiating the invitations to the Medium Scale Pilot, that many of our pilot users were having difficulties because of the COVID-19 pandemic. Many of them run small scale businesses very closely linked to their artists' live scene and many of them are relying on income from live bookings to keep afloat. We noticed that at this time it was quite hard to encourage them to participate in the testing because they had to concentrate on their own businesses. However, when the project got the three-month extension it helped us since the industry saw a better situation after summer and we are now getting the pilot users onboard and at the time of this report we have

invited more than 400 pilot users and we will meet this KPI as we come closer to the end of the project and the end report.

6 Results and Conclusions

During the course of the Medium Scale Pilot and especially the Large Scale Pilot, one thing that has been found difficult is to manage the pilot users' expectations. While FuturePulse is a research project and its purpose is not to present a market-ready product, it has been difficult for pilot users to test the platform with that in mind. When you present a product like FuturePulse to industry professionals they will by default start comparing it to what they are used to: platforms and analytical tools they use today. While the pilot leaders have tried to encourage the pilot users to read the scientific papers of the research as well as tried to explain and simplify it during workshops and webinars, we cannot deny that the only other way to present the findings of the project has been through the platform. As much as the pilot leaders have expressed that the platform is early stage and will lack certain data and performance, it has been difficult to manage the expectations of a market-ready or at least a close to market-ready product.

At the end of the Medium Scale Pilot, we received 25 questionnaires representing 30 pilot users testing the platform. We also had workshops with 10 pilot users in total. Our findings show that pilot users are enthusiastic about the potential FuturePulse holds. However, the data missing is too much of an issue for FuturePulse to be able to measure itself against other analytical platforms available on the market today. With that in mind, FuturePulse has developed features that are considered by the pilot users to be novel and unique. Therefore, FuturePulse has something great to offer the industry, it is just a matter of becoming a commercial product.

The Large Scale Pilot is still ongoing and feedback will keep being collected in the last month of the project. The pilot has moved from internal and private testing to opening up the platform to the public and inviting a broad spectrum of pilot users. Some conclusions we can draw from the Large Scale Pilot are that pilot users are always happy to receive insights and information about their projects. However, there are many analytical platforms, often priced very low or free, that offer this so they feel like any new platform needs to have a unique offer with features that cannot be found elsewhere. Unlike the Medium Scale pilot users, many of the Large Scale Pilot users found that FuturePulse is comprehensive and easy to use. This is a direct result of the continuous updates done to the UI and UX of the platform. In the same manner as the medium scale pilot users, the Large Scale Pilot users would like to see even more data being displayed and gathered, or at least made available through private accounts (such as PGM). This data includes everything from more detailed demographics data, more geographical data (in order to do more narrow filter searches), expansion of genres to choose from and better data from other DSPs than Spotify. Even so, pilot users are more accepting and satisfied with the platform and excited for the platform or at least aspects of it to be commercially available.

Going forward

The work and development of FuturePulse in the last year of the project is remarkable. It has gone from ideas to technical research and developments and then incorporated to

a fully functioning platform. Something to take away from the pilots is to focus on the unique features that FuturePulse has developed and present them in a commercially viable way. The focus now has been trying to do it all at the same time: develop a platform that displays a huge catalogue of artists, all with up-to-date data, and that should be user-friendly. While this is an impressive ambition, the fact is that a research project will never be able to compete with commercial analytical platforms when it comes to giving the user 'the whole package'. Instead, going forward, FuturePulse should focus more on what it is they do best; come up with creative ideas and ways to use data and technically develop these ideas into highly sought after functions. That is where FuturePulse will find its competitive advantage.

7 Appendices

Appendix 1 – Final Questionnaire (Large Scale)

1. Name
2. Email
3. Affiliation (label, company, etc.)
4. Job Title
5. Country you work in
6. City you work in
7. Sector of the Music Industry
   a. Record Label / A&R
   b. Live Music
   c. Background Music Provider/Editor/DJ
   d. Artist / Producer
   e. Other…
8. What digital service provider (DSP) sources do you currently use to gather data and information?
   a. Spotify public data
   b. Spotify Analytics
   c. Spotify for Artists
   d. Apple Music public data
   e. Apple Music analytics
   f. YouTube Music public data
   g. YouTube Music analytics
   h. I don't get my information from DSP sources
   i. Other…
9. What social media sources do you currently use to gather data and information?
   a. Facebook/Instagram public data
   b. Facebook/Instagram insights
   c. YouTube
   d. Twitter public data
   e. Twitter insights
   f. Third-hand platforms (e.g. Social Blade, Brandwatch, etc.)
   g. I don't get my data from social media sources
   h. Other…
10. What other media sources do you currently use to gather data and information?
    a. Press mentions
    b. Radio plays
    c. I don't get my data from other media sources
    d. Other…
11. How often do you use applications or services to gather data and information?
    a. Daily
    b. Once a week
    c. Once a month
    d. Every 3 months

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        e. Never

        f. Other…

12. Are you missing any data, information or features from services and platforms that are currently available on the market?

        a. No, I have everything I need.

        b. Other…

Please rate FuturePulse's features on a scale from 1 (worst) to 5 (best). Rate them on:

- Ease of use
- Usefulness of data in your daily business
- Look and feel / Design

13. Dashboard

14. Artist Demographics

15. Timelines

16. Insights

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

17. Tracks

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

18. Playlists

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

19. Gigs tab

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

20. Events tab

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

21. FuturePulse as a whole

        a. Ease of use

        b. Usefulness of data in my daily business

        c. Look and feel / Design

22. Which of the following features did you find useful?

        a. Artist popularity (listens + / followers)

        b. Track popularity

        c. Genre popularity

        d. Genre classification

        e. Geographical information

        f. Predictive functionalities

        g. Audio descriptors

      h.   Other…

23. How often would you use FuturePulse if you had regular access to it?
      a.   Daily
      b.   Weekly
      c.   Bi-Weekly
      d.   Once a month or less
      e.   Never

24. How much would you be prepared to pay in a subscription model?
      a.   Under €49 per month
      b.   50 - 74€ per month
      c.   75 - 99€ per month
      d.   100 - 124€ per month
      e.   Over 125€ per month

25. What is the best aspect of FuturePulse?

26. What aspect of FuturePulse needs the most improvement?

27. Is there anything FuturePulse is missing?

28. Any additional comments?

Appendix 2 – Pre-pilot Questionnaire (Medium Scale Pilot)

1. Description
2. Name (optional)
3. Job Title
4. Market / Geographical Location - *city + country*
5. Sector of the Music Industry - *this will branch the pilot user off into the specific questionnaires*
   a. Live Music Booking (Sónar)
   b. Record Label (PGM)
   c. Background Music Editor/Provider/DJ (general)
   d. Artist / A&R / Artist Promotion (general)
   e. Other (general)
6. What features would an app like this need to be useful to you? (text)
7. What sources do you currently use to gather data and information?
   a. DSPs
      i. Spotify public data
      ii. Spotify Analytics
      iii. Spotify for Artists
      iv. Apple Music public data
      v. Apple Music analytics
      vi. YouTube music public data
      vii. YouTube Music analytics
      viii. Other DSPs
   b. Social Media
      i. Facebook/Instagram public data
      ii. Facebook/Instagram insights
      iii. YouTube
      iv. Third hand platforms like Social Blade or Brandwatch
      v. Twitter public data
      vi. Twitter insights
      vii. Other
   c. Press mentions
   d. Radio plays
   e. Statistical Tools
      i. Chartmetric
      ii. Spot on Track
      iii. Other
   f. Other (text)
8. How often did you use previous metrics applications?
   a. Daily
   b. once a week
   c. once a month
   d. every 3 months
   e. Never

9. Any general comments: