

## Harmony in Choices: Redefining the Spotify Experience

The '**paradox of choice**' refers to the overwhelming number of options available to users on Spotify, making it difficult for them to discover new music.

With millions of songs and endless playlists, users often feel overwhelmed and struggle to find music that matches their preferences.

# UNDERSTANDING SPOTIFY AND SCOPE

## About Spotify

Spotify is a Swedish audio streaming and media service provider founded on 23 April 2006 by Daniel Ek and Martin Lorentzon. It is one of the largest music streaming service providers, with over 602 million monthly active users, including 236 million paying subscribers, as of December 2023.

## Actors Involved

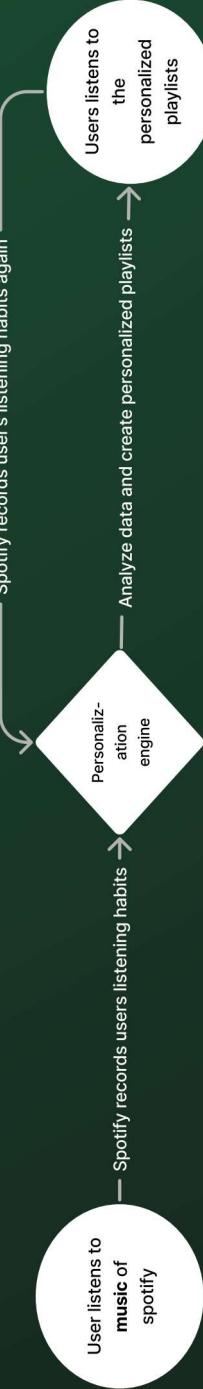
Spotify Inc  
Content creators (Musicians, Podcasters)  
Record Labels  
Advertisers  
Subscribers/premium users  
Third-party developers (Spotify APIs)

## How they earn money?

Subscription revenue  
Revenue from advertisements  
Collaborations with artists, brands etc  
Revenue from third-party developers  
Portion of revenue goes to record labels as royalties

## Flow of cash

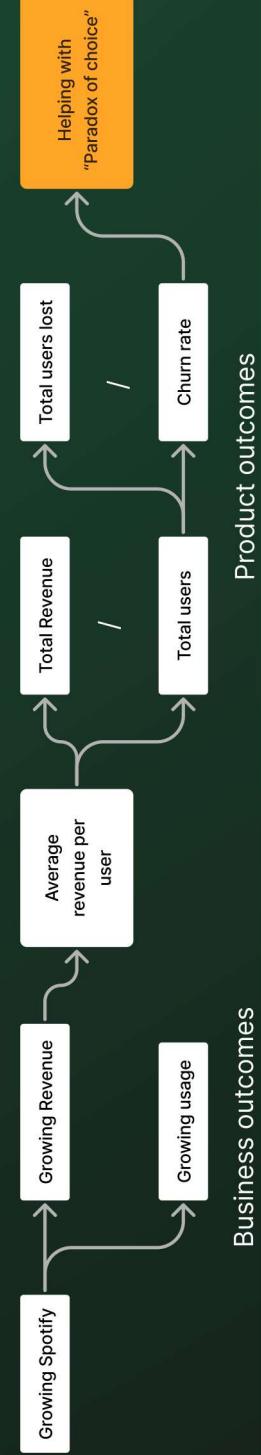
## Feedback loop- Music on Spotify



## Spotify in Numbers

**£11.7** bn revenue  
**236 mn** paying subscribers  
**602 mn** monthly active users  
**£4.39** average revenue/ user  
**£400** Lifetime value  
**100 mn** songs available  
**£25** CAC

## Mapping business outcomes to product outcomes



# UNDERSTANDING PARADOX OF CHOICE WITH SPOTIFY

## What is Paradox of choice?

The 'Paradox of choice' is a psychological phenomenon where where an abundance of options can lead to decision paralysis, dissatisfaction, and ultimately, a decrease in overall happiness.

## What do the user personas look like?

### Ananya, the melody explorer

28, Mumbai, Marketing professional



## How does it affect Spotify users?

In the context of digital platforms like Spotify, users are often presented with an overwhelming array of choices, be it an extensive library of songs, playlists, or genres. While variety is valued, too many options can lead to indecision, anxiety, and a sense of being unable to find the perfect choice.



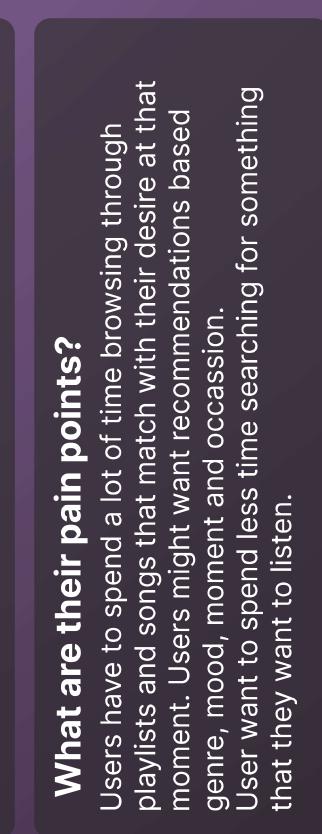
## Which users are affected the most?

'Discovery Seekers' is a user segment who are actively seeking new music but struggling with abundance of options.

- These users are usually Spotify premium users
- Aged b/w 18-30
- Comprise of students and Working professionals
- Very tech savvy and use Mobile and PC apps as well

## What are their pain points?

Users have to spend a lot of time browsing through playlists and songs that match with their desire at that moment. Users might want recommendations based genre, mood, moment and occasion. User want to spend less time searching for something that they want to listen.



# VALIDATING THE HYPOTHESES

## What did users say about finding songs?



**46%**

users have bought a spotify premium plan

**57 %**

users found music through playlists

**46 %**

users are likely to consider songs outside of  
Spotify recommendations

## Survey Responses

### LIMITED OPTIONS

#### Thinking

Feels constrained by a limited set of familiar songs, leading to a desire for broader music exploration.

#### Saying

I want to spend less time when I want to listen something new or in that moment for the mood.

MOODS

SEARCHING FOR SONGS

### FRUSTRATION

Frustrated and dissatisfied when unable to find the right music to match specific moments or interests

#### Doing

Trying to add more songs to the queue by finding songs from Playlists, search etc

#### Feeling

### EMPATHY MAPPING

🔗 **Current User Flow**  
Link to the current user flow which shows how users are listening to songs

### Some anecdotes form the respondents

1. Not getting the **perfect** song for the **moment**
2. Most of the time i only listen to a set of songs from my playlists.  
But when i want to listen to **something more** it always **give me hard time** to find something to my **interest**.
3. Its **recommendations** are very **poor** to the **next song** i want to play
4. Most of the time i only listen to a set of songs from my playlists.  
But when i want to listen to something Better recommendations. I never get the similar songs to the songs that i like.
5. Music for my **mood**
6. Optimizing Recommendations in up **next song** will be best for me
7. Better **queuing** experience



# BREAKDOWN OF THE PROBLEM

## Root Cause analysis

### What is the true problem?

 Users are experiencing difficulty in finding the songs to play when they want to listen something **specific**. Users express difficulty in discovering **new songs** or expanding their playlist beyond a set of familiar tracks. The current system **fails** to seamlessly connect users with songs that align with their interests, moods, or preferences.



### Why solve it now?

 Solving this problem now allows Spotify to enhance user satisfaction, capitalize on technological advancements in AI and LLM's, leverage existing data more effectively, improve retention and growth, increase revenues, and maintain or enhance its competitive edge in the market.

### Impact / value generation

**For Business:** Increased user retention and engagement contribute to higher **subscription renewals** and **new premium sign-ups**. Positive user experiences lead to positive word-of-mouth, attracting new users.

**For Users:** Time-efficient and enjoyable music discovery enhances overall **user satisfaction**. Tailored recommendations offer a more personalized and rewarding **listening experience**.



### Why does this need to be solved now?

- With the rapid evolution of the streaming industry and increasing competition, addressing user pain points is crucial to maintaining Spotify's competitive edge.
- User expectations are rising, and prompt resolution of issues demonstrates a commitment to continuous improvement and customer satisfaction.

### How do we know if the problem is real?

Evidence from user surveys and interviews reveals common sentiments of frustration, limited options, and dissatisfaction with current recommendation systems



### Who is facing the problem?

 Primarily, users in the "**Discovery Seeker**" segment are grappling with the paradox of choice on Spotify. These are individuals who actively seek new music but feel overwhelmed by the vast selection.



# IDEATING POSSIBLE SOLUTIONS AND PRIORITIZING



**What is does?**  
Users can get song recommendations for each song they play. Users can open the song radio for each song from the player.

**How can it work?**

Spotify will recommend songs based on the current song that the user is playing. Usually this feature is hidden in the menu.

Play radio based on the current song. Similar songs will open in a playlist and then users can add them in the queue.

**Key Features**

**Prompt Harmony**  
Prompt Harmony allows users to write a prompt and Spotify will organize a playlist for that requirement. User can create playlists based on moods, genre and other attributes.

**Auto Queueing**  
Add songs to the queue based on the current song. Spotify will fill the music queue which help users not to spend much time of searching.

**Song Radio**  
Based on user behavior, Spotify will recommend songs based on the current songs. Then the songs will be added to the queue.

1. Music recommendations based on one song
2. Add the recommendations to the queue.



**Prompt Harmony**  
Prompt Harmony allows users to write a prompt and Spotify will organize a playlist for that requirement. User can create playlists based on moods, genre and other attributes.

**Auto Queueing**  
Add songs to the queue based on the current song. Spotify will fill the music queue which help users not to spend much time of searching.

1. Create a playlist using LLM's  
2. A prompt space  
3. Creation of playlist from the prompt  
4. Also uses user insights to personalize



SOLUTIONS		SONG RADIO	AUTO QUEUE	PROMPT HARMONY
Reach	10	8	10	
Impact	8	7	9	
Effort	1	1	1	

- Effort is assumed to be infinite so we have taken 1 as default effort.
- Scoring is done out of 10.

## About Prompt Harmony

The AI system combines the user's prompt with the insights gathered from their behavior data to create a tailored playlist. It selects songs that match the prompt while also considering the user's individual taste profile, ensuring a seamless blend of **familiarity and exploration**.

**LLM + Personalization = Prompt Harmony**

# PRESENTING PROMPT HARMONY

DISCOVERING THE FEATURE

Giving personal touch to the AI

Trevor, your curator  
We're making your playlist  
It's being tailored just for you. This should take a few minutes.  
Your playlist is almost ready!

50%

PROGRESS BAR

A sample prompt to help users

Generate a Playlist  
Enter a theme or a mood

Generate a workout playlist which contains both Hindi and English songs.

Generate

Today's top hits

Bollywood & Chill

Trending Now India

Home Search Library

Here is your playlist

This button can be used to add the playlist to the library.

Workout

Familiar Taste Trent Reznor

Song Name Artist

Sona Name

AI PLAYLIST

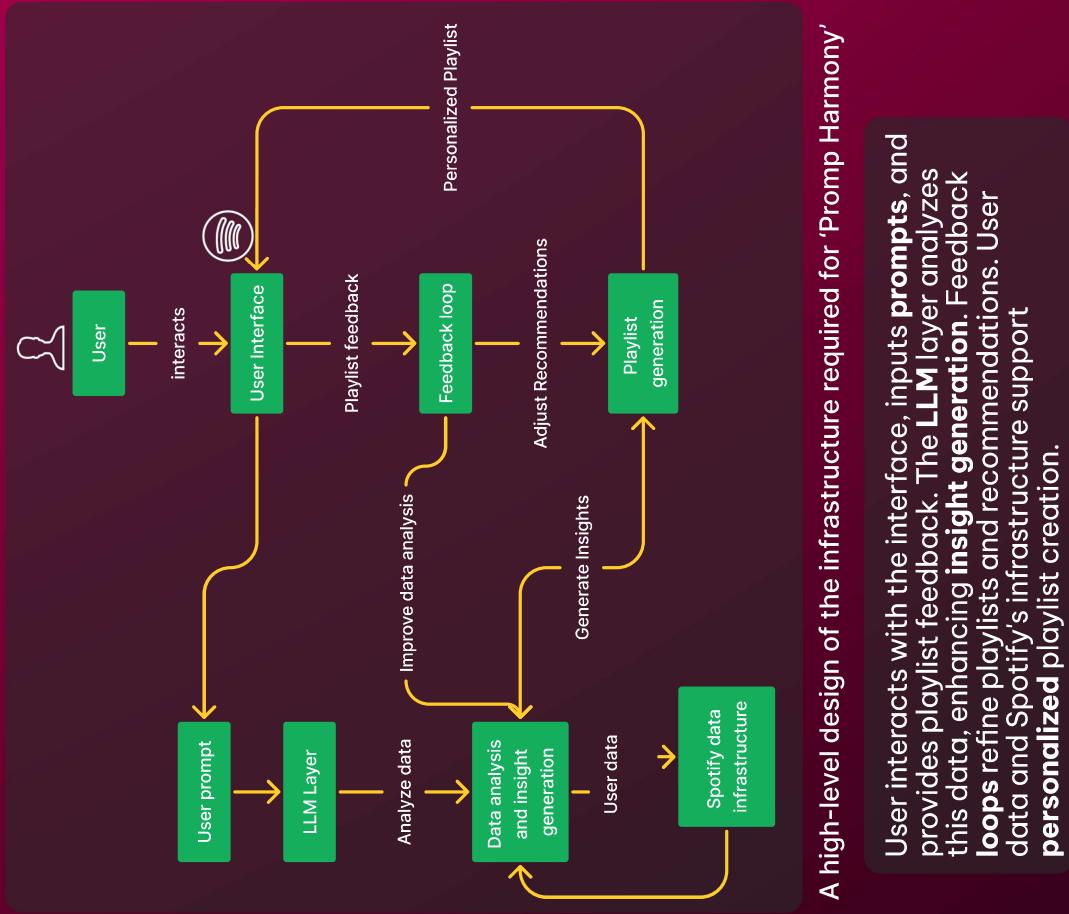
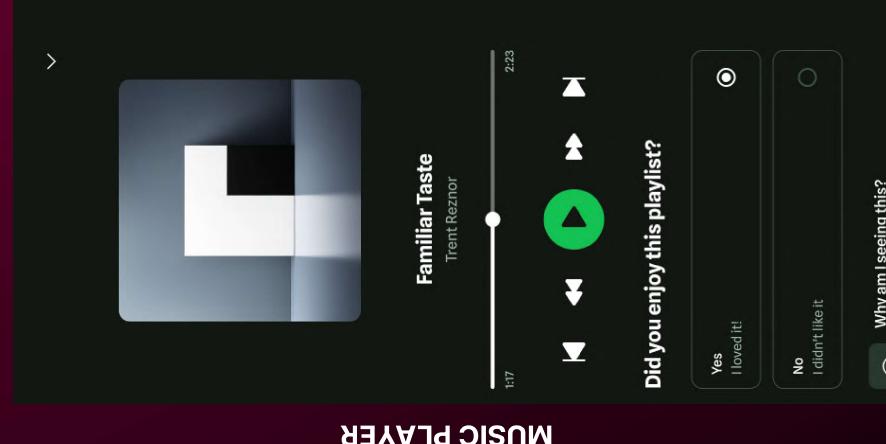
Now users have the AI generated playlist. Users can also choose to shuffle songs. Users can also **add** the playlist to the library. User can also rename their AI generated playlist.

Since it can take time for the AI to generate a playlist, users will be shown progress bar of when will the playlist be generated. After the progress bar reaches 100% and then users have to click 'continue listening' to see the playlist.

Users will be able to see the Generate a playlist option in the home page of the spotify app. User can then write what kind of playlist they want in the box.

# USER INTERFACE AND USER FLOW

[🔗 Link to the prototype](#)



A high-level design of the infrastructure required for 'Promp Harmony'

User interacts with the interface, inputs **prompts**, and provides playlist feedback. The **LLM** layer analyzes this data, enhancing **insight generation**. Feedback **loops** refine playlists and recommendations. User data and Spotify's infrastructure support **personalized** playlist creation.

This is the music player where users can play the songs in the playlist and also go forward and backward in the playlist. Users also can give feedback on the playlist which will help Spotify to generate better playlists.

## Second-order effects

### POSITIVE

**Artist Discovery and Diversity:** By generating playlists that include a mix of popular tracks and lesser-known songs, PromptHarmony can enhance music discovery, benefiting artists by providing them with a platform to reach new audiences.

### NEGATIVE

**Over-Reliance on Algorithms:** Users might become too dependent on automated recommendations, potentially limiting their exposure to a wider variety of music and reinforcing their current preferences, leading to a filter bubble effect.

### Decrease in User Control:

Some users may feel that the algorithm-driven approach diminishes their sense of control or ownership over their music listening experience, leading to dissatisfaction among those who prefer to curate their playlists manually.

# METRICS AND PITFALLS

METRIC	DESCRIPTION	FORMULA
Usage Frequency	Measures how often users interact with Prompt Harmony	Total interactions with Prompt Harmony / Total number of users
Playlist Generation Request	The total number of playlists generated through user prompts.	Count of playlists generated
Retention Rate	The percentage of users who return to use the feature after their first interaction.	(Users who used once/ no.of first time users)*100
Feedback Scores	Average user rating on the feedbacks	Sum of all feedback scores / Total no. of feedback entries
Skip Rate (low is better)	% of songs skipped in generated playlists.	(Total no. of skips / Total no. of songs played) x 100
Playlist Completion Rate	% of playlists where the majority of songs are played to completion.	(No. of playlists played >75% through / Total no. of playlists generated) x 100
Increase in Premium Subscriptions	Uptick in premium subscriptions attributed to the new feature.	(Premium subscriptions post-feature launch - Premium subscriptions pre-feature launch) / Premium subscriptions pre-feature launch x 100
User Growth Rate	The rate at which new users sign up for Spotify after Prompt Harmony's introduction.	(New users post-feature launch - New users pre-feature launch) / New users pre-feature launch x 100
Response Time	Average time taken to generate a playlist after receiving a user prompt.	Sum of all response times / Total number of playlist generation requests
System Uptime	% of time the feature is available without issues.	(Total uptime hours / Total operational hours) x 100

PERFORMANCE BUSINESS IMPACT SATISFACTION ENGAGEMENT

RISKS AND MITIGATIONS
<b>Accuracy of Recommendations</b>
<ul style="list-style-type: none"> <li><b>Risk:</b> Inaccurate or irrelevant playlist recommendations could frustrate users, diminishing trust in the platform.</li> <li><b>Mitigation:</b> Continuously train and refine the AI models with diverse datasets to improve accuracy. Include feedback mechanisms for users to refine their preferences and improve recommendations.</li> </ul>
<b>Technical Scalability</b>
<ul style="list-style-type: none"> <li><b>Risk:</b> The feature's demand might exceed Spotify's current technical infrastructure, leading to slow response times or downtimes.</li> <li><b>Mitigation:</b> Ensure scalable cloud infrastructure is in place to handle increased load. Use efficient data processing and machine learning models optimized for performance.</li> </ul>
<b>User Engagement</b>
<ul style="list-style-type: none"> <li><b>Risk:</b> The feature may not engage users as expected, leading to low adoption rates.</li> <li><b>Mitigation:</b> Launch with a beta version to gather early feedback and iteratively improve the feature. Use A/B testing to refine user interfaces and experience.</li> </ul>