



D5.4 – Music Platform pilot report v1

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1 Executive Summary

This deliverable presents the results from the first pilot phase for the Background Music Platform (BMP) use case in the FuturePulse project. The first pilot phase is the smallest pilot of the three pilots being conducted, and consists mainly of internal testing of FuturePulse models for use case specific requirements. The first pilot has been conducted through 4 iterations by the Music Platform partner in the project, Soundtrack Your Brand:

- 1) A pre-pilot small scale test of the requirement BMP_REQ#1 - *Recognition level of a track* (September - October 2018).
- 2) A large online crowd experiment test of the requirement BMP_REQ#1 - *Recognition level of a track* (November - December 2018).
- 3) Internal testing and validation of BMP_REQ#10 - *Instrumental or vocals, major gender in track*, BMP_REQ#13 - *Fade in and fade out of a track* and BMP_REQ#14 - *Major or minor in a track* (November 2018 - May 2019).
- 4) Analysis of Soundtrack Your Brand clients real time usage of requirements BMP_REQ#4 - *Genre of a track*, BMP_REQ#6 - *Energy level in a track*, BMP_REQ#8 - *Original release year for a track* and BMP_REQ#11 - *Moods related to a track* (January - May 2019).

Collected data have been clustered and analysed, and the results of the first pilot phase are showing both strengths and weaknesses regarding the FuturePulse solutions and functions for Music Platforms. This was expected during the phase of the project when the first pilot was conducted.

2 Introduction and Relation to other WPs/Tasks

The Future Pulse project is divided into seven (7) work packages that are active simultaneously and will result in the end product. 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) which have the objective to serve as a testing ground for the platform and to deliver a set of concrete user findings for the FuturePulse consortium. Following are descriptions of the other work packages and how they relate to D5.4 Music Platform pilot report.

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 will make sure that such data access complies with pertinent regulations and fully respects the interests of all data owners.

D5.4 Music Platform Report v1 is related to WP2 for all requirements of the BMP use case. Many of the requirements are dependent on FuturePulse data collection from external sources, for example regarding Recognition levels of tracks and Popularity levels of tracks.

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).

D5.4 Music Platform pilot report v1 is related to WP3 for several requirements. The core functionality of the BMP use case is about making high quality recommendations for music in an in-store environment, as well as predictions as to how music will influence revenues and sales among music users.

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 assess and validate its efficiency.

D5.4 Music Platform Report v1 is related to WP4 mainly by the testing and usage of the FuturePulse API. Since the BMP use case is integrating the FuturePulse functions in an already existing commercial platform (Soundtrack) through the FuturePulse API, the UI for the Live Music use case and the Record Label use case has not been pilot tested by Soundtrack Your Brand in this phase.

WP6 - Innovation Management, Dissemination and Exploitation

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

D5.4 Music Platform Report v1 (and the following reports for medium and big scale pilots) is related to WP6 as the results are being presented both as scientific papers and as demonstrator at f.e. industry conferences. The relation with WP6 will naturally become much stronger during the later pilot phases when the FuturePulse solutions are more developed and streamlined towards the background music part of the music industry.

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.

This includes:

a) overall management and coordination of the work conducted in the project; b) monitoring of the delivered work quality; c) internal collaboration; d) financial management; e) conflict resolution; and f) risk management.

D5.4 Music Platform Report v1 is related to WP7 since the results from the first pilot testing is crucial for how the project will tweak the solutions for the upcoming larger pilot tests. Pilot testing is an essential part of the whole project, hence the relationship with project management is fundamental.

3 Differences between public and confidential versions of this deliverable

This is a public version of the deliverable (D5.12). Contact FuturePulse if interested in the confidential version.

4 Methodology

The methodology of the first small scale pilot for the Music Platform use case has been designed to fit the prerequisites of background music providers, specifically the market knowledge of the FuturePulse consortium partner Soundtrack Your Brand. Based on the pilot plan (D5.9) SYB have identified the most relevant features and have tested them both internally and externally.

The time frame has been:

Pre-pilot phase (M14-17): Setting up the final requirements to be met through all pilot phases with emphasis given to the small scale pilot, finalise reporting templates, fine-tune testing scenarios, engage with the test users (mainly within the consortium and the SYB organisation for the first pilot).

1st Phase Small scale (M18-M24): Implement small scale pilot, support test users, provide feedback to technical partners, test initial set of requirements and visualization, design and setup the medium scale pilot.

Feedback has been provided to technical partners for evaluation and further implementation of requirements in an iterative way during the whole pilot phase.

Since the BMP use case is not pilot testing the FuturePulse UI in the same way as the Record Label and Live Music use case, but rather the core technical solution that FuturePulse delivers for each specific BMP requirement, the first pilot phase have been focused on validating whether the high level prediction analytics from technology partners in the consortium are effective or not for the specific use case.

This has been done through online crowd experiments, internal testing, as well as analysis of usage of chosen requirements among end users (SYB clients).

4.1 Pilot users

During the pre-pilot phase the BMP_REQ#1 - *Recognition level of a track* was tested among a smaller online crowd of internet users (100+). The pre-pilot was mainly to set up the methodology and services for the larger testing with platforms Survey Monkey and Cint, as well as getting a first hint on the effectiveness of the underlying algorithms for the model.

During the first part of the pilot phase the BMP_REQ#1 - *Recognition level of a track* was tested among a larger online crowd of internet users (1 000+). A larger set of tracks was used, chosen automatically by the FuturePulse recognition algorithm.

Music editors and software developers on SYB evaluated results from several of the requirements.

SYB clients (the test group) using some of the requirements were monitored through the platform to build a knowledge base on detailed behavior related to four of the requirements.

4.2 Requirements tested

BMP_REQ#1 - *Recognition level of a track*

The current level of recognition, or awareness, of a track per market, as defined in ISO 3166-1, and globally. This could further be enriched with recognition levels for certain age and gender groups per market, as well as globally, if demographic data is made available. Historical data also important. Could be represented as a float 0-100. Might be more historically based.

BMP_REQ#4 - *Genre of a track*

Identify one or more of the following, for the whole SYB catalogue: Afrobeats, Afrofunk, Ambient, Blues, Bossanova, Classical, Country, Dancehall/Soca, Disco, EDM, Folk, Funk, Hard Rock, Hip Hop, House, Indie-dance, Jazz, Lounge, Nu-disco, Pop rock, Pop, Reggaeton, Psychedelic Rock, R&B, Reggae/Dub, Rock, Salsa, Singer-Songwriter, Soul, Tech House, Techno, Trap, Tropical House. Since the genre taxonomy is constantly changing for actors in the music industry, the solution needs a certain degree of adaptivity or flexibility. The possibility to map SYB genre taxonomy with a larger set of genres that are being tracked by FuturePulse. (Relates to BMP_REQ#15, as well as RL_REQ#5 and LM_REQ#9). Sometimes the mapping would be one-on-one, and sometimes the mapping would be towards two or more genres.

BMP_REQ#6 - *Energy level in a track*

Information about perceived energy for all of the tracks in the SYB catalogue. Proposed here as a float from 0.0-1.0.

BMP_REQ#8 - *Original release year for a track*

The year that all of the tracks in the SYB catalogue was released first. Often the same as the album's release year, but not always. E.g. if the track is a remaster or reissue, the year might be another than the year when the track was originally released.

BMP_REQ#10 - *Instrumental or vocals, major gender in track*

Information on which gender the vocals is mainly sung by in the SYB catalogue, or if there are no vocals. One or more of the following: Vocals = Female, Male, Instrumental, Other.

BMP_REQ#11 - *Moods related to a track*

Data on what kind of moods, feelings, or sound classification, that all tracks in the SYB catalogue might be recognized as by an audience. High level mood classification might be needed, such as based on combined values in genre, vocals, year, language, bpm etc. The present taxonomy is: Mainstream, Indie, Acoustic, Electronic, Youthful, Mature, Modern, Traditional, Elegant, Rugged, Careful, Provocative, Serious, Happy, Low-key, Expressive, Dreamy.

BMP_REQ#12 - *BPM in a track*

The general Beats Per Minute, or tempo, for all tracks in the SYB catalogue. Instead of average BPM, information on what bpm is dominant in most part of the track might be used.

BMP_REQ#13 - *Fade in and fade out of a track*

Information of how long a fade in/out is in seconds, if existing, for all tracks in the SYB catalogue.

BMP_REQ#14 - *Major or minor in a track*
A value for major or minor in all tracks of the SYB catalogue. Could be binary values but could also be more refined with strong or weak variables for each.

4.3 Data sources for evaluation

Several data sources related to each requirement have been evaluated during the first pilot phase:

- Data set provided from CERTH on BMP_REQ#1 - *Recognition level of a track*, a combined data set that was the result of the aggregation of many data sources as well as analysis (resulted in the paper “*Data-Driven Song Recognition Estimation Using Collective Memory Dynamics Models*”, to be presented at ISMIR 2019).
- Data set provided from IRCAM on BMP_REQ#4 - *Genre of a track*, which included the automated tagging of genres according to the SYB taxonomy being used for the catalogue of tracks (see results under chapter Analysis). The paper “*An In-Depth Analysis of the Effect of Data Augmentation Methods: Experiments for a Musical Genre Classification Task*” is currently under review for publication.
- Data set for BMP_REQ#6 - *Energy level in a track* with 60 000 annotated tracks being used to pilot test how clients are using energy levels when creating their own playlists and soundtracks collected from the platform.
- Data set for BMP_REQ#8 - *Original release year for a track* with 60 000 annotated tracks being used to pilot test how clients are using time variables when creating their own playlists and soundtracks (decennia level), collected from the platform.
- Data set provided from IRCAM on BMP_REQ#10 - *Instrumental or vocals, major gender in track*, which included the automated categorisation of SYB provided track set.
- Data set for BMP_REQ#11 - *Moods related to a track* with 60 000 annotated tracks being used to pilot test how clients are using moods (brand values) when creating their own playlists and soundtracks, collected from the platform.
- Data set provided from IRCAM on BMP_REQ#13 - *Fade in and fade out of a track* which included the automated categorisation of SYB provided track set.
- Data set provided from BMP_REQ#14 - *Major or minor in a track - Fade in and fade out of a track* which included the automated categorisation of SYB provided track set.
- Internal testing at SYB with the tech team and the music team (developers and editors) on the validity of the automated categorisation for all of the requirements.
- Raw data sets from CINT and Survey Monkey on small scale pre-pilot online crowd experiment and the large scale experiment, including geographical and demographical information on test users.
- Feedback from several demonstrations of the platform with stakeholders in the music industry, including members of the Expert User Panel and Advisory Board, to gain information on the effectiveness of the solutions.

5 Analysis

In the original Pilot Plan (D5.1), the ambition was set high as for how well developed the FuturePulse functionality for background music providers would be during the first pilot phase. During the technological development it became clear that SYB could not fully test the three most important predictive requirements (according to the initial study among businesses, D1.2) as early as in the small scale pilot (BMP_REQ#1 - *Recognition level of a track*, BMP_REQ#2 - *Popularity level of a track*, BMP_REQ#6 - *Energy level in a track*). The original plan was to test these three features at live in-store environments under the earlier proposed Latin-Square design, with the purpose of identifying the influence that each of these features might have on sales. Instead, we focused on pilot testing the FuturePulse technical solutions for all of the BMP requirements through testing them in-house, towards an online crowd in an experimental setting, and some of them by collecting live data from end users. The three mentioned requirements received the highest level of perceived importance among the 781 businesses that were surveyed at the beginning of the FuturePulse project, to better understand the needs of end users (see D1.2). The testing of these requirements in-store will commence during the second and third pilot phases.

First, the BMP_REQ#1 - *Recognition level of a track* has been in focus during the small scale pilot phase. The reason for this is two-folded:

- 1) There is no such solution available on the market. Recognition levels of music have been shown to influence consumers behavior (R. Yaich & E. Spangenberg 1990; N. Baily & C. S. Areni 2006; G. Brokemier, R. Marquardt & J. Gentry, 2008), including potential spending behavior, but there is no platform or service that analyses and tags a whole music catalogue based on how well an audience *recognises* tracks, and makes qualified predictions for recognition levels on a certain market.
- 2) Early in the project, the consortium partner CERTH made a focused effort on collecting all the data necessary to be able to predict the recognition levels on certain markets. The results of this unique work are presented at ISMIR 2019 in the paper "*Data-Driven Song Recognition Estimation Using Collective Memory Dynamics Models*".

One use case specific prerequisite is the high competitiveness among background music providers, which leads to a situation where external pilot testers needs to be clients of SYB, rather than competitors. The whole purpose of the FuturePulse project is to develop novel solutions that are not on the market.

Hence, compared to the Record Label use case and the Live Music use case, the Music Platform use case conducts all three pilot tests together with brands and actors that are already connected to our commercial hemisphere, rather than openly inviting "any" competitor to test the FuturePulse unique solutions.

5.1 Online Crowd Experiments

The first pilot phase for the BMP use case was focused on evaluating the technical validity and functionality of the FuturePulse solutions. Since the requirements for the Music Platform use case is not based on the FuturePulse UI, but rather integrating the

FuturePulse gateway API onto the existing streaming platform, the functions as such will be experienced as being functions on the SYB platform instead of functions on the FuturePulse web based platform for end users.

During the first pilot, the BMP_REQ#1 was in focus. The model takes into account the cognitive perspective of the problem using exponential “forgetting curves” as the main mechanism for the estimation of collective memory decay and sigmoid “learning curves” for the estimation of the initial collective learning degree, with regards to songs.

Considering this, the two online crowd experiments were used as tools for evaluating the BMP_REQ#1 during the first pilot. Out of the SYB catalogue of tracks that are streamed on the platform in Sweden, the 600 most recognised songs, as well as the 600 least recognised songs, was chosen based on the CERTH algorithm (T-REC) developed in the FuturePulse project. 50 tracks were then chosen randomly for each category, as representative for high recognition levels and low recognition levels.

An experimental group of 1 041 online respondents in Sweden were introduced to the tracks and had the opportunity to answer how well they recognised songs. For the simplicity of the respondents, they were randomly divided into 10 groups with 10 randomly chosen tracks in each group (5 high level rec. and 5 low level rec.). We made use of 30 second samples of the tracks to whom the respondents reacted whether he/her recognised the track.

The result from this pilot test is very, very promising, but since the full results are presented in November 2019 on a peer review conference, we can not include all the results in this deliverable. Some of the findings are very important though for the Music Platform use case, specifically when it comes to providing high level composites of variables for music choices on the streaming platform:

- a) A track needs almost 7 weeks in the charts to reach higher levels of recognition and achieve a lower velocity down toward “oblivion”, and 25 weeks on the charts to reach such a level that it becomes highly recognizable for a longer period of time;
- b) The model itself seems to be highly competent in predicting how well an audience in a specific country is recognizing a certain track in a large catalogue.

For the second pilot phase, the model will be tested on other markets than Sweden, as well as be tested in-store regarding the prediction of how recognition levels of tracks influences sales and consumer behavior.

5.2 User Perception and Acceptance

For the first pilot phase, end user perception and acceptance was tested through the monitoring of usage among SYB clients for requirements BMP_REQ#4 - *Genre of a track*, BMP_REQ#6 - *Energy level in a track*, BMP_REQ#8 - *Original release year for a track* and BMP_REQ#11 - *Moods related to a track* (see details below).

The overall conclusion regarding these requirements is that work is still needed to make end users highly interested in actively creating their own background soundtracks (playlists). The collected data shows that the major part of end users rather chooses a pre-programmed soundtrack by professional editors for their specific business environment (café, restaurant, clothing store, furnitures, gym etc) than make use of the available options to create their own soundtrack with the FuturePulse features.

The data also suggests that aggregated high level composite variables might be better for end users than detailed choices, that is, instead of making it possible for end users to choose between all of the parameters separately (like BPM, Fade in/Fade out, Energy levels, Year of release etc), a new generation of meta level “tags” connected to sales systems and customer behaviour monitoring might be the better path. As few choices as possible for the end user, but still effective for predicting a valid soundtrack for the particular store.

5.3 End User Usage of FuturePulse Requirements on the Platform

To better understand the validity and market interest of requirements BMP_REQ#4 - *Genre of a track*, BMP_REQ#6 - *Energy level in a track*, BMP_REQ#8 - *Original release year for a track* and BMP_REQ#11 - *Moods related to a track* for in-store music, these four functions were monitored and tested through the streaming platform during the first pilot. This pilot test was “sharp”, meaning that clients (the test group) chose between these functions to create Soundtracks (playlists) that were then used live in-store.

Data was collected from January 1, 2019 - May 31, 2019, thereby clustered and analyzed by the music editors and tech team at SYB. The results shows that BMP_REQ#4 - *Genre of a track*, was the most chosen base attribute for creating a Soundtrack, BMP_REQ#11 - *Moods related to a track* were the second most chosen attribute followed by BMP_REQ#8 - *Original release year for a track* and BMP_REQ#6 - *Energy level in a track*.

The SYB genre taxonomy is somewhat more simplified than for the other use cases in the FuturePulse project, f.e. the Record Label use case have 94 genres for their catalogue, while the background music platform only have 27 genres.

The reason for this is simple, a consumer friendly streaming platform for background music needs to be understandable and fast, end users do not always have a high knowledge on the differences between certain genres, f.e. between Electronic and Electronica, or Eurobeat and Eurodance.

Therefore we have mapped the different genre taxonomies for the different use cases into a joint list of genres, which are used for the different requirements, f.e. the BMP_REQ#15 - *Genre popularity for each market*, where the global score showed the following order of genre popularity:

| |
|----------|
| pop |
| pop_rock |
| lounge |
| rock |
| r&b |
| hiphop |

| |
|-------------------|
| ambient |
| jazz |
| acoustic |
| soul |
| house |
| electronic |
| singer_songwriter |
| funk |
| tropical_house |
| blues |
| disco |
| edm |
| country |
| hard_rock |
| folk |
| reggae_dub |
| classical |
| tech_house |
| afrobeat |
| techno |
| dancehall_soca |

The second most used requirement was BMP_REQ#11 - *Moods related to a track*, where the top four moods were Inclusive, Easy Going, Modern and Exclusive. This result is quite interesting when compared to the results from the survey of businesses in 8 countries that was conducted during the first year of the project (D1.2), where moods in fact did not qualify as one of the top 6 variables when choosing soundtracks.

After the first pilot we can conclude that moods in fact *are* among the most important, so much that the most popular mood qualifies for a higher level base than the top genre “pop”. The top four moods were:

| |
|------------|
| inclusive |
| easy_going |
| modern |
| exclusive |

This shows that sometimes end users do not have the pre-knowledge of what they actually will choose when in the real life situation of creating their own playlists, but are rather choosing music based on more high level parameters. In the initial survey, Energy placed clearly higher than Moods in perceived importance among the respondents, while in reality, when confronted with the different choices, Moods seemed to be more important. This is one interesting finding during the first pilot phase that will govern the work during the second pilot.

Energy was still an important variable for choosing background music in an in-store environment though, and the task for FuturePulse consists of two parts:

- 1) Identifying the energy level for all tracks in a large catalogue, being developed jointly by the consortium partners IRCAM and Musimap,
- 2) Providing a meaningful way for end users to choose the energy level for the whole of the soundtrack (not only for specific tracks).

The collected data during the first pilot shows that although BMP_REQ#6 - *Energy level in a track*, is important, end users tend to mostly choose the middle value of the proposed energy levels, in the first pilot aggregated into five choices for the end users:

| |
|--------------------|
| energies_medium |
| energies_high |
| energies_low |
| energies_very_high |
| energies_very_low |

This indicates that although energy is perceived as very important among the end users, most of the time they tend to choose Medium level of Energy, or close to Medium. For the second pilot we will collect further data from a larger set of users and identify parameters such as Time (are there obvious patterns during the day), Geography (are there patterns between markets), and Holidays (how are Energy levels chosen around holidays).

Regarding the BMP_REQ#8 - *Original release year for a track*, the aggregate shows a clear tendency of wanting to have as modern music as possible. This is of course related to the specific use case of SYB clients, and might not be the case for other specialized background music providers with other niches.

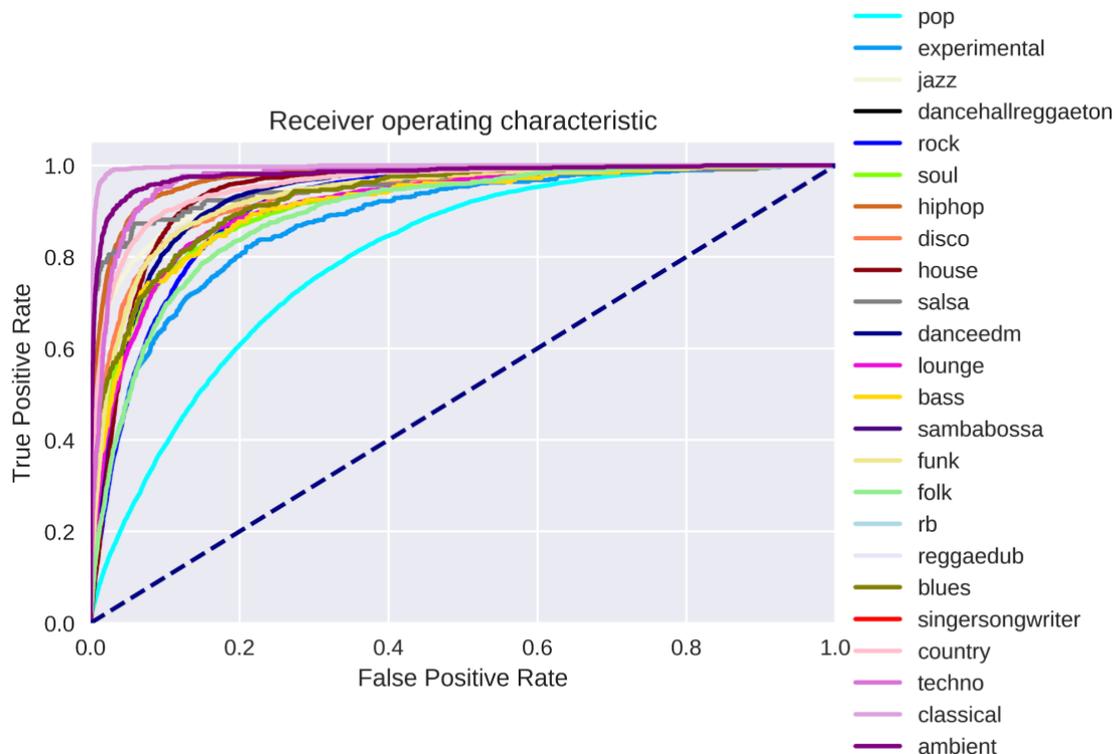
| |
|-------|
| 2010s |
| 2000s |
| 1990s |
| 1980s |

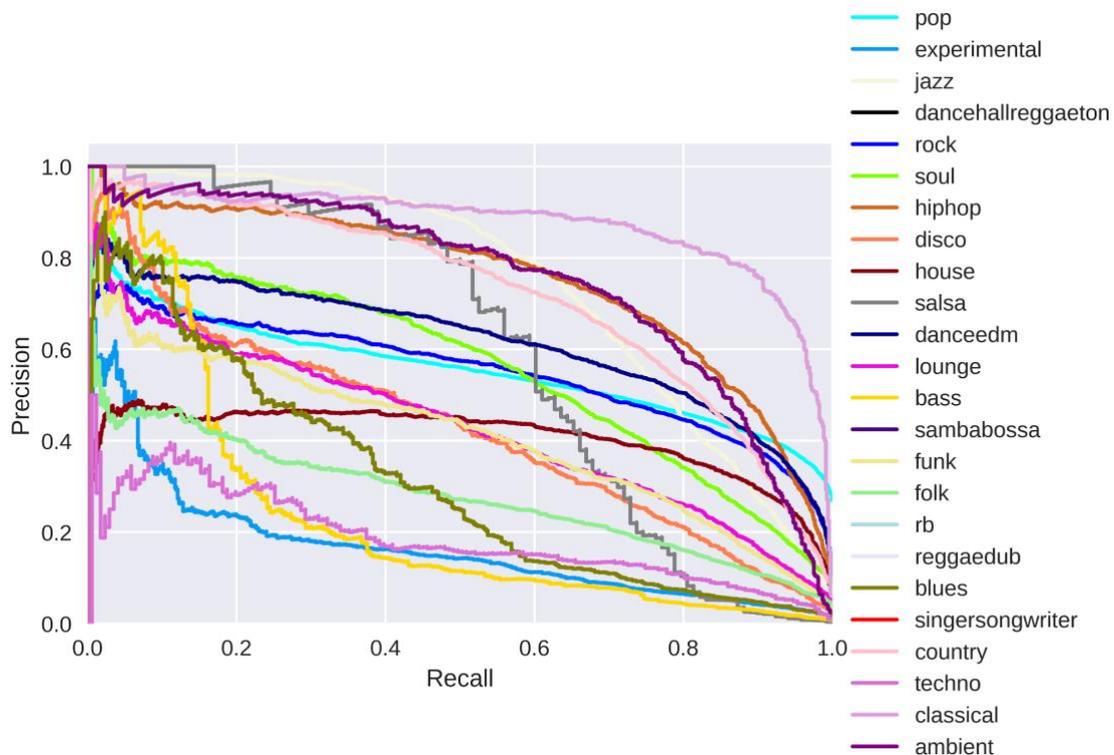
| |
|-------------|
| 1970s |
| 1960s |
| before_1960 |

5.4 Technical feedback

Most of the technical feedback to the consortium from the BMP use case partner SYB has been related to how well recommendations and predictive algorithms have been working. Feedback has been given regularly through online meetings and extensive Basecamp communication directly to the specific partners that have developed each feature (CERTH for BMP_REQ#1 and BMP_REQ#15, Musimap for BMP_REQ#2, BMP_REQ#4 and BMP_REQ#11, IRCAM for BMP_REQ#6, BMP_REQ#8, BMP_REQ#10, BMP_REQ#12, BMP_REQ#13 and BMP_REQ#14). The feedback has been used by technical partners to finetune the system according to the needs of this specific use case.

For example, a thorough evaluation of the BMP_REQ#4 solution shows that although the system can automatically identify many genres in a catalogue, there are still some work to do to perfect the automatic identification of broader genres like pop and rock. Many tracks can be described by several genre characteristics, which makes it harder to choose the correct one. Nevertheless, the system shows signs of a quite high genre identification rate compared to other available solutions.





5.5 Indicators and KPIs

The KPIs for the first pilot phase was reached, with some minor adjustments to fit the changes that happened in the consortium during the period. Instead of just focusing on the three most important requirements, BMP_REQ#1 - *Recognition level of a track*, BMP_REQ#2 - *Popularity level of a track* and BMP_REQ#6 - *Energy level in a track*, and pilot test these in 10 - 24 stores for each requirement live as was the original plan, we focused on making a broader pilot testing of all the requirements in a more pragmatic way, with a strong focus on BMP_REQ#1 - *Recognition level of a track*, since that feature is the most innovative for the BMP use case in FuturePulse.

We also decided to test the most novel features in-house during the first pilot phase, until the solutions would be more reliable for a real time live commercial scenario, and instead tested the other requirements in a live settlement with end users. Since the first pilot phase has ended, the models have been tweaked and we will most likely be able to test them in-store during the second middle sized pilot phase.

Hence, for some of the requirements, the KPI of >100 stores have been clearly reached already, while for other requirements the KPI will be reached during the second and third iteration of pilots.

6 Design and setup of the medium scale pilot

The medium scale pilot will include in-store testing of the most important requirements for the BMP use case. This relates back to the original pilot plan described in D1.2 with a Latin-Square Design where the impacts of Recognition levels, Popularity levels, and Energy levels will be tested towards sales data to make predictions of how these features influence revenues for certain brands.

Furthermore, the test group for the other requirements will be larger, data will be collected in the same manner as during the first pilot phase but with deeper analytics to understand more components of how end users in fact are using and experiencing the different features of the FuturePulse solution for background music streaming platforms.

We will also run a questionnaire to better understand how these new features are captivated by end users, which will follow the guidelines set up by jointly by the FuturePulse consortium:

The evaluation methodology

For each of the project objectives, the evaluation methodology defines the following evaluation dimensions:

- **Capture the user perception on effectiveness**
- **Monitor the user acceptance**
- **Investigate on the impact assessment**
- **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

7 Summary of results and conclusions

The first pilot phase for the Music Platform use case focused on testing the most innovative FuturePulse feature and requirement, BMP_REQ#1 - *Recognition level of a track*, to such an extent that the model was verified through an online crowd experiment and the results published in a peer review conference (ISMIR 2019).

This feature is not existing on the market, and should be actively pursued as a potential business opportunity for the project.

We also pilot tested four of the requirements live on end users (SYB clients) for a period of 5 months (Jan - May 2019) giving crucial insights on how end users perceive and use some of the other requirements.

We tested and validated data sets from partners in the consortium on the requirements that we could not yet pilot test in a live commercial environment. These data sets will be the foundation for further exploitation during the second and third pilot phases.

The fact that the original consortium partner responsible for WP5 did not have the possibility to administer the work as was planned, meant that each of the use cases had to lead the pilots based on their own pilot plan and the needs and focus for them. For SYB it meant that we made our pilot testing in large without guidance, and instead used our own experience and methods as being used by the R&D department at the company.

Nevertheless, the first pilot phase gave us new and valuable insights into how end users will exploit the FuturePulse functions in their day-to-day environment as business owners. It also gave us insights into which novel features to focus upon during the last phase of the project.