Assignment 2.2: QFD Case Study

- Understanding of music streaming services -

20191195

INDUSTRIAL ENGINEERING

EUN SUNG JUN

Why Music streaming Service?

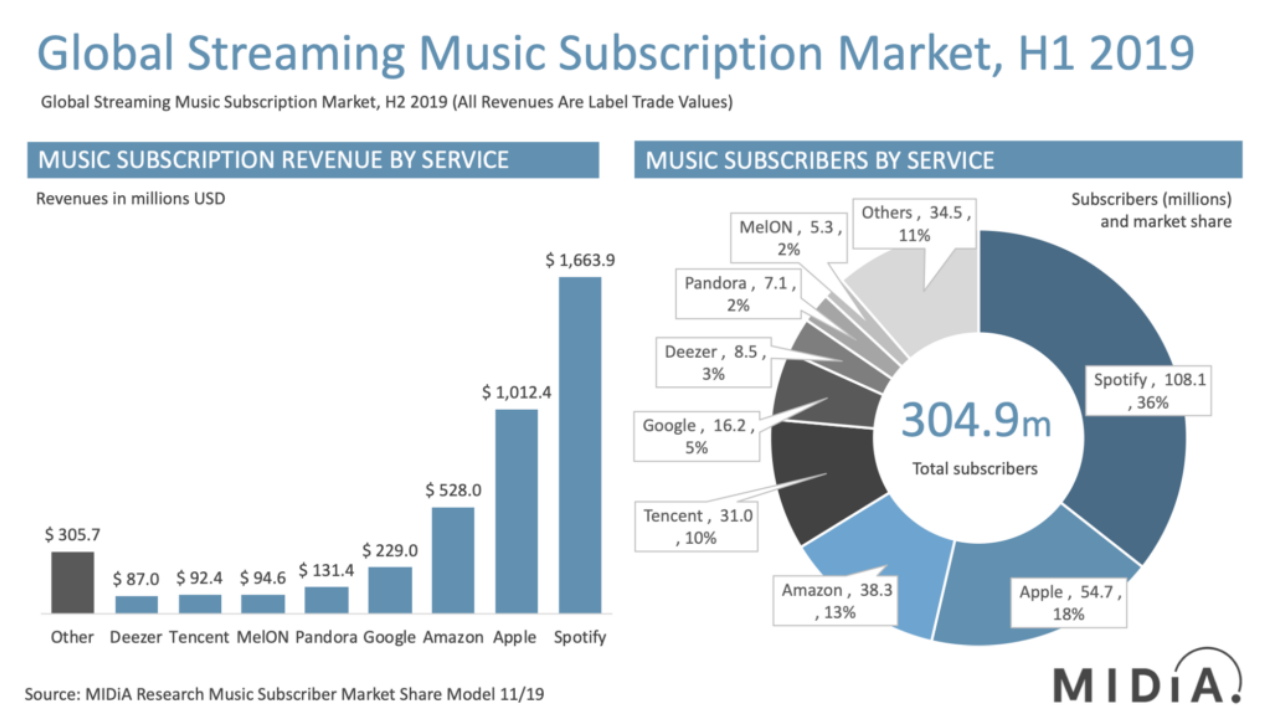
Myself is Heavy music streaming service user

I have used Vibe, Apple music, Spotify…

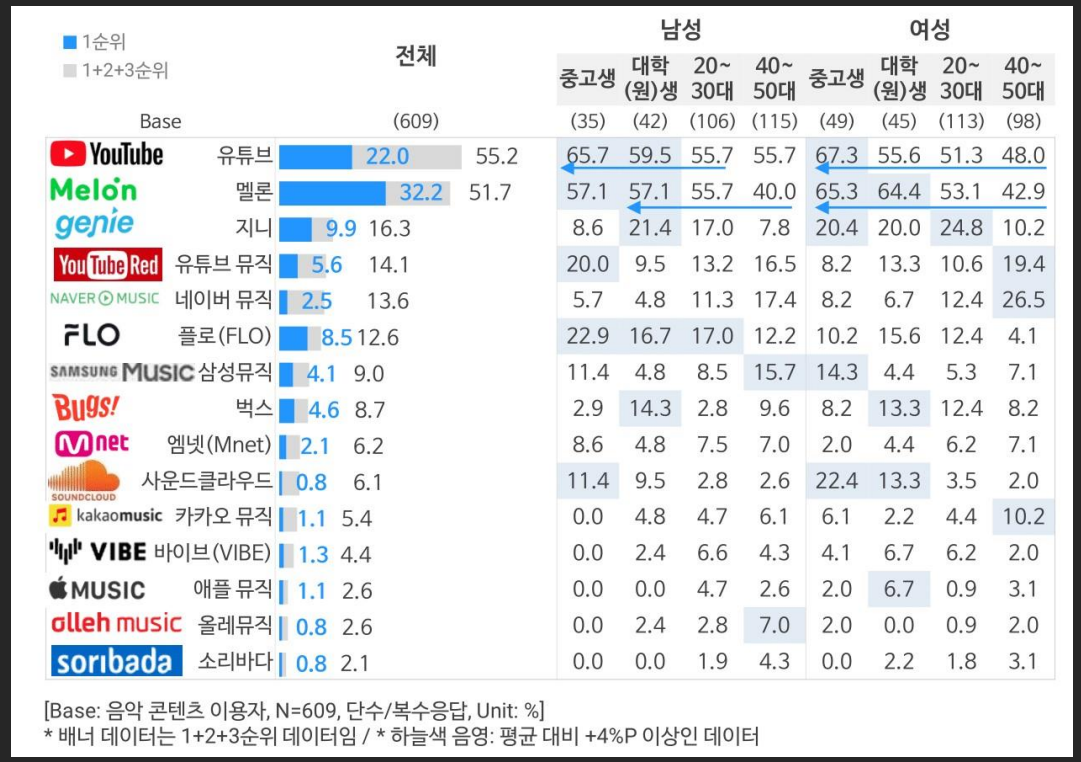
Now I’m using Melon & YT(Youtube) music because each service has different pros and cons.

With this homework, I wanted to find out which engineering characteristic affects me the most when choosing the service & what could be improved in 3 services; YT music, Apple music and Melon

Background Knowledges



Korea music streaming service market share
By 오픈서베이 콘텐츠 트렌드 리포트 2019



[Base: 음악 콘텐츠 이용자, N=609, 단수/복수응답, Unit: %]
* 배너 데이터는 1+2+3순위 데이터임 / * 하늘색 음영: 평균 대비 +4%P 이상인 데이터

Interesting part is that Spotify, Apple, Amazon which is top3 leading company in Global market has very minor market share in Korea.

Till now, Korea market was considered minor to these companies and korean consumers have preferred using service that they are used to.

I decided **Customer Attributes** based on my experience using different music streaming services

To choose **Engineering Charecteristics**, I thought what engineering feature is related to customer's action

Process in music streaming Service

	Customer	service
1.	acess to platfom	stable service,
2.	Find music by chart, search, playlist, ...	prepare diverse charts, playli intuitive results for search
3.	set play mode (repittition, random, shuffle ...)	diverse play mode, recc. diverse sort standard system
4.	download	subscription plan
5.	payment.	collaborate with easy payment company (Naver, kakao, ...)

HOQ Construction Process

Customer Attributes(CA)

- Neat/Nice Design
- Cost
- Access to diverse music
- Personalized music recommendation
- Fast music update
- Satisfaction of sound
- Share songs with friends

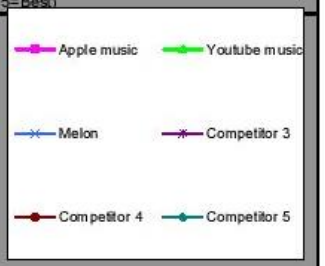
Engineering Characteristics(EC)

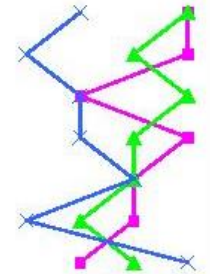
- Application ‘s usage of battery
- Number of charts
- Number of standards for arranging tracks
- Numbers of sections in page
- Average cost of subscription plan
- Cost per a song download
- Audio file format
- Size of music library
- Delay between two continuous song
- Classification technology level
- Integration with social media

Completed HOQ

Column #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Direction of Improvement: Minimize (▼), Maximize (▲), or Target (x)	▼	▲	▲	x	▼	▼	x	▲	▼	▲	▲				

Row #	Max Relationship Value in Row	Relative Weight	Weight / Importance	Demanded Quality (a.k.a. "Customer Requirements" or "Whats") \ Quality Characteristics (a.k.a. "Functional Requirements" or "Hows")	application's usage of battery	number of charts	number of standards for arranging tracks	nubmer of sections in main page	average cost of subscription plan	cost per a song download	audio file format	size of music library	delay between two continuous song	classification technology level	integration with social media	Competitive Analysis (0=Worst, 5=Best): Apple music	Youtube music	Melon	Competitor 3	Competitor 4	Competitor 5
1	9	14.3	4.0	neat/nice design	▲	⊙		⊙								5	5	3			
2	9	3.6	1.0	cost					⊙	⊙						5	4	2			
3	9	17.9	5.0	access to diverse music		⊙	▲					⊙			▲	3	5	3			
4	9	10.7	3.0	personalized music recommendation								⊙		⊙	▲	5	4	3			
5	3	25.0	7.0	fast music update		⊙		▲				⊙				4	4	4			
6	9	21.4	6.0	satisfaction of sound	▲						⊙	⊙	⊙			4	3	2			
7	9	7.1	2.0	share songs with friends								⊙		▲	⊙	3	4	5			
8																					
9																					
10																					





Target or Limit Value	under 12% of total battery usage	minimum 5	minimum 3	maximum 4	maximum 9.99$	0	minimum 320kbps	minimum 30million songs	maximum 0	.	.	
Difficulty (0=Easy to Accomplish, 10=Extremely Difficult)	5	0	1	3	7	1	9	7	5	9	0	
Max Relationship Value in Column	1	3	1	9	9	3	9	9	3	9	9	
Weight / Importance	35.7	171.4	17.9	153.6	32.1	10.7	192.9	353.6	64.3	103.6	92.9	
Relative Weight	2.9	14.0	1.5	12.5	2.6	0.9	15.7	28.8	5.2	8.4	7.6	

Powered by QFD Online (http://www.QFDOnline.com)

Conclusion

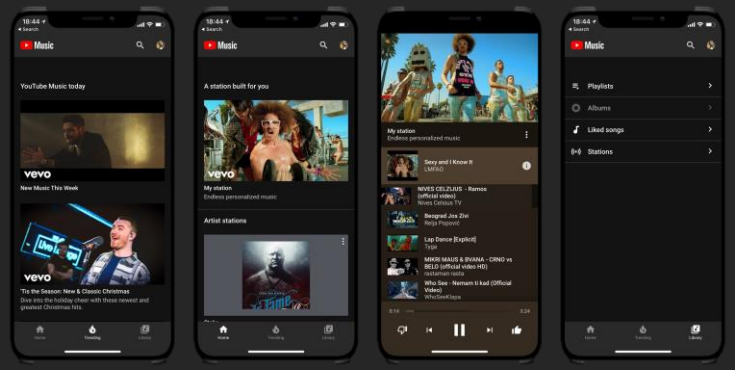
- EC priority

1) Size of music library
2) Audio file format
3) Number of charts
4) Number of sections in main page
5) Classification technology level
6) Integration with social media
7) Delay between two continuous song
8) Average cost of subscription plan
9) Number of standards for arranging tracks
10) Cost per a song download

As Customer Attribute Importance was set based on my experience, I realized that I focus on characteristics related to music itself. Others who do care more about the price would have “average cost of Subscription plan” and “cost per a song download” at higher priority.

YT music : growing rapidly but needs improvement on sound quality to become dominating global service

YT Music has strength on neat design and unrivaled music library



- Music library: 60 million + unofficial, live edit version songs from youtube

*spotify: 35million
*melon: 4million (both based on official website)

https://www.idownloadblog.com/2020/03/03/youtube-music-new-player-page-look/

However, it has weakness on sound quality

- YT music use 256kbps audio format, and it is evaluated to have bad sound quality compare to tidal, spotify, or apple music

https://www.whathifi.com/us/reviews/youtube-music
*tidal: 320kbps, premium CD-quality streaming
*spotify: 320kbps
*apple music: 256kbps AAC(Evaluated similar to spotify)

Apple music ：well made service which needs little more localization to Korean users

Strength: neat design, cost, &personalized music curation

https://www.macrumors.com/2019/11/08/apple-music-todays-country/

- Cost: 3 month free trial + 9.99$

*YT music: 1month free trial + 11.99$
*melon: 12.31$
https://www.mediasr.co.kr/news/articleView.html?idxno=50557

- Excels on music curation by “For you” tab and “Love” button

https://www.whathifi.com/us/apple/music/review

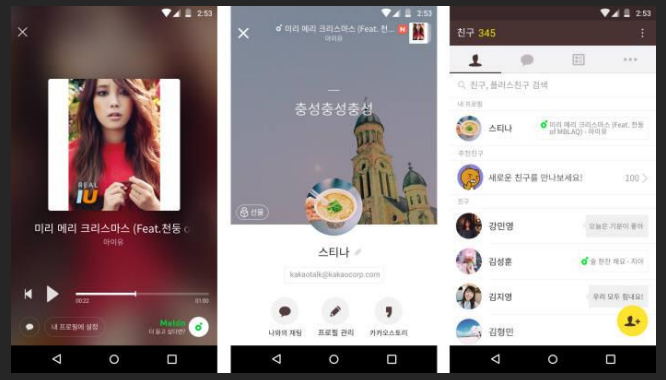
Weakness: access to diverse music & sharing with friends

- It seems that Apple music has enough large music library and has lots of diverse music, **this weakness only affects to Korean user like me**. When I used apple music, there was lots of Korean songs which are uploaded to melon but not uploaded in Apple music. I guess this phenomenon is getting better as Apple music becomes localized.

- Apple music has lots of functions inside application that could share the taste of music with friends, but most of them are **between apple device users**. So it would be a weakness to non-apple users.

Melon: well korean localized service, but needs lots of improvement to compete with global service

Melon has strength on sharing with friends



- Because Melon is subsidiary company of the Kakao, these two services are well integrated.

For example, we can set Kakao messenger profile music with melon and we can share music in chatting room by selecting “music” section.

https://m.etnews.com/20161220000215?obj=Tzo4OiJzdGRDbGFzcyI6Mjp7czo3OiJyZWZlcmVyIjtOO3M6NzoiZm9yd2FyZCI7czoxMzoid2ViIHRvIG1vYmlsZSI7fQ%3D%3D

However, it has severe weakness on sound quality and cost

- In google, I was able to find a lot of people complaining about sound quality of melon and although it’s not official, many assume that melon uses 192kbps (although it services 320kbps, other engineering features would be outdated then other global streaming services).

- Melon has higher subscription fee compare to spotify or apple music and its very unconventional as it doesn’t have exceptional strength except the fact that Koreans are used to melon.

Lesson Learned

- Choosing appropriate ECs in service was very difficult

Determining AC was quite easy because I am familiar with the role of customer and CA are usually qualitative. However, I didn't sure what engineering characteristic existed in the music streaming service and making those Characteristics into quantitative feature was harder. For example, I would like to turn "classification technology level" into somewhat quantitative feature, but I wasn't able to do it. When this problem happens, it's also challenging to set the target value for that EC.

- HOQ should be made into separate consumer segment

Priority of Customer Attributes largely varies to the segment of the consumers.
For example, light-music listeners would think the cost as most important factor, and heavy-music listeners may think the satisfaction of musical experience as the most important factor.
So I think that first, we should divide the consumer in to certain number of segment and then conduct HOQ for improvement or to make changes.

Lesson Learned

- What about CA that is not relevant to engineering characteristics?

For many consumers who really care about artists, one of most important factor is that “does the profit fairly distributed to the aritists”. I’ve tried to put this factor in CA, but it was related to none of engineering characteristics that I could come up with. So I think definition of engineering characteristic must be expanded so it can cover diverse customer’s needs.

- Easy to know what to improve.

With using HOQ it shows which EC affects most to the consumers with numbers. So it would very useful to make decision about what to improve for the employees in certain service.