



# The manufacture of recommended algorithms: a human adventure

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# Resume



# Deezer: a streaming service

## Key numbers

- 14 M active users
- 53 M tracks (and growing)
- ~500 employees (and growing)



## An international company

- Leader in France
- International (180+ countries)
- Offices in France, London,

...

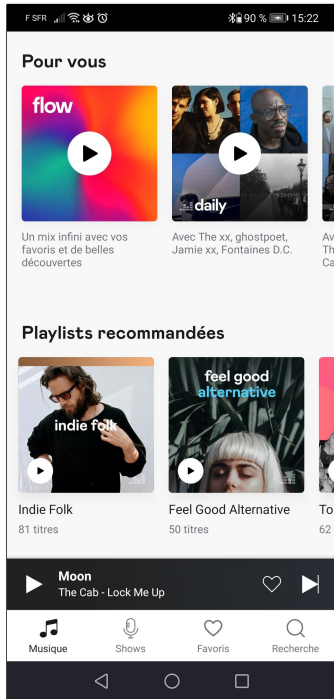


## A product

- Access music and non-music content anytime
- Multi platforms
- Local product



# The challenge of recommendation: create a user-centric experience



The goal:

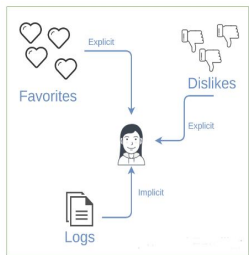
- Help the users access to the right content in the catalog
- Create an affinity for the product
- Be different
- **Create more value for the product**

An example:

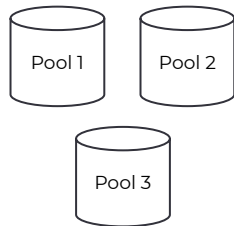
**The flow:** an unlimited personalised stream of music



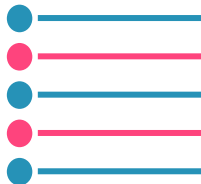
# flow: a pipeline of different algorithms



**USER PROFILE**



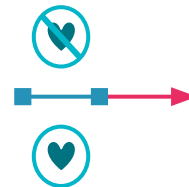
**TRACK POOLS**  
Tracks from different  
origins: discovery, library...



**TRACKLIST PATTERN**  
Alternate between tracks of  
different origins

- Remove banned tracks
- Filter tracks with no rights
- Filter tracks recently played

**FILTERS**



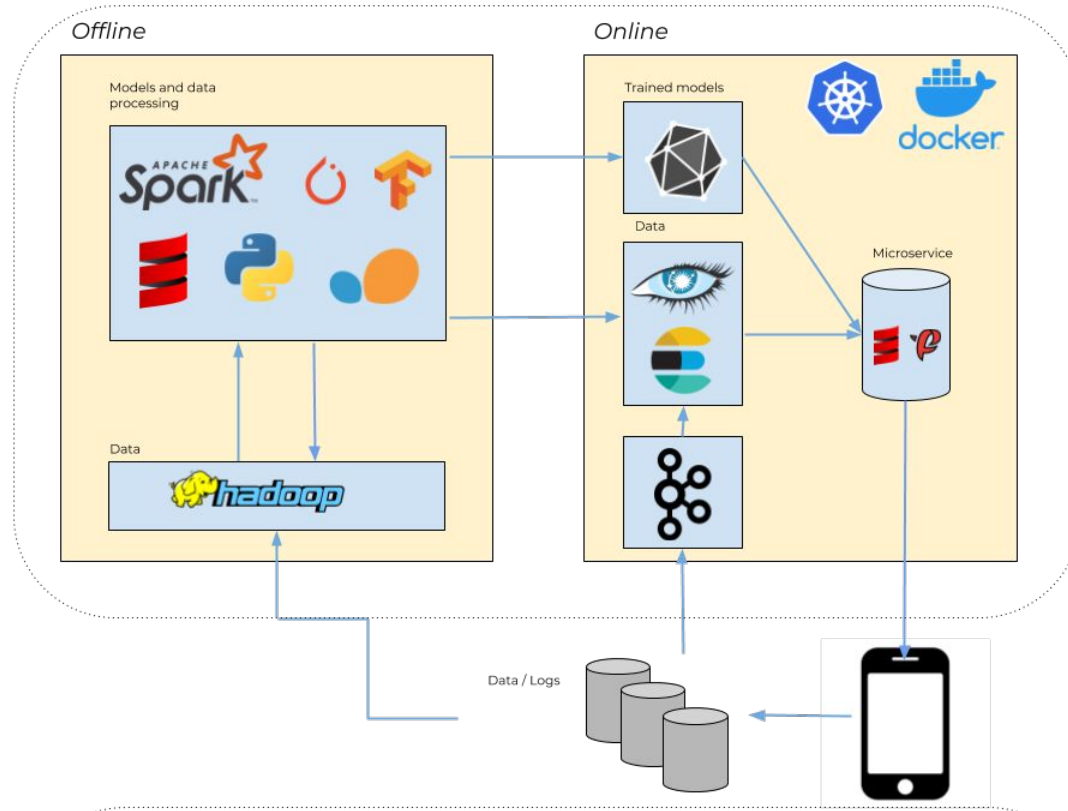
**LIVE ADAPTATIONS**  
Tracklists is updated according to  
user's interactions



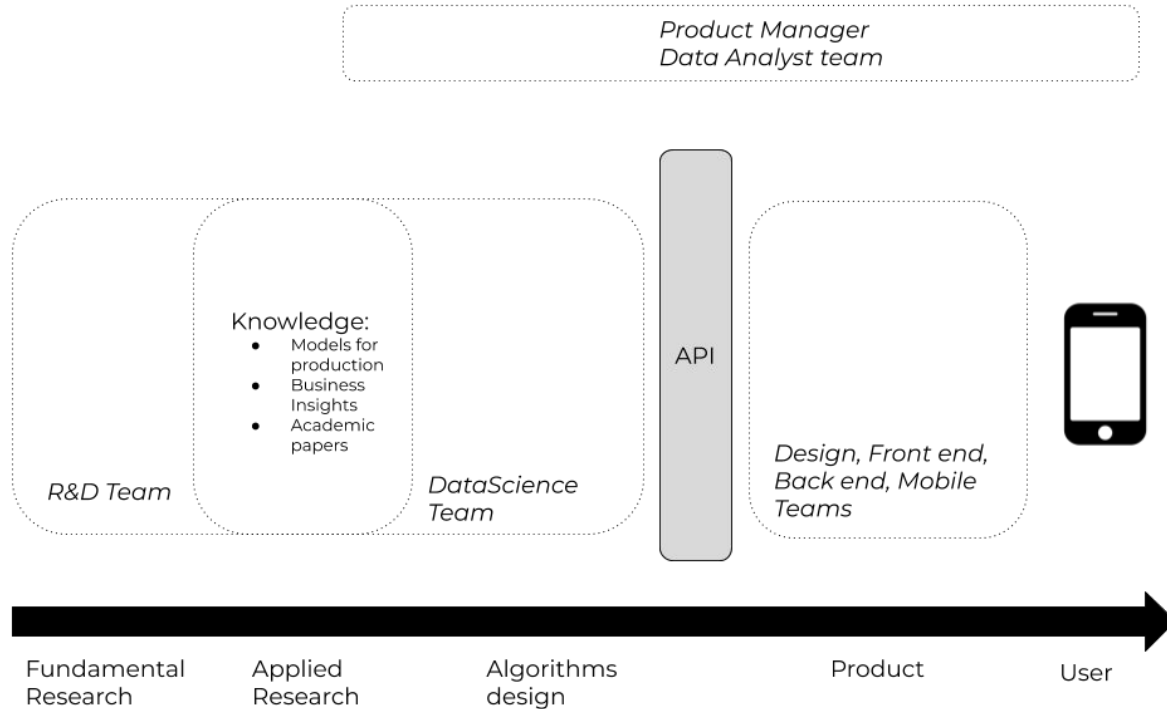
# Music representation for discovery



# Delivering in production



# A continuum from R&D to production





# A process to test, learn and adapt quickly



**User Needs**



**Prototype**

The very first version of our algorithm, for internal use only.



**Release**

We implemented the algorithm into the product, test it on a few number of users and collect data



**Production**

Our algorithm has been A/B tested, approved, and is released to all our users



**A/B Test**

There is always room for improvement. We continue to AB test to (in)validate hypothesis.



**Issue**



**Monitoring**

We monitor every steps and iterate according to data



# Key takeaways

- User needs drive developments
- A recommendation feature is always a tradeoff between computer, machine learning, product or marketing constraints
- Delivering quickly in production is the key

To achieve that:

- The team works with small iterations ready for production
- The organization and the technical stack is shaped according to your goal
- The team is autonomous and organizes itself: **processes adapt to humans**, not the opposite





**Thank you**

