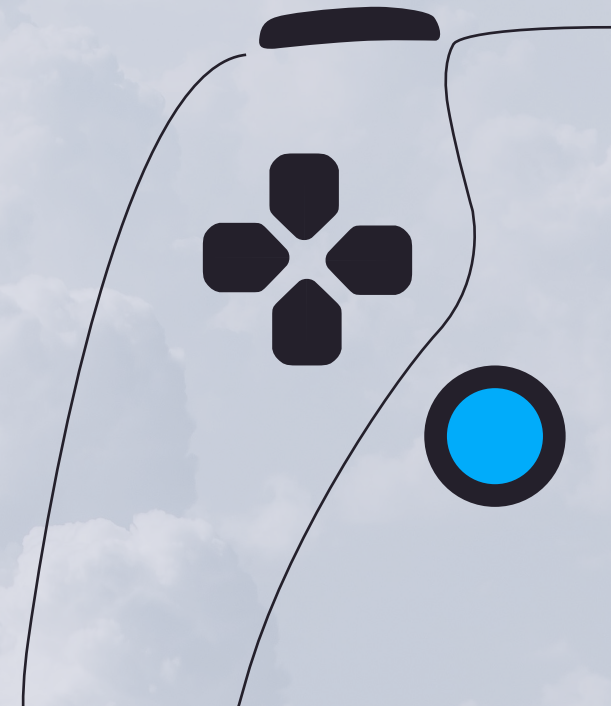
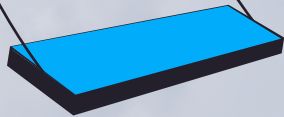


Amusing Cloud

The shape of our future playground



Supervisor (AHO): Kaja Misvær Kistorp
External supervisor: Thomas Fjeldberg-Norheim
Collaborator/partner: Telenor Norge

This project is approved by
Norsk senter for forskningsdata (NSD)

Student:

Vilde Brabrand Urfjell

Design fields:

Hybrid service and interaction design





Abstract

Over the last couple of decades, gaming has developed into being the main source to entertainment for the younger generation of today.

For adults and older, “to play” is often associated with outside physical activity with friends or family. But now, playing is changing into being a digital indoor activity. Gaming.

Gaming is another arena where technology has presented a change from the physical old to the digital new, and with this follows scepticism and discussions.

I have been exploring and analyzing why gaming has become a controversial topic, and to what extent the scepticism should affect our ways of gaming. And now, when cloud gaming is predicted to be the new common gaming hardware in near future, I have designed for how this technology might facilitate for gaming as a more sustainable and valuable leisure activity.

Executive summary

For my diploma, I have been part of an innovative, just started Telenor project of developing a service for cloud gaming. I have been working independently, taking the lead of my own design process, but have had close contact with the rest of the project team in Telenor throughout the semester.

My first mission was to gain enough understanding of gaming to suggest the best approach for Telenor's new service, to position in a market with many big competitors. I had a broad and reflective insight phase where I analyzed the gaming stigma, and the reasons for the social distance between people on the outside and on the inside of the gaming world.

As gaming from cloud leads to benefits within accessibility and inclusiveness, I saw the potential of targeting the "potential to core gamers" as the first main users of the service, as their gaming habits match the current technical constraints within latency and internet speed.

From my analysis of the gaming stigma, I identified three main opportunity areas to be the basis for my concept development.

By facilitating for healthy time consumption of gaming, creating awareness around trained skills and learning outcome, and showing the variety of what gaming can be, I aimed to meet the gaming scepticism of the suggested user group, and invite them into a gaming world that would feel safe, welcoming and sustainable for people of different backgrounds, and with different interest for gaming.

Among several strong competitors, gaming might throne at the top of being an activity designed for flow. I have designed a gaming subscription model that nudges the gamers to take the responsibility of own time consumption when gaming, and suggest for Telenor to seize the opportunity of being up front offering gaming in a healthy and sustainable way, as the gaming world is predicted to be our future playground.

My design proposal is aiming to be the x-factor of Telenor's cloud gaming service, and my conceptual prototypes are designed to be easily implemented and adjusted whenever all the pieces in the project come together to finally shape a holistic end product ready for the world.

Personal motivation

Technology and personal challenge

I have always been intimidated about working with new technology, as it is a fast developing field, hard to follow for technologically uneducated people, like me. At the same time, technology fascinates me, and I love how it creates opportunities for valuable products and services that bring society further. I am motivated to work on as a designer somewhere in between the fields of user centered design and technology when I graduate from AHO. To get there, it made sense to challenge myself in my diploma project, and dive right into an area that I am curious to explore.

People and society

I find a lot of motivation in designing for the everyday life, and for the many, as my work could have a positive impact for a lot of people. Realizing how important gaming is to so many, and how little I know about it, made me very curious and motivated to explore this big field, that is predicted to increase remarkably within the following years.

Risktaking

I quickly understood the risk of being a total n00b, designing for the 1337 (read: knowing nothing about gaming, but designing for the many very interested), and I had to consider early on how to turn my novicity into something positive, and avoid losing respect and trust from my users in that I would manage to design something valuable.

Of all the people in the world...



...and they chose me.

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About Telenor

Telenor is the leading supplier of telecommunication in Norway, and has a great social responsibility. Our modern security systems, tools for communication and collaboration, platforms for digital entertainment, etc. are all reliant on a stable internet connection and user friendly interfaces. Telenor works every day for digitalization and technological development, and for being a trusted social actor, contributing to a sustainable and healthy future. (Telenor, 2022).



(Photo from Telenor's webpages)



The collaboration

My diploma project is linked to Telenor's recently started development of a new cloud gaming service.

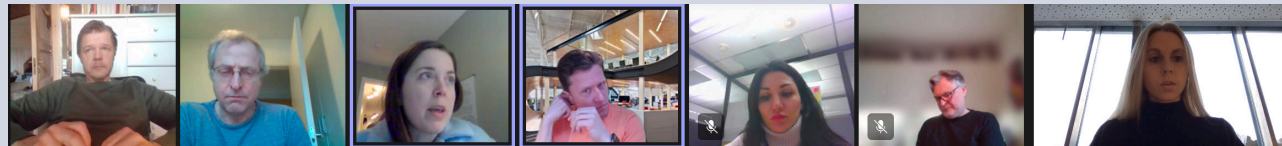
Telenor asked me to take the lead of my own design project, to avoid difficulties around confidentiality of their inhouse processes. Therefore, I have worked independently on the side of Telenor's project, with the aim to contribute with insights and a concept based on my design diploma work.

Throughout the project, I have had weekly meetings with a team from Telenor, where we have discussed the process and made choices together, and taken part in each others workshops.

Experts from Telenor have taught me thoroughly about the technology behind cloud gaming and 5G, and I have been part of meetings with collaborative stakeholders of Telenor within the cloud gaming project.

Before the start of the project, I signed a non-disclosure agreement to be authorized to receive confidential information about important aspects from Telenor. Any such confidential aspects have given me valuable information throughout my design process, but can not be further elaborated on in my report.

One of many meetings with the team



Brief background

Telenor is developing their 5G network, to offer services that require faster and more stable internet connection wherever there is 5G coverage.

The TV streaming service, T-We, is one of Telenor's main entertainment offerings, and now they want to expand this market to include cloud gaming.

Telenor has started an innovative project of exploring the possibilities of offering cloud gaming. They wanted me to take part in the project as the designer in the team.

There are two roles for Telenor to take, to make business out of cloud gaming:

- Telenor as "the enabler": Offering subscriptions with enough mobile data for remote gaming, but let the customers use other cloud gaming services to play.
- Telenor also as "the supplier": Offering a Telenor branded cloud gaming service on top of being "the enabler".

They wanted me to design for Telenor to take the latter role.



(telenor.no)



Telenor's current mobile subscriptions, yet to be supplied with one suitable for gaming.

Main brief: A supplier of cloud gaming



“We are looking
for our x-factor!”

Design for Telenor’s new cloud gaming service

What are the problems to solve within gaming?
How could they be solved by gaming from cloud?
Which user segment should Telenor reach for?
How could Telenor win the targeted user group?

... and gaming

[Privat](#)

[Bedrift](#)

[Søk](#)



[Handlekurv](#)



[Mine sider](#)



[Meny](#)



[Nettbutikk](#)

[Mobilabonnement](#)

[Internett](#)

[TV](#)

[Sikkerhet](#)

[Dekning](#)

[Hjelp](#)



Design discipline

My courses at AHO, and my background as a professional makes me a hybrid service- and interaction designer. I love to turn thorough insight work into something concrete as concepts, sketches and prototypes, and this became my aim in my diploma project as well, to answer the brief from Telenor in the most valuable way.

As a pure service, my design proposal would have many loose threads, because Telenor's project is at its start phase, where they are exploring opportunities and thinking freely, and many touchpoints in the service are for Telenor to develop, and not me.

Neither can my project be seen as pure interaction design, because I have had a long insight phase where the aim was to develop concepts for a future digital service for Telenor to bring to life, and not to work deeply with explorative interaction design.

My diploma project is therefore a mix of two disciplines, where my delivery consists of insights and concept development, and conceptual prototypes for Telenor to take further when developing their cloud gaming service.

Cloud gaming, and what's behind the cloud

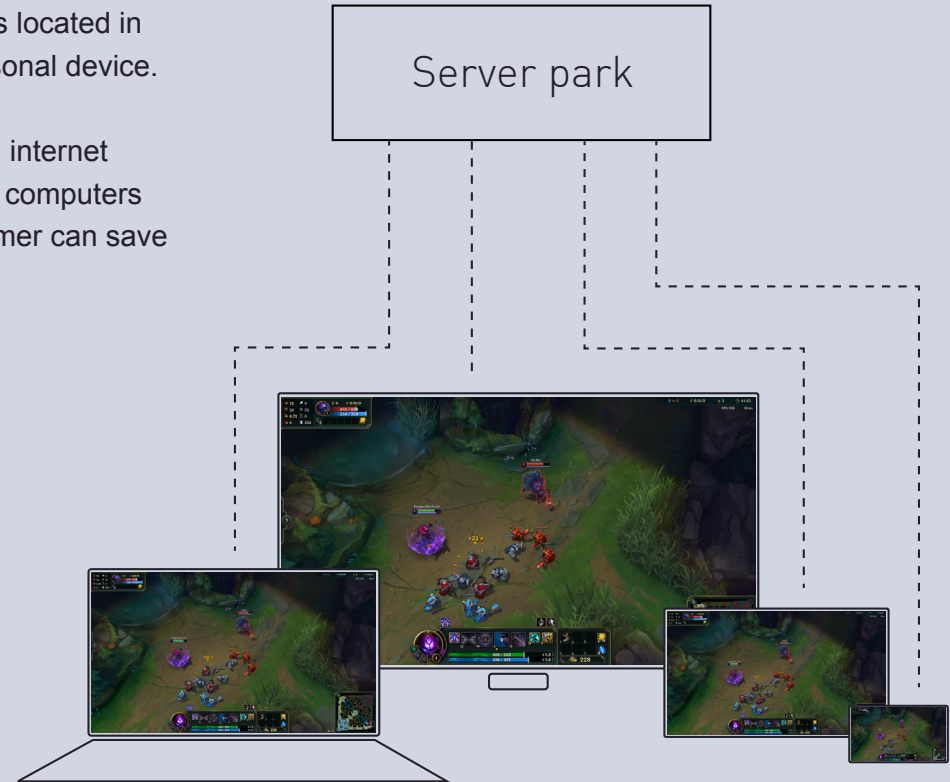
Cloud gaming is when games are launched and processed on remote servers located in data centers, and the user receives an interactive videostream back to a personal device.

This means that a gamer can play only using a controller and any device with internet access to run whatever game of desire. As the games are downloaded to the computers in the cloud, there is no need for the gamer to download it locally, and the gamer can save storage on personal hardware by rather streaming from cloud.

I had several technical sessions with experts from Telenor, to learn about 5G, cloud and streaming, and the technology behind this.

To give the user a pleasant gaming experience with cloud, the latency of the data signals must be down to around 10 milliseconds, at least for giving a hardcore competitive gamer the feeling of gaming in real time.

The parameters for lowering the latency is fast speed 5G internet, and edge computing, which is a Telenor ongoing project of placing out servers in the regions to decrease the distance for the data packages to travel. This does not happen over night, and gives the cloud gaming project an approximately three year future scope before the latency will be low enough for playing all types of games of interest.



SWOT-analysis

I did a SWOT to analyse what I had learned about cloud gaming, and to clarify what potential it holds.

From the analysis, I found that changing from gaming like most people do today to gaming from cloud could make gaming more inclusive and sustainable, both in a social way, and for the climate.



Takeaways from SWOT

Inclusive and accessible

When cloud becomes the common gaming hardware, games and computers are accessible wherever through subscriptions, which lowers the threshold to play for people who are new to gaming, or people who don't wish to spend a lot of money on personal gaming equipment.

However, having gaming available everywhere might cause a threat towards the interest of doing other things, take time to reflect or have quality conversations with family, etc.

Socially sustainable

Making the right choices of how to offer cloud gaming could potentially turn gaming into a more socially sustainable leisure activity, as the subscription model could be shaped to reward a healthy time consume.

My hypothesis is that habits and preferences are shaped by how an activity is offered, and that a change of the gaming context might open for a change in the way we see and do the activity.

Environmentally sustainable

The computers in the server parks will be in much more efficient use than personal devices in a home. This could have a positive effect on climate if the server parks are powered by green energy.

Also, the desire for new personal equipment fades, and repairment of computers could happen a lot easier when they are all at the same place.

Methods I used throughout the project:

- In depth interviews
- Casual/reflective interviews
- Observations
- Think out loud
- Being the user
- Comparison analysis

- Workshops

- Technical learning sessions
- SWOT-analysis
- Competitor analysis
- Market analysis

- Low to high fidelity sketching and prototyping
- Continuous testing and feedback

- A lot of desktop research
- Learning from other design projects
- A lot of mapping

How I explored gaming through users

Exploring gaming in general, for me who had no background knowledge at all, felt like a big task to cover.

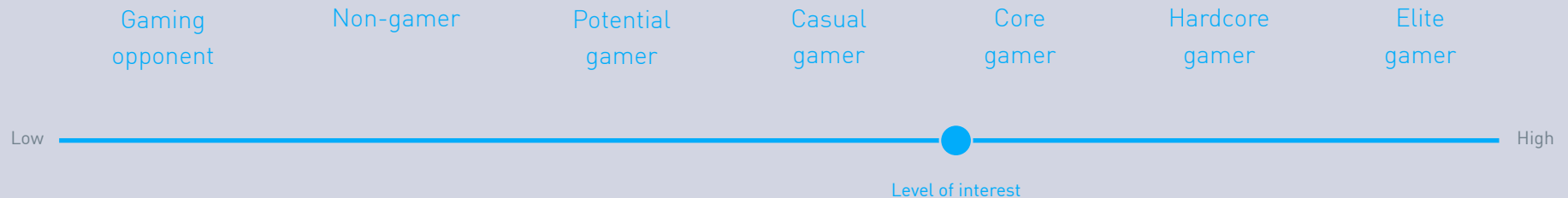
I had to use other people as much as I could, and luckily for me, gaming is a topic that people enjoy talking about.

I have been continuously in contact with users through the whole project, and interviewed, observed, reflected, discussed, ideated and tested with them.

User group for research

I chose average young adults as my user group for my gaming exploration because this segment consists of people with the whole spectrum of interest and knowledge about gaming. Young adults are also easily accessible to me, and good at giving reflective feedback, which makes it easier to learn and understand. They are usually more flexible than for example families with kids, and therefore more likely to offer time to share thoughts and experiences with me.

I wanted to learn about gaming from various perspectives, and therefore I interviewed and observed people with different interest and relation to gaming, from the “gaming opponent” to the “elite gamer”. I was very curious to explore how the level of interest could affect the interpretation and use of gaming, and how people with different gaming interest communicate around and understand gaming.



On the café



Hardcore gamer at work



While gaming



Reflective interviews

I started off doing a lot of interviews about gaming habits and preferences, but also questioning the very basics:

- What is gaming?
- Why are people doing it?
- Why is it often a source to conflict within a family or between people of different interest for gaming?

These were questions for reflections and discussion, and I did many of my interviews around these topics in more casual settings, which seemed to help my interviewees communicating their true opinions.



Walk and talks



Group talks in the car



While playing board games

The underlying scepticism

This advertisement by Telia was shown on TV around the start of my project, depicting the lack of understanding and respect between people outside and inside of the gaming world.

It made me very curious to explore further what there is to gaming that makes it so much harder to accept than other activities.

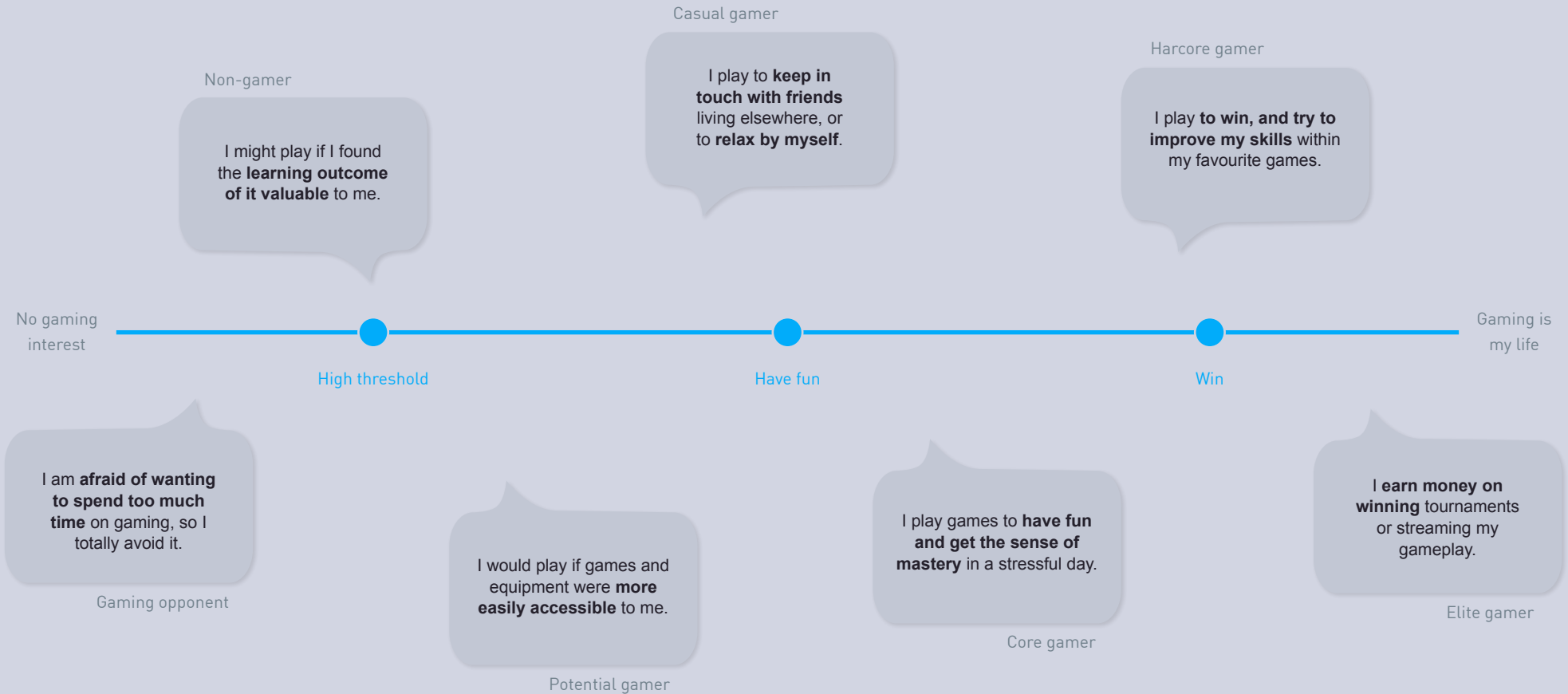
I went into depth with people of different interest to gaming to analyze their thoughts and opinions to find out what really is the underlying problem that creates the scepticism. I used the ad as one of many topics to challenge people to understand their own thoughts. Comparing gaming to other activities was also a useful method to dig deeper into why gaming leads to scepticism.

I also interviewed and observed people to catch their habits and preferences around hands on gaming, for my work with defining the most suitable user group, and to create valuable concepts for my final design contribution to Telenor's cloud gaming project.

On the following pages I will show findings from my work on understanding the users and the gaming scepticism in society.



Reasons for gaming, or not gaming



Understanding the hardcore to elite gamer

The hardcore gamers have spent a lot of money buying all the necessary gaming equipment, and spend hours trying to improve skills needed to win their favourite games. As win or lose depends on milliseconds, they would require super low latency if they were to stream games from cloud.

Hardcore gamers often specialize within a certain game, which is usually one within the first person shooter genre, but can also be of the more story driven type. Gaming is a big source to entertainment for them, and the hardcore gamers are likely to look for other types of digital games for having fun in other settings.

Gaming takes a lot of time and capacity for the hardcore gamers, but this is considered by the gamers as well spent time, because gaming is so fun and rewarding.



The gaming set-up of a hardcore gamer

“I have played Valorant for several years now. I play with friends to improve my accuracy and fast reaction, to become even better at this game.”

Hardcore gamer

No gaming
interest

Gaming is
my life

Understanding the casual to core gamer

The casual to core gamers put gaming further down on the priority list, and play mostly for fun, to relax or to interact with friends.

These gamers are less likely to update their equipment to the best and latest, and might occupy central parts of the living space with their computer, as the gaming is not important enough for getting a gaming room.

The time spend on gaming varies a lot, depending on the level of current interest, or the amount of other duties and activities in the day.

Casual and core gamers often play the popular games, their own favourites, or games with nostalgia, as they spend less time looking for something new.



Less gaming equipment, but on the living room table

“I might play for a whole weekend if I get motivated, and then nothing for the rest of the month, maybe. It depends on my life situation.”

Core gamer

No gaming
interest

Gaming is
my life

Understanding the potential gamer

The potential gamers have been introduced to gaming through friends who play, but usually don't play much themselves because of the lack of gaming equipment, and lack of knowledge of how to do the set-up, and where to find suitable and interesting games.

The language within gaming is new and hard to understand, and the gaming services seem more targeted towards more trained gamers, so the potential gamers feel excluded.

The barriers of getting into gaming seem too big compared to the potential gamers interest for gaming, and they end up watching TV or binging series instead because this is familiar and easy to handle.



Watching films/series because gaming is unfamiliar

"I actually wish I did gaming instead of watching TV or series. Gaming seems more challenging and rewarding, but watching TV is just easier."

Potential gamer

No gaming
interest

Gaming is
my life

Understanding the non-gamer to the gaming opponent

The gaming opponents have made up their minds about what gaming consists of, and that it is a total waste of time.

They avoid exploring gaming further, in the fear of getting interested and wanting to spend time on something so immersive and meaningless.

They have often experienced how a partner or a flatmate disappears into the gaming world, and breaks their promise on when to end the gaming session.

The gaming opponents have often learned to play physically from their childhood, and have had restrictions on screentime, getting an impression that digital games give no valuable outcome. But once a game is introduced with a clear learning value, the non-gamers get motivation to improve their skills in a playful way.

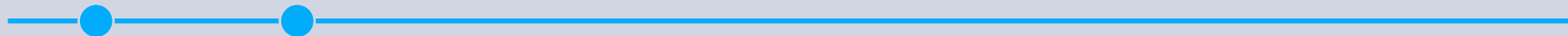


Think that they spend their time on better things

“If I were to do gaming, I would need to know the learning outcome of it. I would not spend time on playing a silly fantasy game.”

Gaming opponent

No gaming
interest



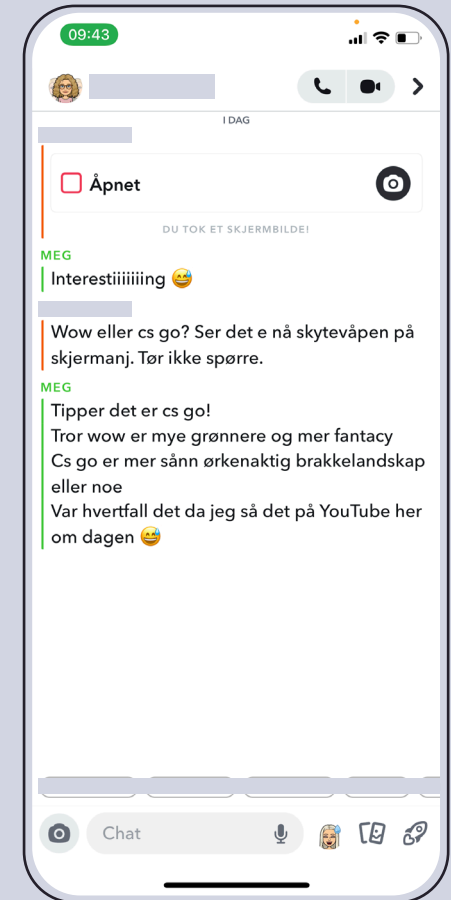
Gaming is
my life

The train to the gaming world has gone

Gaming is a career or a sport to some, and totally unexisting to others. And in between those, gaming is usually entertainment and socialization.

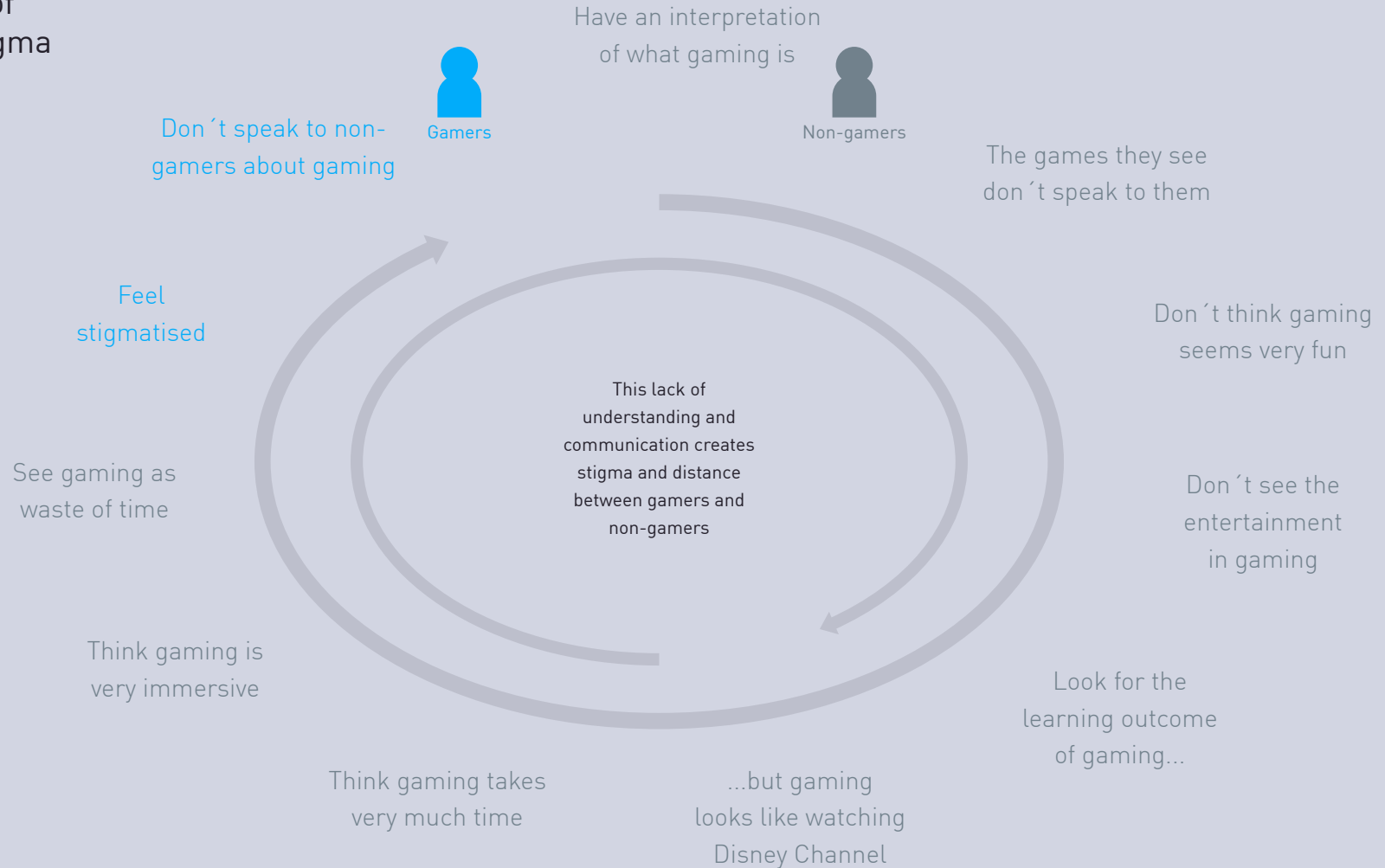
But non-gamers often feel that the gaming world has become too complex for them to understand it, and finds it safer to stay on the outside.

They stick to their impression of what gaming is, which is usually based on the most popular action games that front many gaming advertisements and services. These make the non-gamers conclude that gaming is not for them, and put little effort in trying to explore and understand.



A snapchat I received from a non-gamer-friend
(written in beautiful dialect)

The circle of gaming stigma



“

I really want you to experience the joy of gaming!

If you don't like gaming, you just
haven't found the right game for you.

- core gamer

”



Basis insights for concept development

Hidden variation

The variation of games are hidden behind the most popular genres, creating a nuanced picture of what gaming consists of

Invisible skills

Many people, and especially non-gamers are not aware of the skills developed by playing digital games

Designed for flow

Digital games meet the criteria for flow on a higher level than most other activities, and with no natural time limit, they might cause a threat towards the time left for other activities

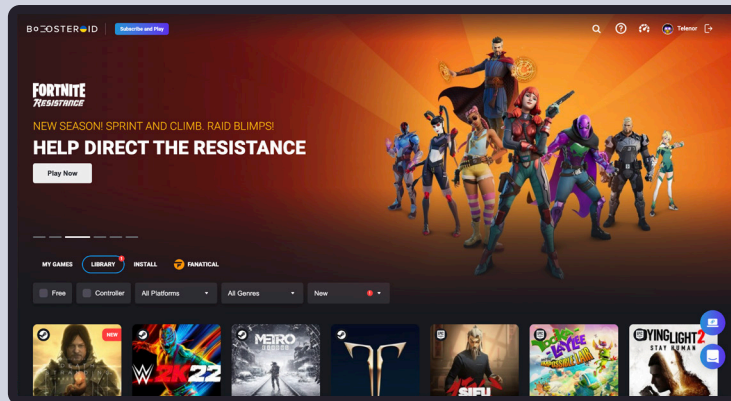
Variation hidden behind the popular games

Among the most popular games of today, almost all of them are within the competitive multiplayer first person shooter genre. These games are usually fronted on web pages or services for gaming, and create the first impression of what gaming is for those who are unfamiliar with it, but the gaming world consists of so much more, and this needs to come forward to show the potential of how gaming can meet different preferences.

Potential gamer

This page does not speak to me, and I feel I don't belong there.

Boosteroid: cloud gaming service



Counter Strike



Call of Duty



Fortnite



Fortnite on the banner of Boosteroid



The gaming world consists of a lot more than Fortnite...

Core gamer

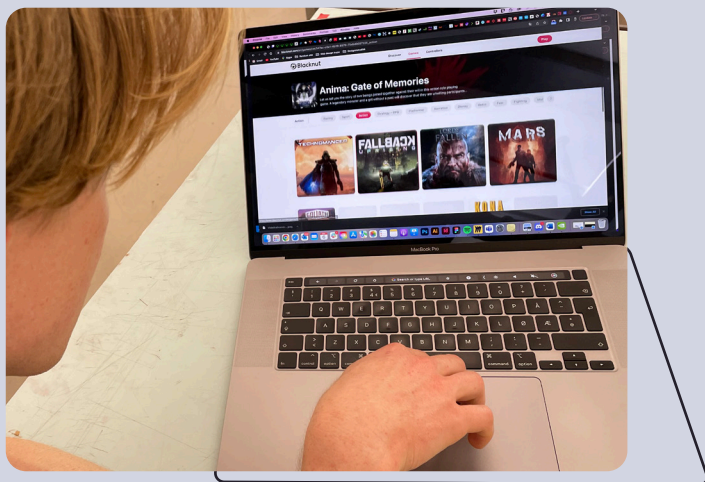
During the Corona pandemics, we played Buzz and Uno a lot! Those are games grandma could join.

Core gamer

I like to play adventure based games by myself, and disappear into another world. Like an interactive movie.

Casual gamer (even though she won't admit it)

I am no gamer, but I love playing The Sims, creating houses and simulating the family life.



Core gamer

It is hard to find new games. I usually just follow tips from friends, or browse randomly.

Potential gamer

I am not familiar with the vocabulary in the filtering tools for discovering games.



Non-gamer

I don't know of any game that attracts me, and the gaming services do not help me find one.

GENRE

- Shooters
- Action
- RPG
- Racing
- MOBA/MMO
- Simulation
- Strategy
- Sports
- Kids/Family
- Casual
- Horror
- Platformer
- BattleRoyale
- Adventure
- OpenWorld

Skills and outcome of gaming can be hard to identify

To non-gamers, gaming might look like pure fun or like watching TV passively, but “video gaming teaches a wide range of skills from working with a team to understanding complex sets of instructions. Whether you’re playing games to pass the time or to gain a competitive edge over your friends, you’re learning skills along the way that companies are increasingly recognizing as vital to their organizations” (Insightsoftware, 2021).

Not even all gamers realize what skills they develop through their gaming, and I clearly see the need for lifting up skills and outcome as information for describing a game.

Core gamer

I don't think I learn anything from gaming..!
Or do I?

Core gamer

When I think of it... All my hours in Minecraft have probably been the start of my interest for design.



(Medietilsynet, 2020)

70% agrees that gaming makes them better in english

45-57% agrees that gaming is educational

1337LIFE

In year four at AHO I did a seven weeks project with co-students where we worked with utilizing the skills from gaming in job applications for people who struggled with special issues.

During this project we identified a lot of skills developed from gaming, that could be used to create awareness around the outcome of different games, and help people to discover a game that gives them value back for the time spent playing it.

My experience from this project was very valuable for me in my diploma. I used especially the identified skills shown on the slide from our presentation, and the understanding I got from our interviewees about finding meaning in gaming, to develop concepts for Telenor’s cloud gaming project.



Project done by: Kevin Ehrenberg, Ida Lahm, Kaya Maraz and me.

Fulfilling criteria for flow

Reaching flow state is usually something people aim for, as it makes a person able to work efficiently and feel mastery of completing or working well on a task.

Gaming meets the criteria for reaching flow very well, which on one side leads to mastery and good self-esteem, but also facilitates for forgetting the sense of time and place, and end up gaming for a very long time.

The most relevant criteria for reaching flow that gaming totally fulfills are:

- Clarity of goals and immediate feedback
- Intense, focused concentration on a specific task
- Balance between skills and challenge

(Lörincz, 2018)

(Flowskills, unknown)

“There is nowhere in our everyday life that we experience mastery as much as in gaming”

Game designer



Flow leads to...

- Loss of reflective self-consciousness
- Time distortion or altered sense of time
- Increased engagement

(Lörincz, 2018)

(Flowskills, unknown)

When being in flow state, the consciousness of the surroundings and the sense of time disappears, and it can be challenging for other people to catch the person's attention. This can lead to conflict in the gaming context, as nobody can feel sure about when the gaming session is finished.

It happens so often that I sit down to play for a bit, and all of a sudden it's 2 am, and 3 hours since I promised my partner to go to bed.

Core gamer

Non-gamer

I have to step away completely from digital gaming, because if I play, I find myself in front of the screen on Sunday night, unconscious of what just happened to my weekend.



Almost impossible to get a gamer's attention

Gaming today and tomorrow

A survey done by Medietilsynet shows that 86% of today's 9 to 18 year olds are gamers (Medietilsynet, 2020). The time spent on gaming decreases as the children grow older, but to a less extent now than before, especially for girls (Rodem, 2020).

Also, the diversity in games is increasing, to make the gaming world more representative and welcoming for the whole society. The indie games are on their way up, giving numerous alternatives to the very popular games, that are mostly within the competitive genre, and targeting men (Howarth, 2022).

Trends tell that we are facing a growing digital playground, aiming to meet the preferences of all types of people. The younger generation of today is the first one where the vast majority is familiar with gaming, and sees the value of it in many ways. These people will probably stay gamers for the rest of their lives, as this way to play is connected to their childhood.

But with the lack of interest and understanding from the older people, we will maintain a split society of leisure and gaming

for at least 50 more years if gaming can not be presented and offered in an interesting and welcoming way also for the people outside of gaming world today.

Cloud gaming is predicted to grow and expand (Howarth, 2022), and with that I see an opportunity of utilizing the change from gaming with personal hardware to gaming from cloud to invite people in, and to nudge for awareness and variation of play, to bring out the best potential of what gaming can be for each one of us.



(Medietilsynet, 2020)

Insight overview

In my research phase I identified several factors for making me able to suggest the non- to core gamers as the user group most suitable for Telenor's new cloud gaming service.

Latency and types of games

As the less trained gamers do not play the most competitive fast reaction games on top level, they do not have the same requirements for low latency, and have not specialized within a certain type of games like the hardcore competitive gamers often have. The gaming experience of streaming from cloud will feel more pleasant for the less trained gamers than the hardcore ones, as the hardcores would win or lose based on milliseconds.

Accessing equipment

The non-gamers and potential gamers need to be introduced to gaming in a way that speaks to them, to feel included and have the opportunity of accessing equipment and games for exploring own preferences and having fun.

Impression and understanding

If people outside of the gaming world are never taken in, the misunderstanding between gamers and non-gamers will maintain for many more years, as I have seen that non-gamers often do not explore the gaming world on own initiative, and stick to their impression of what it is, and that it is a waste of time. This might create a distance between people, and a threshold for having fun together in the following years.

Social responsibility

I see a value in introducing gaming to the non- to core gamers to help them understand the opportunities of gaming. But targeting this user segment requires that gaming is offered in an appealing and responsible way in their eyes. For my design solution, I want to embrace the scepticism from maybe the last non-gamers of all times, and utilize the upcoming trend of subscription based gaming to facilitate for healthy gaming habits, that might also seem more responsible to the non-gamers.

No gaming
interest

Potential gamer

Core gamer

Gaming is
my life

Unused opportunity

Opportunity for Telenor

Targeting the non- to core gamers could reach a customer group who without facilitation might have stayed outside of the gaming world for the rest of their lives. As other gaming services seem too complicated for less trained gamers to use, I consider this user segment as an unseen opportunity for Telenor to win new customers that other gaming suppliers leave behind.

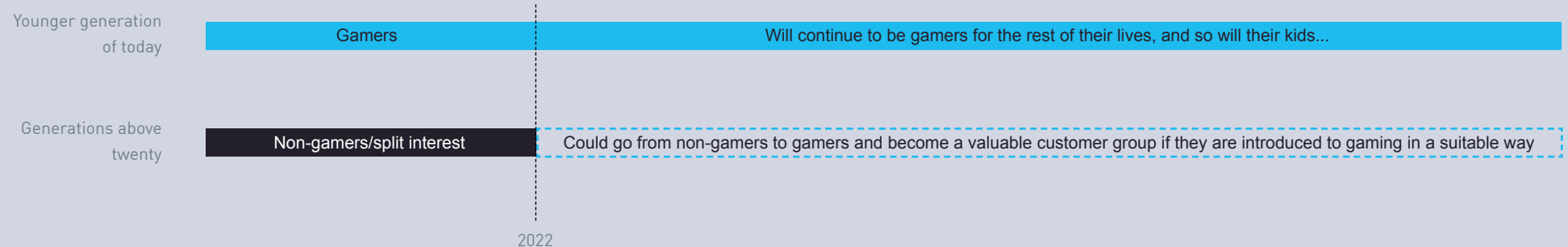
Telenor's position

Telenor is a trusted and well known social actor to most people in Norway, including those with less interest for gaming today. This

puts Telenor in a good position to introduce gaming to people with scepticism for it, as they might already use Telenors mobile or T-We services.

Looking ahead

Making casual gamers out of the non-gamers of today creates business for many years ahead. However, for this to work, it is important that Telenor's service also stays interesting to people when they become more familiar with gaming, as they would otherwise move on to other services to play on their level.



Cloud gaming platforms of today

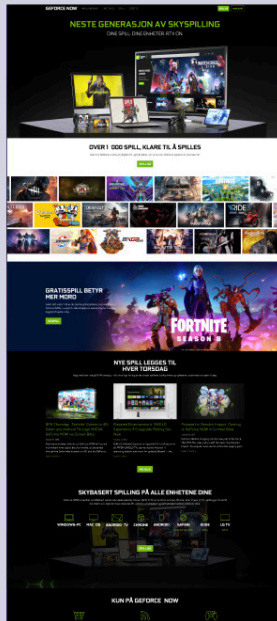
I used competitor analysis of different levels during my whole project, for everything from understanding the market to working with sketches and user interface when making a final design and prototypes.

I looked into the main cloud gaming services of today, and interviewed both people with and without experience from using them. My main takeaway is that the services seem to be unsuitable and too complicated to use for people who are less familiar and interested in gaming.

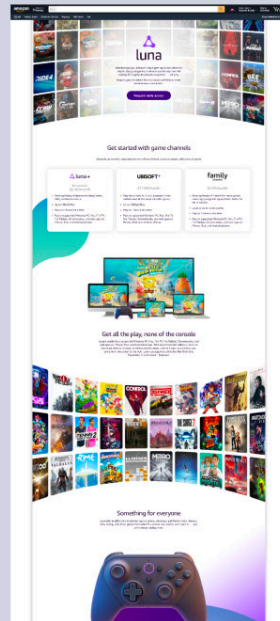
Sony
Playstation Now



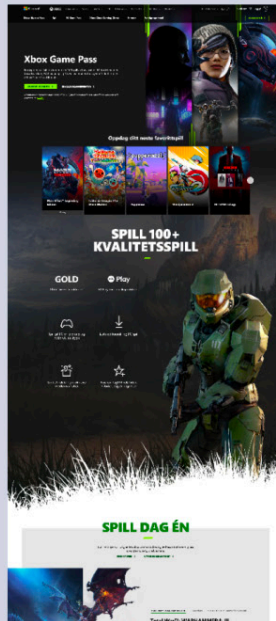
Nvidia
GeForce Now



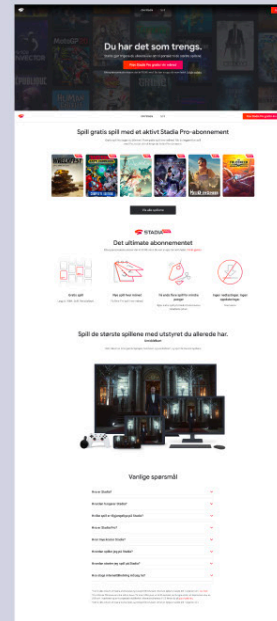
Amazon Luna



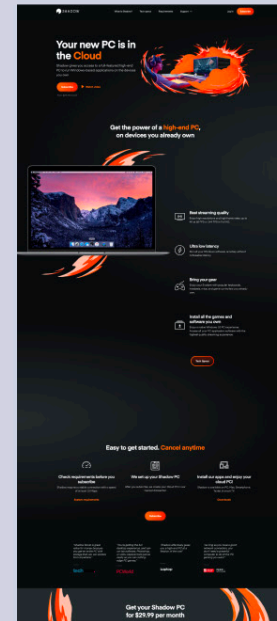
Microsoft
Xbox Game Pass



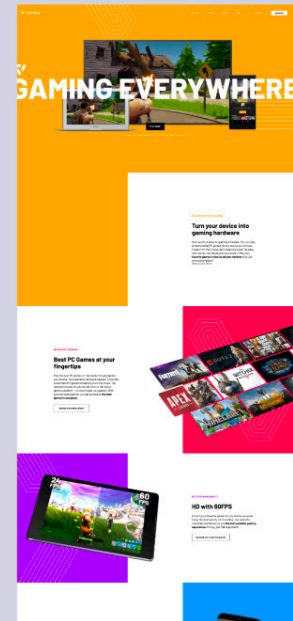
Google Stadia



Shadow



Vortex



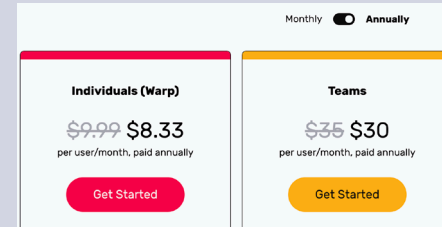
Existing subscription models

All other cloud gaming services offer either monthly or annual subscriptions. This is not suitable for potential to core gamers, because they do not play regularly, and would not benefit from paying for this much time. Subscriptions in general creates a high threshold for entering a service for many, and when the subscription model does not fit to the user's intentions or habits, they will lose interest of the service before even entering.

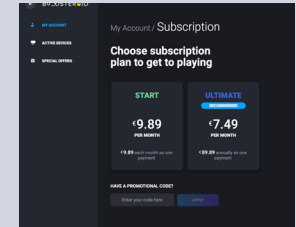
Casual gamer

I would never subscribe per month for gaming. I might play for a whole weekend, and then nothing for the next three weeks. I want more flexibility.

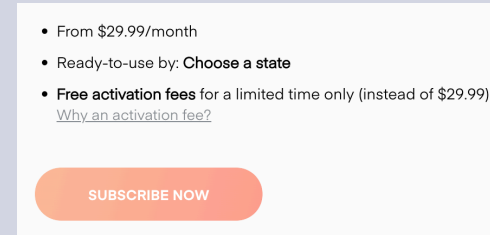
Parsec



Boosteroid



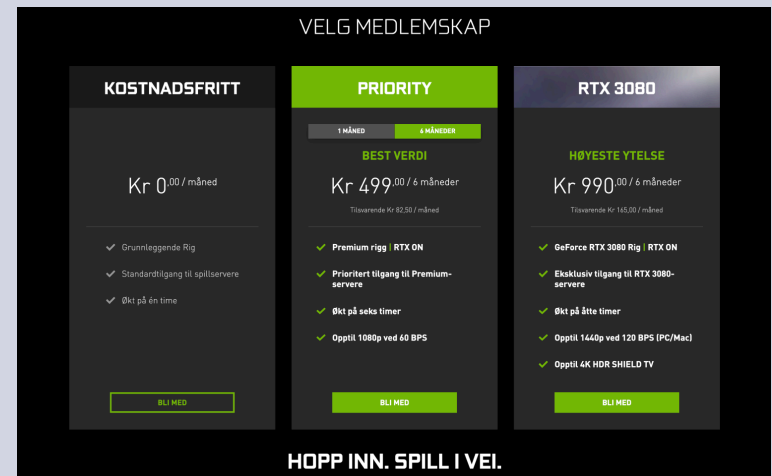
Shadow



Playstation Now



GeForce Now



Time consumption awareness

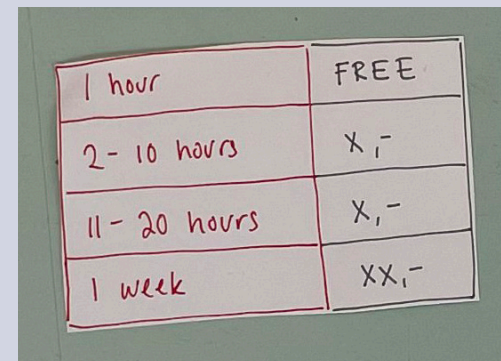
As gaming is designed for reaching flow state, I also see an unused potential of shaping the paying to nudge for awareness and self discipline around the time consumption. I discussed with Telenor subscription models like letting the user predict own time consume, or having a totally free “pay for your play” subscription, where the user pays per second streaming, to avoid giving the sense of having payed for unutilized gaming time, like a monthly subscription might give. Telenor likes both suggestions, but the users preferred the last one.

Casual gamer

I like the idea of playing per second, but I would also be worried about forgetting to turn off the game, and end up with a very high bill.

Game designer and author Jane McGonigal has specialized her work towards fronting positive and healthy attitudes around gaming. Her advise for a healthy time consumption is to keep the gaming to less than twenty hours per week, as more than this is starting to look like an addiction. (Ward, 2022) But this will of course depend from person to person, and for what reason they play. Based on McGonigal’s advice, Legeforeningen also recommends to stay under 21 hours of gaming per week (Arntzen, after 2017).

From that, I did my first user tests with this subscription model.



1 hour	FREE
2- 10 hours	X,-
11- 20 hours	X,-
1 week	XX,-

One hour free gaming per week

Price per minute

Slightly higher price per minute

Set price for unlimited gaming within a week, if the user plays more than 20 hours

Workshop and ideation

I arranged a workshop where we talked and ideated around gaming and time consumption, and how to add an effective and meaningful time limit to gaming.

My takeaways from the workshop is that people like to have control over their time, and a sense of having spent it well, and that alarms or pop-ups to quit gaming works nicely if the user has motivation to follow them.

My aim with a time constrain is to facilitate for taking the responsibility of considering how much time used on gaming is good for you in this moment, as the reason for gaming can be everything from entertainment and sports to therapy and education depending on personality and life situation.

I use timers and alarms in many situations. It works well for me as I put them on myself, and choose to respect them.

Casual gamer

Potential gamer

I enjoy the series that don't have the greatest cliffhangers at the end. I like to have the control, and watch at my own pace.



Testing the trigger effect

I combined my suggested subscription model where payment follows time, with a self-regulated timer-option that should pop up before playing a game. It is important that the gamer gets a chance to consider how long the gaming session should last before getting into flow when gaming.

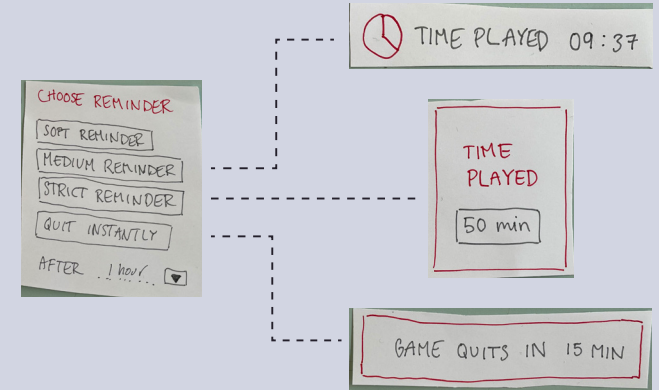
I tested out a spectrum of nudges to quit, from a soft and subtle time reminder only showing the time as a clock, to stricter options, or even setting the game to quit instantly when the time is up.

Feedback from testing were that the reminders are all useful for different situations, and that it feels good to have the choice to select the most appropriate one for the moment.

Telenor also liked the idea of using the payment for the service as a motivation for taking control over the time consumption of gaming.

Core gamer

I do get motivated to put on this timer, because it feels like a tool for myself to control my own time, also linked to the payment for the service.



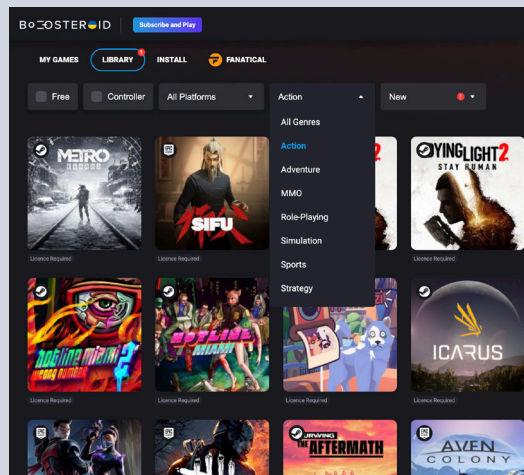
Filtering and vocabulary

Potential gamer

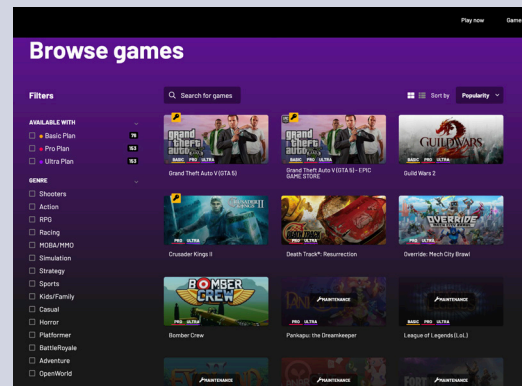
Finding new games of interest is a hard task, said several of the people I interviewed. The filtering tools on existing gaming services have few options, and the vocabulary is hard to understand for new gamers. Also, the categorization of information is confusingly mixed up, and the games are presented as long lists of front covers, without further information to use for considering whether a game seems interesting or not.

What does BattleRoyal and MOBA mean? All the games look similar to me, and I don't know how to find a game of interest with this information.

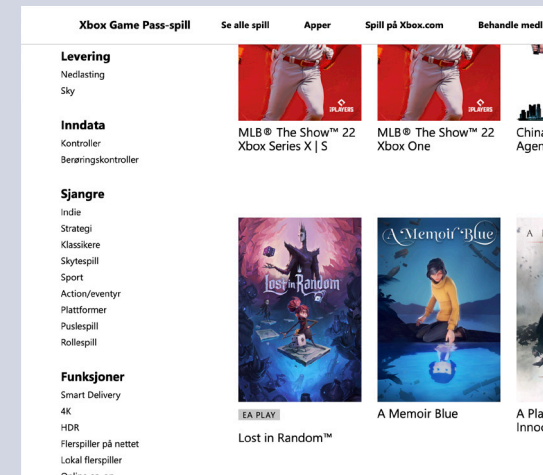
Boosteroid



Vortex



Xbox Game Pass

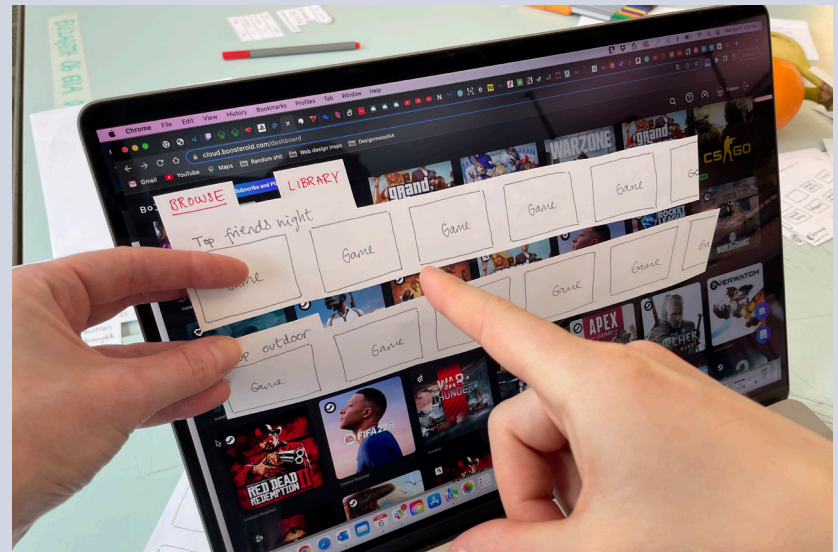


Testing alternative filtering

I considered to work with renaming of the genres for making the filtering tool of my design solution more user friendly for the new gamers. But from talks and interviews, I realized how familiar even the casual gamers have become with the new words, and chose to implement the existing gaming vocabulary to my design, and rather work with restructuring some of the categories. I saw a need also for adding a few more sections to the filtering tool, to give the new gamers the option to filter by other categories than the unfamiliar genre-section.

With low fidelity sketches, I tested out different filtering categories, to explore which ones were helpful and fun to use for discovering new games. To make the test more realistic for the user, I first let them browse for a game on an existing cloud gaming service, and afterwards, I put my sketch in front of the screen asking them: But what if the filtering tool looked like this? What categories would you use to look for something of your interest?

The users answered “gaming genre, mood, skills, activity, difficulty, number of people”, etc. And I took the answers with me into further sketching and development.



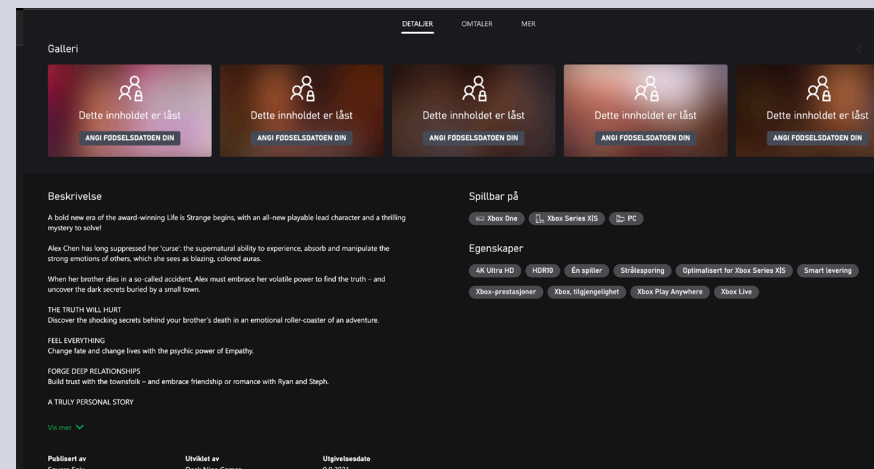
Looking at a specific game

Like with browsing and filtering for games on the existing gaming platforms, the information about a specific game is not sufficient for considering whether a game is of interest or not. Where there should be helpful and triggering content, there is rather information about the game publisher or developer, or a poorly written description of what the game is about, that non of my interviewees said that they ever would read.

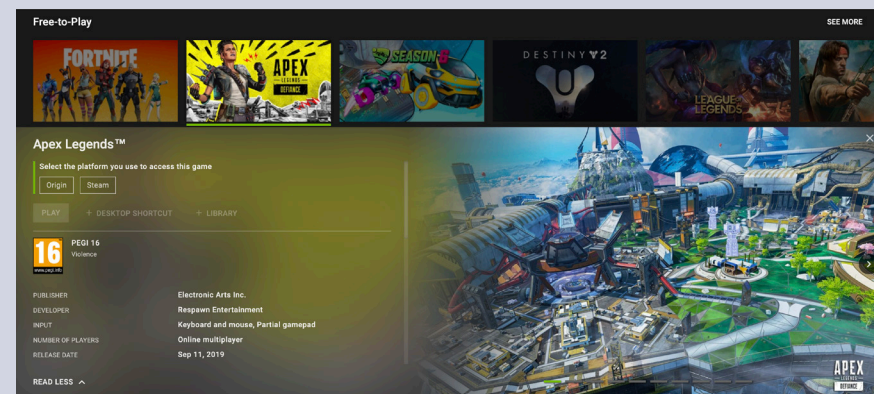
Core gamer

I look for a game trailer, or a film from the gameplay. I also read reviews or follow tips from friends about new games.

Xbox Game Pass



GeForce Now



Testing skill tags

I tested presenting skill tags and genre tags as one way of describing the outcome and activity in a game, and the feedback I got was very positive.

Casual gamer

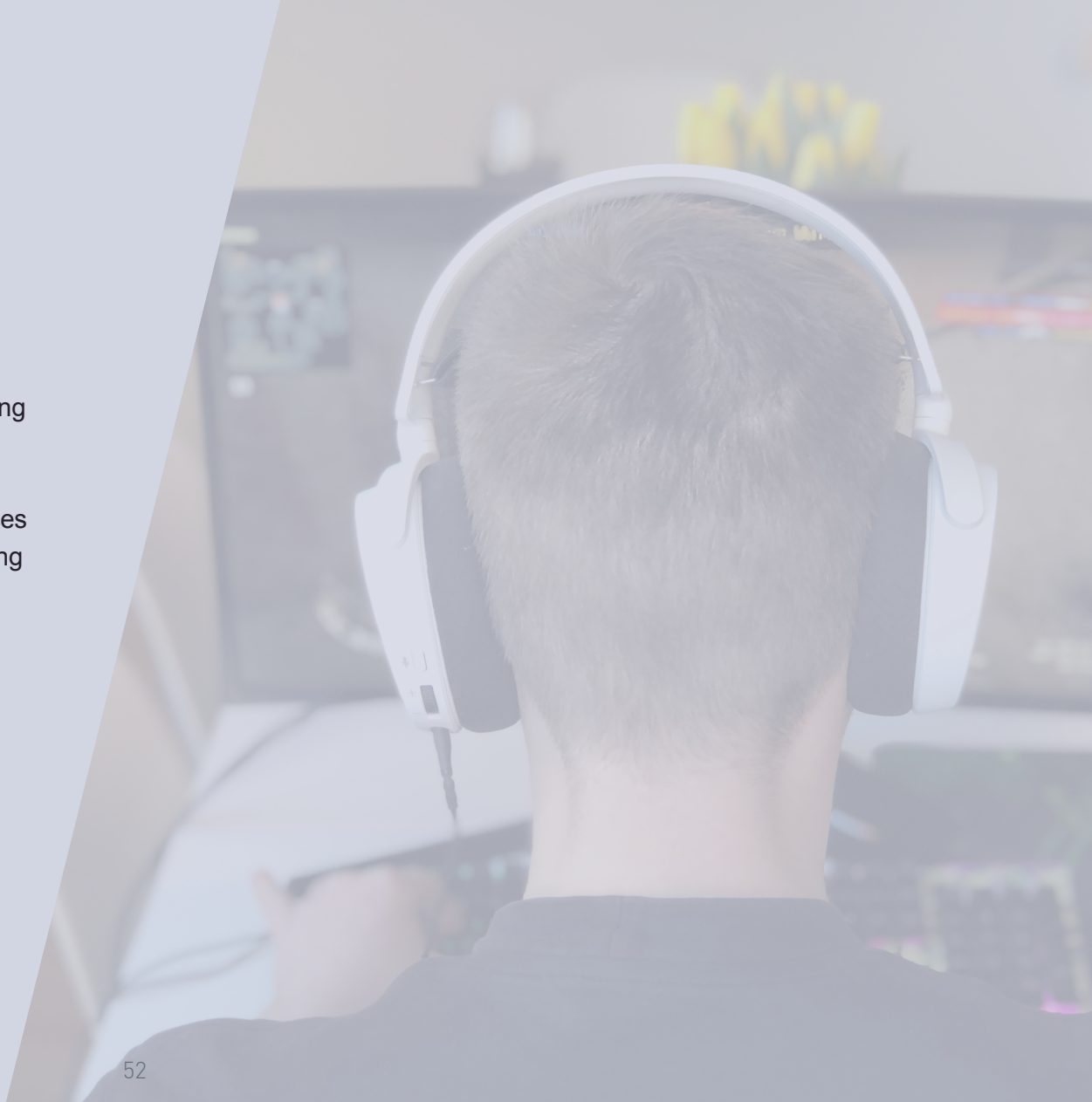
I love the skill tags! These must also be very valuable for parents who are encouraged to find meaningful games to play with their kids!

I also found that skills should be defined by a gaming expert, or the game designer of that particular game, and not by other gamers, as expert defined tags seemed more trustful to my users.



Bridging the gap between vocabularies

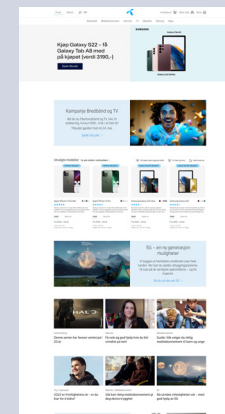
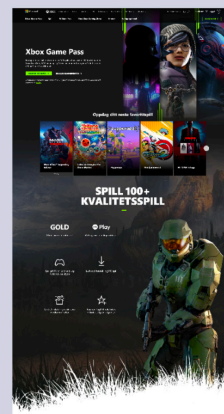
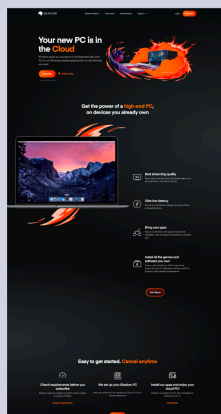
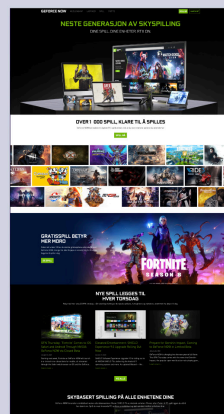
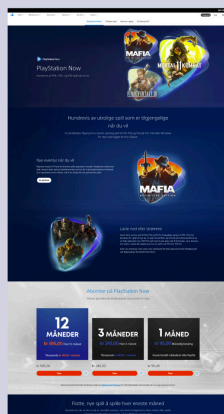
My design solution is meant to invite new people into the gaming world, but also be a service of interest for all the gamers who have passed the doorstep. Therefore I aim to help the users getting familiar with the existing vocabulary and own preferences by enriching the filtering tool with additional sections overlapping the genres. I also want to add an evaluation tool for people to realize their preferred genres by seeing which ones match the tags they filtered by to find the chosen game. This way, new gamers will get familiar with the gaming vocabulary of learning by using Telenor's new cloud gaming platform.



Moodboard

As Telenor's future cloud gaming service is targeting people with a lower interest for the stereotypical gaming, I wanted to take inspiration from Telenor's main web pages and brand, and avoid adapting too much to the other existing gaming platforms, that usually have a dark and cinematic feel to them.

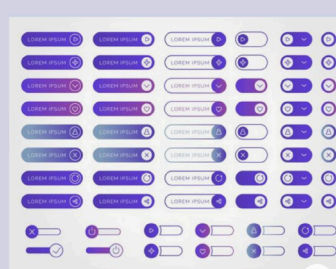
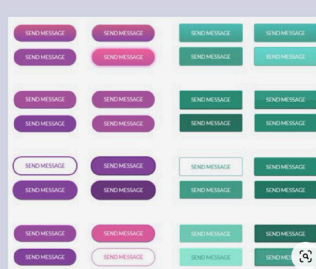
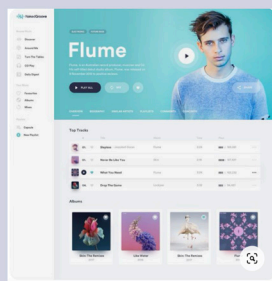
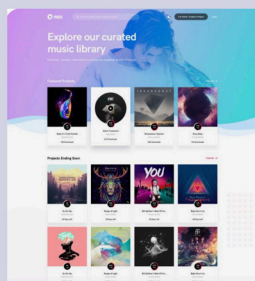
I wanted a light, fun, easy and responsible vibe, like I get when I visit Telenor's web pages today.



Existing gaming platforms have a dark and cinematic feel to them.

Telenor's pages have a light and easy vibe.

A light version moodboard collected from Pinterest



I collected inspiration from Pinterest, and liked the rounded corner buttons and the use of gradients to create the "airy" feel.

Logo and name

I based my logo development on the main Telenor logo, as the new service will be a Telenor brand.



I ended with a stroke- and gradient drawn cloud that should seem "airy", soft, fun and welcoming.

From a broad name ideation I landed on Amusing Cloud, as the name includes a word for fun and a word for the hardware/service concept. Also, clouds can be associated with fun shapes, and I wanted to bring something from the older ways of play into the name, to make it sound inclusive to people both outside and inside of the gaming world.



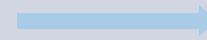
Amusing Cloud



Amusing Cloud



Amusing Cloud



I created variants of the logo for fitting next to different versions of the Telenor and T-We logo, as it seems like these change over time and from where the logo is presented.



t-we



a-cloud



amusing cloud



amusing cloud



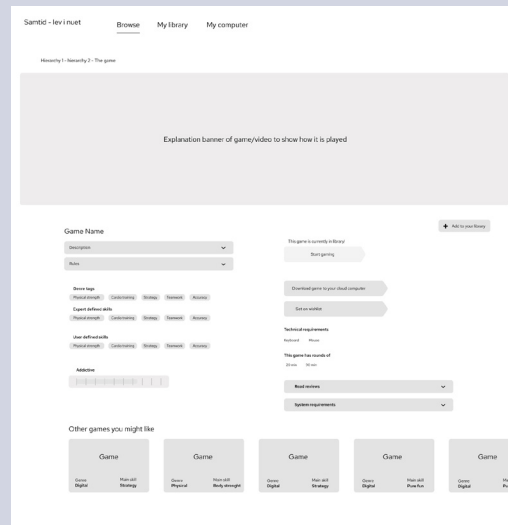
cloud

a-cloud

Wireframing to final prototype

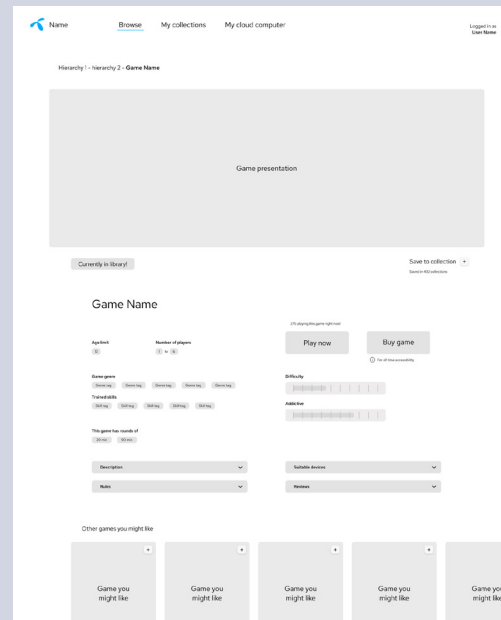
I went many rounds on what content to include on the game presentation page, and how it should be shown to get the suitable amount of the user's attention.

I made a first iteration with a lot of information, and tested on users what they found most useful for considering a game's potential. They said trailer/

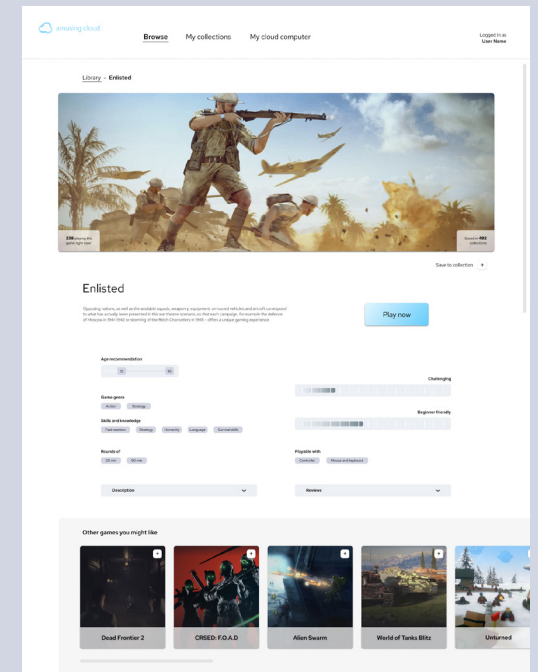


real game play film, tags, reviews and popularity. They would rarely read a description text of a game, so I put it under an accordion menu, to make the information more optional.

Cutting down and restructuring information, as I learned what content was most valuable. The "play now"-button should be the eye-catcher on the page.



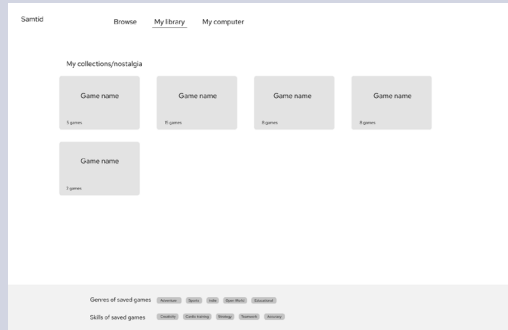
Adding real time information about popularity as an overlay to the game presentation video. And further refining and cutting down of information.



Wireframing to final prototype

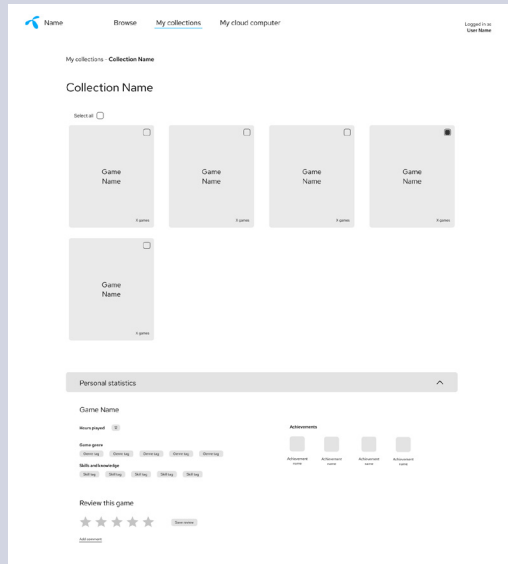
I iterated on a navigation hierarchy bar, starting from this.

First iteration of an “analytics of outcome of saved games”-tool



I let the shape of a folder in collections and the shape of a game inside a folder be different, to avoid confusion.

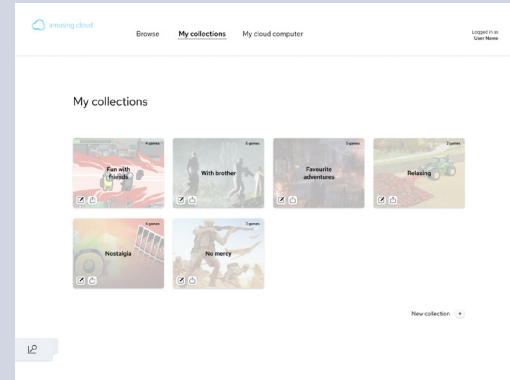
“Analytics of saved games” became interactive with the option of check-marking a game for evaluation.



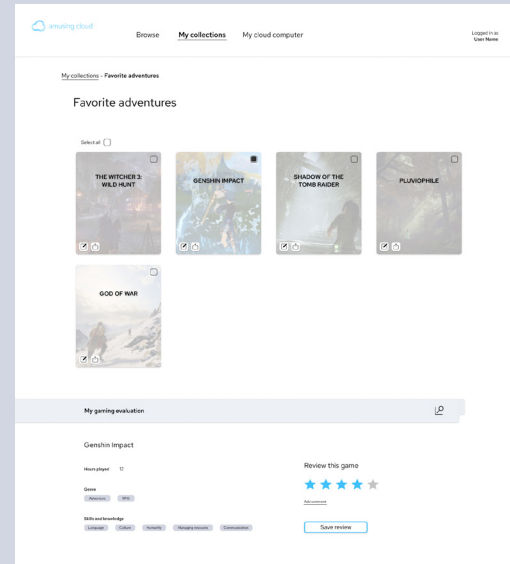
From seeing my collections



To opening a collection



I made the “new-collection”-button stand out, being the only button on this page, with the purpose of letting people to collect games of different kinds, and for different settings, to explore the variety.



I added a share-button for recommending a game to a friend, and an edit-button hiding functions like deleting game from collection or moving it to another collection.

To separate a text-accordion menu from the evaluation tool, I twisted the accordion function to be a pull-out-tool coming from the left.

Vocabulary and categorization process and workshop

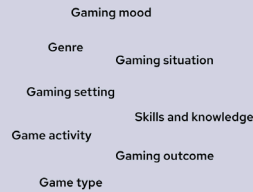


Gaming expert, Thomas and I worked together on defining good categorization of game traits for designing a helpful filtering tool.

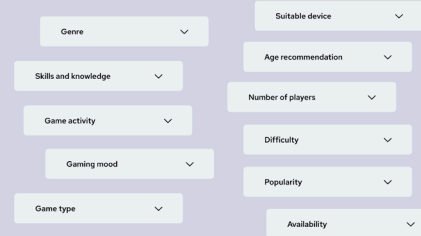
I first assembled all the game "genres" I found in filtering tools on existing gaming platforms, and discussed with Thomas which ones were really a genre, and which should rather be in another category.



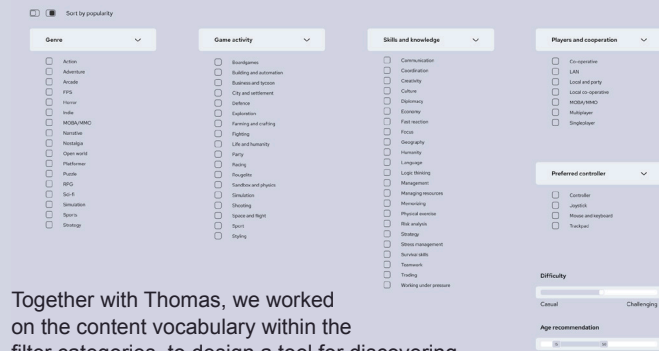
I made suggestions for new categories of game traits, which I tested on users and discussed with Thomas.



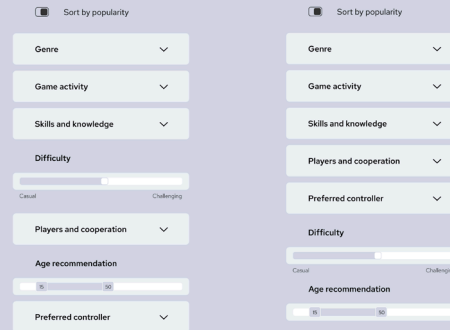
I got a lot of detailed feedback that made me able to redefine and add important categories to the filtering tool. I learned that "number of players" must be seen differently within gaming than for example in a board game.



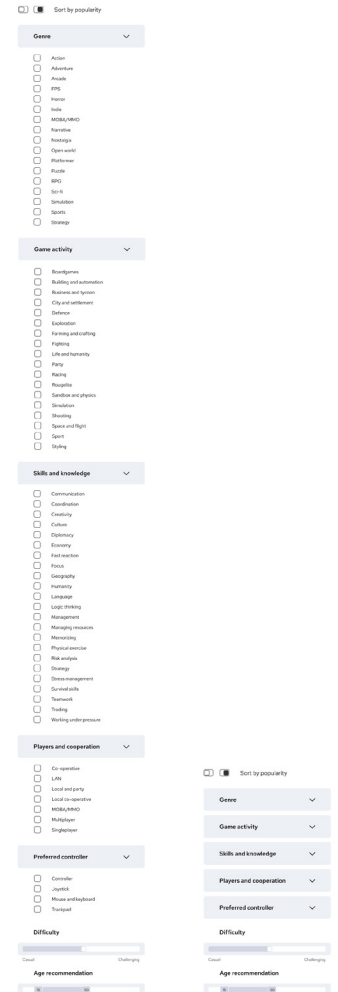
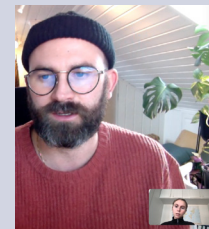
My final result for the filtering tool is shown in the white area. The categories are final, but the content is meant to change after what is relevant to describe the games that are currently in the game library of the service.



Together with Thomas, we worked on the content vocabulary within the filter categories, to design a tool for discovering games based on different types of information.



I tested what order of the categories made more sense to the users, and what was most comfortable to interact with. The user feedback told me to go for the tidiest option to the right.



Concepts for a project at it 's beginning

My diploma project has been closely linked to Telenor's innovative cloud gaming project. They are also at the start of everything, as the technology of cloud gaming is in itself. Therefore, it has been impossible for me to put my design into a holistic service and propose a finished result ready for the world.

My delivery is rather designed to be taken further by Telenor to create the x-factor to their future service for winning my proposed target group.

My final sketches show the conceptual use of my design, but are not put into a finished Telenor-context, as many parts of the service is unknown to all at this point.

Sort by popularity

Genre ∨

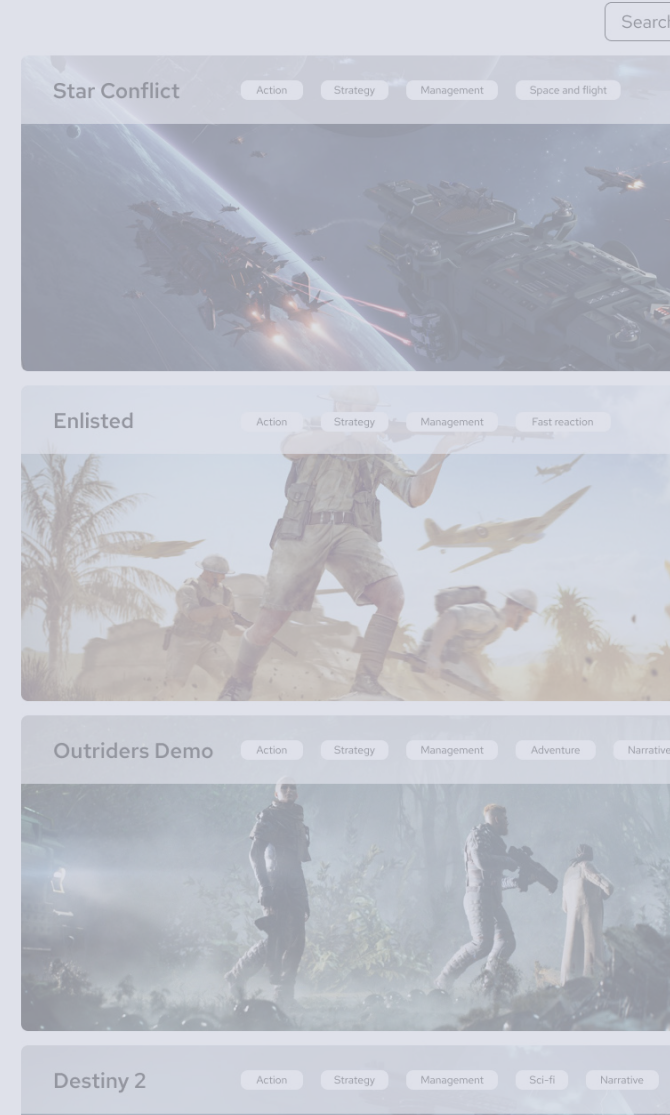
Action

Game activity ∨

Skills and knowledge ∧

- Communication
- Coordination
- Creativity
- Culture
- Diplomacy
- Economy
- Fast reaction
- Focus
- Geography
- Humanity
- Language
- Logic thinking
- Management
- Managing resources
- Memorizing
- Physical exercise
- Risk analysis
- Strategy
- Stress management
- Survival skills
- Teamwork
- Trading
- Working under pressure

and cooperation ∨

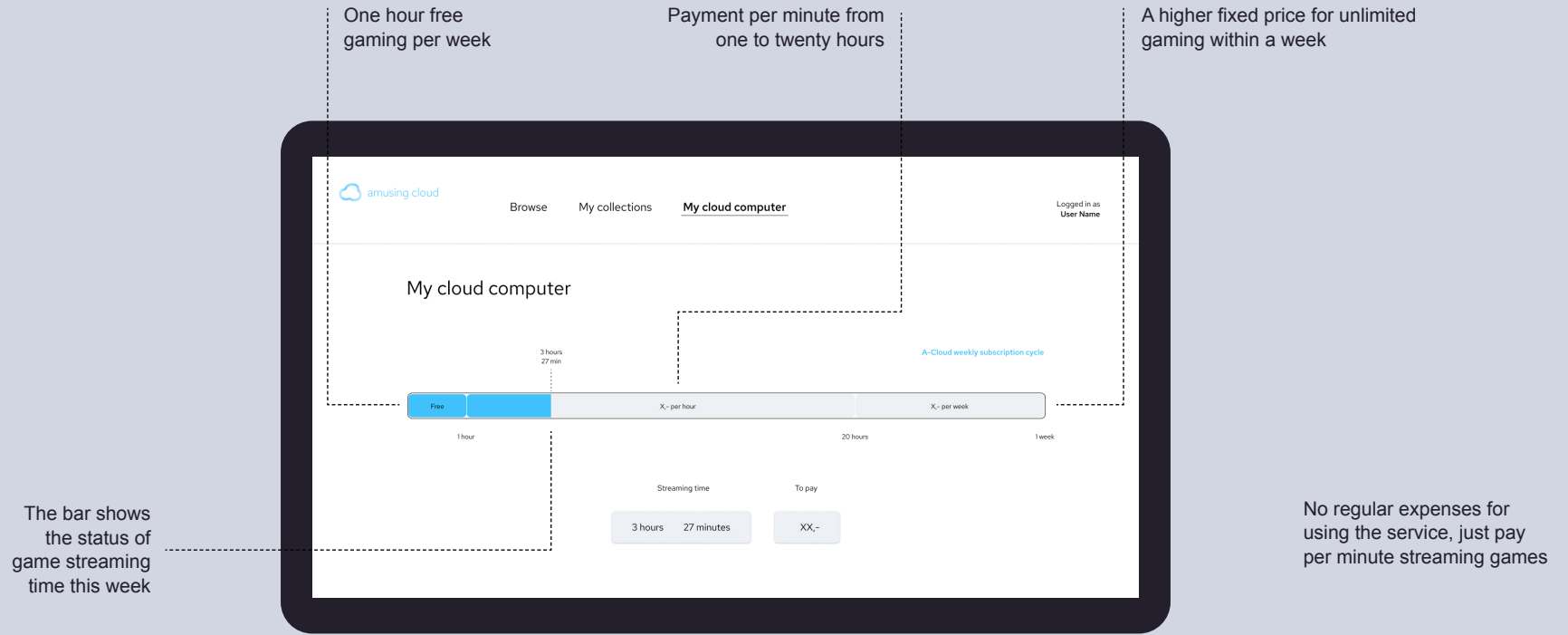


Amusing Cloud

A cloud gaming service for inclusive and sustainable gaming

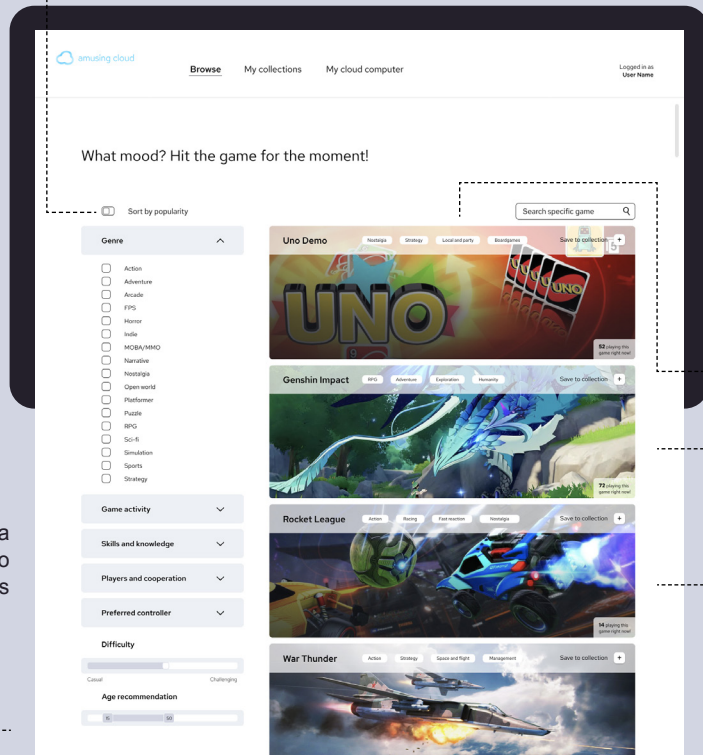


Subscription model



Browse for games

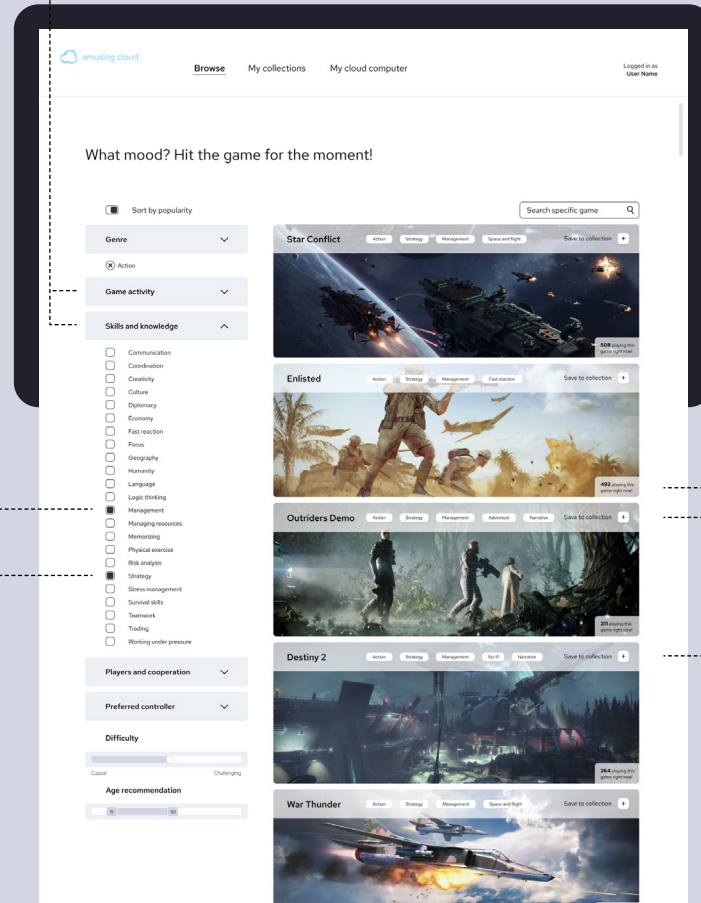
Explore more hidden games by toggling off "sort by popularity"



Browse games with a richer filtering tool to find suitable games

Get more relevant game suggestions by checking the relevant filter boxes

Filter by "game activity" or "skills and knowledge" if the vocabulary in the genre section is unfamiliar



Consider popularity and feel the community by seeing how many people play this game right now

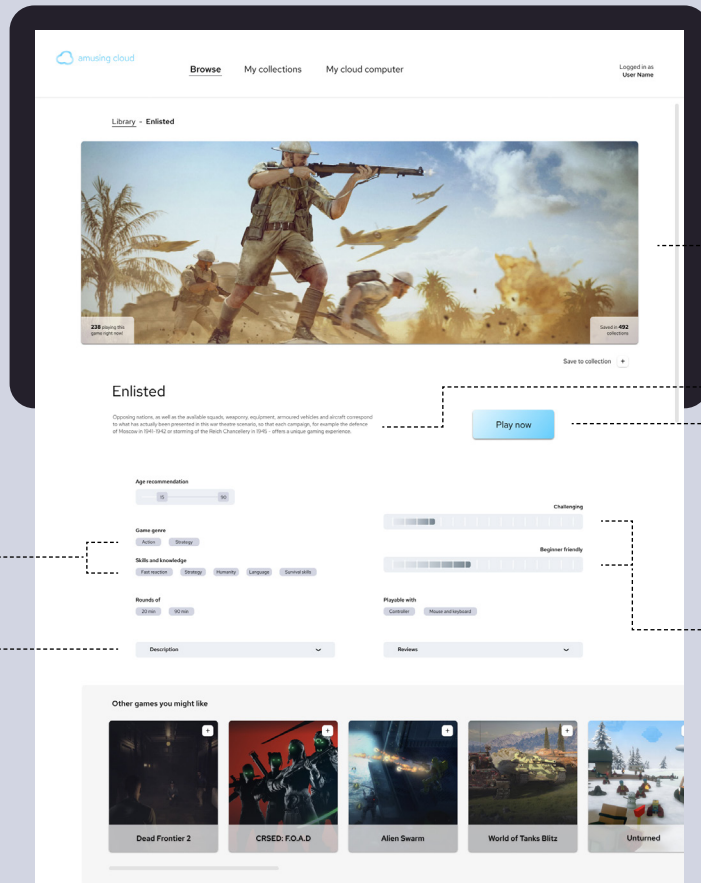
Save games of interest to "collections"

Get a sense of what the game is about by reading the tags...

...and hovering the game window to run the game trailer

Game presentation

Get a feeling of the game by watching the game video and reading the short description

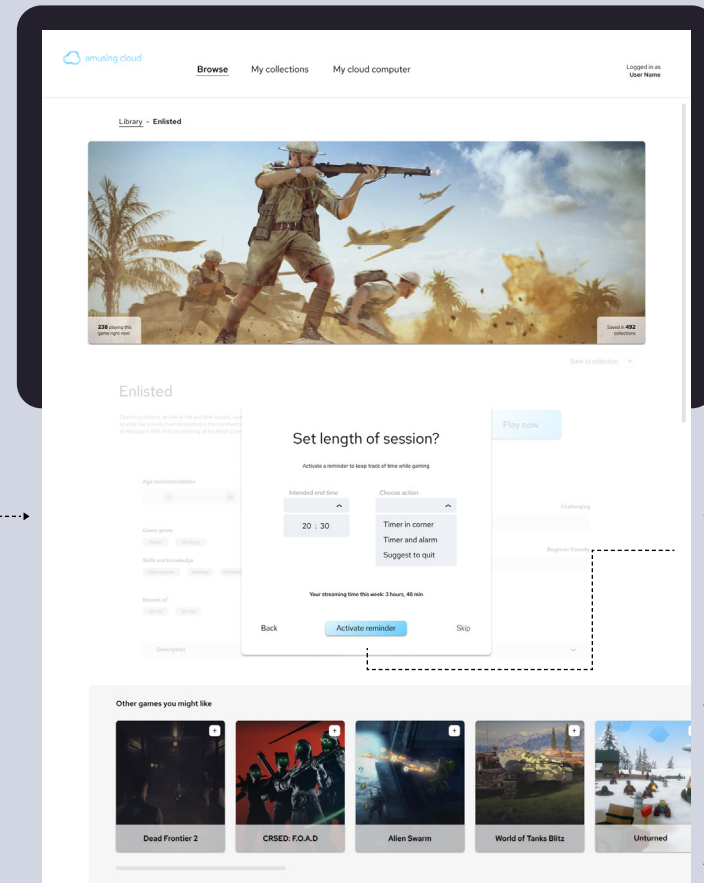


Read tags to understand what outcome this game gives

Open the description bar to read more about the game

Play game instantly, without having to download it first

Consider if the level of challenge and onboarding is suitable



Avoid losing track of time by activating a reminder to end gaming session

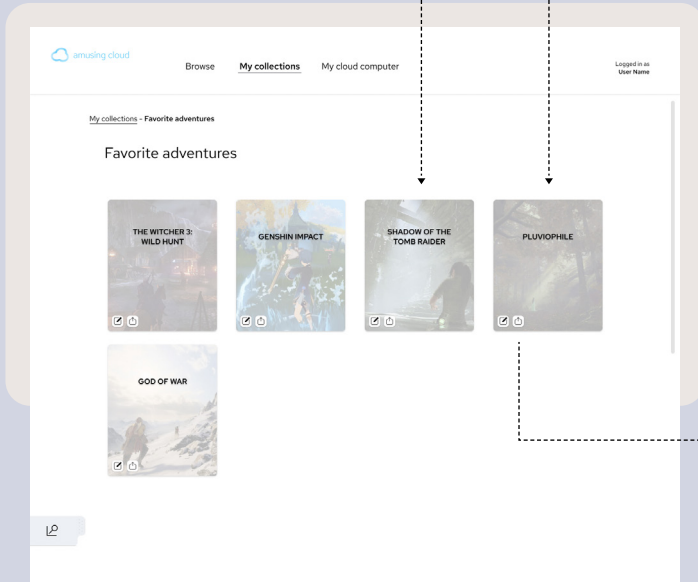
Get suggestions of other games based on the one open right now

Save games to collections

Save games in personal collections to explore gaming in different contexts

Open a collection to see your saved games

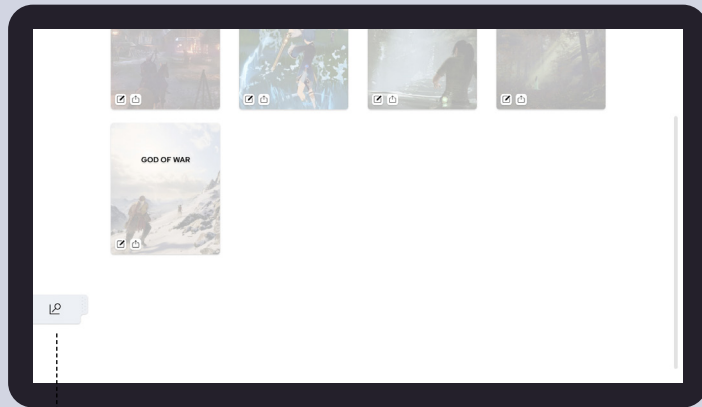
Share a game to a friend to spread the joy



Evaluate your gaming

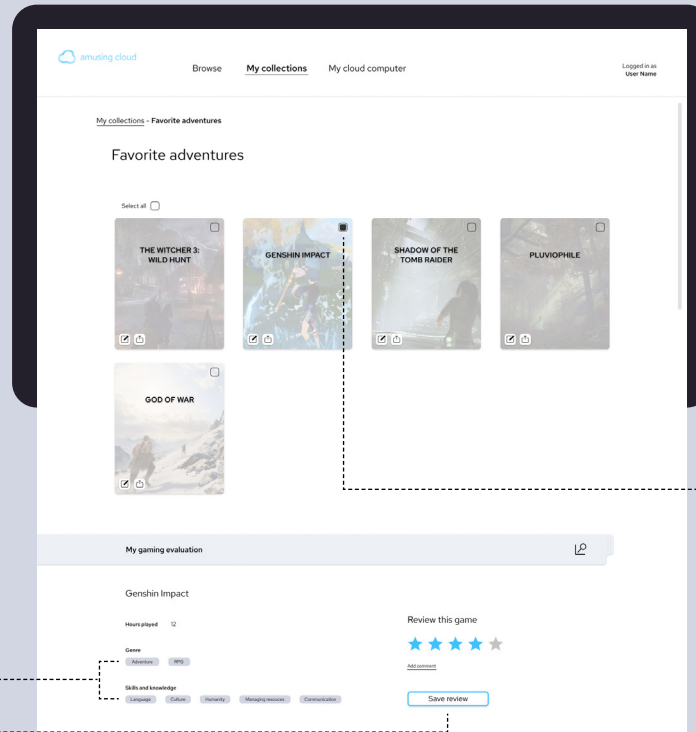
Become aware of personal preferences by seeing what genre and outcome the saved games have

See evaluation of a group of games by selecting several

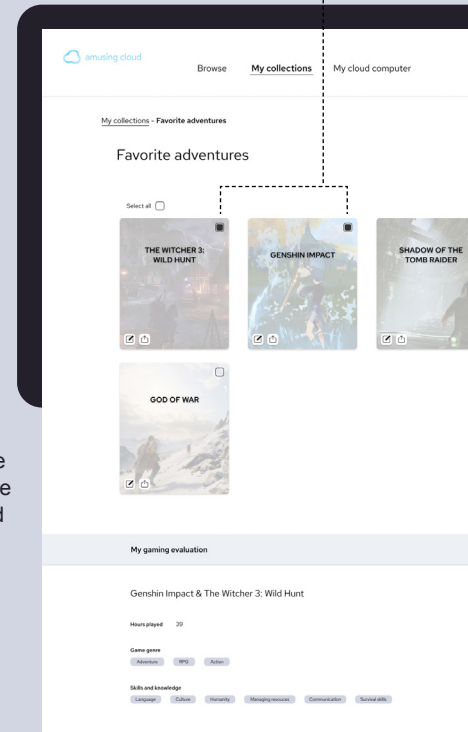


Pull out the ruler tool to evaluate a game saved in collections

Update or make a review of a game in collections

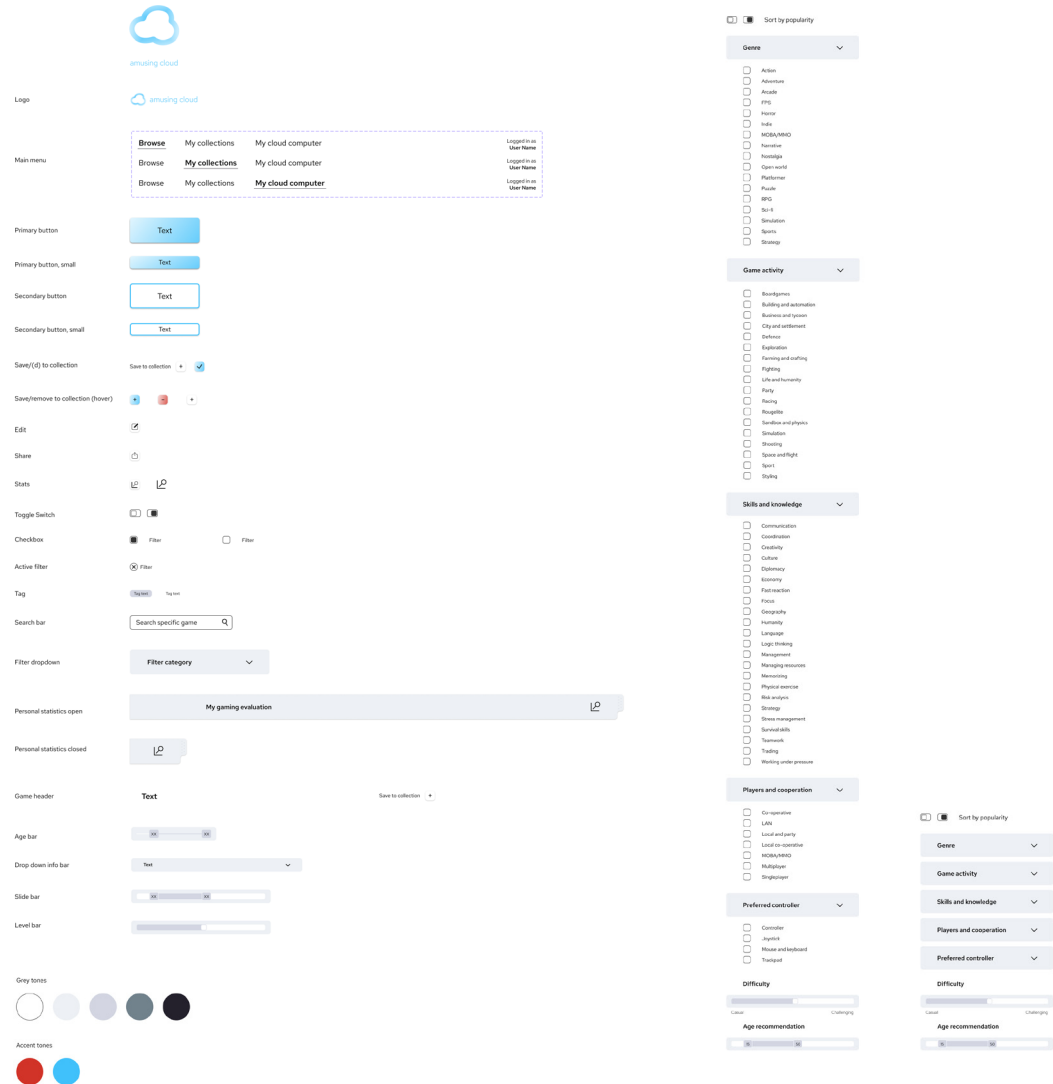


Select the game to be evaluated



Handing over to Telenor

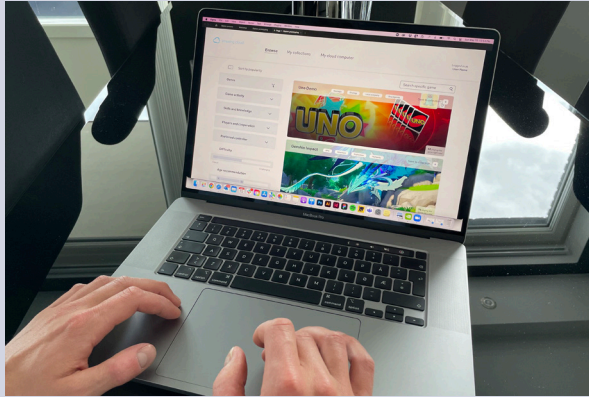
As my sketches are meant to be taken further into a holistic service, I will hand them over to Telenor as Figma-files, including the component library I made for my sketches, with all components ready to be coded by developers in Telenor.



Final test - gaming night

To test my final design, I arranged a gaming night with one core gamer and one potential gamer, to see how they used the service differently, and how it could facilitate for a gaming session suitable for both of them.





When looking for a game together, the core gamer wanted to browse by genre, while the potential gamer filtered by “skills” and “activity”. Recognizing their tags on the suggested games started a conversation around preferences and vocabulary, and helped them point out games of interest.

- Action
- RPG
- Humanity
- Fighting

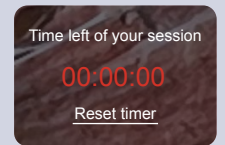
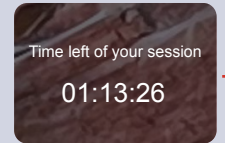


During the game, I asked the gamers if they noticed any skill development or learning outcome from playing. The first answer was no, but when I showed them the skill tags from the game description, they became more aware of the content and challenges of playing this game compared to others.

- Managing resources
- Communication
- Survival skills
- Language
- Culture
- Humanity



I could not put this timer overlay on our real screen, but I used a phone timer to tell the gamers that their session was finished, and showed them this sketch.



The potential gamer was tired of gaming, and slightly relieved when the timer went off, as it created a natural end to the session that they had agreed to on beforehand. The core gamer was ok with it.

Taking the social responsibility

I am totally aware that I propose a solution for Telenor that motivates people to use the service a little sparingly, or at least with awareness. It might seem obvious that a commercial actor like Telenor would benefit from having people to play more and therefore pay more, and that the cloud gaming service should be designed for being triggering and immersive.

But throughout my design process, I saw the need for thinking differently to reach the targeted user group, as their barriers to spend time gaming at all is much caused by their underlying fear of gaming taking too much time. The mission of my design proposal is therefore to offer a service that makes people feel taken care of, to build necessary trust, and remove the stigma around gaming based on how it is offered today.

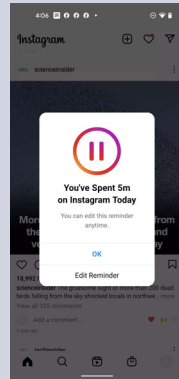
I see an opportunity for Telenor to be up front utilizing subscription based gaming to open for changing our habits and thoughts around how we will use gaming in the future.

Gaming is not the only activity creating discussions in society.

Social media and TV-streaming are also known to take up surprisingly much of our time, at least for people who are not rather spending it gaming. Actors within these fields have already started to take social responsibility by facilitating for cutting down on the use of their services, in the same way as I propose for Telenor to do.

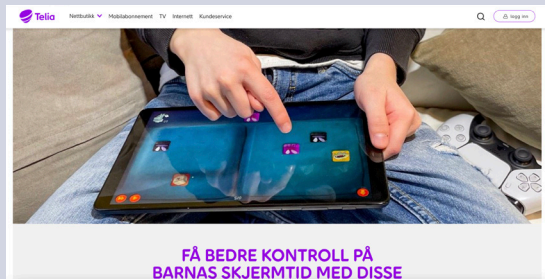
Netflix automatically runs the next episode of a series when the current one has ended, but now Netflix has added a function to stop facilitating for binging. After a few episodes, the video will stop, and ask if you are still watching, to avoid wasting bandwidth or mobile data if streaming. The users are required to make an action of pressing “Continue watching”, if this is what they want (Tremplin, 2020).



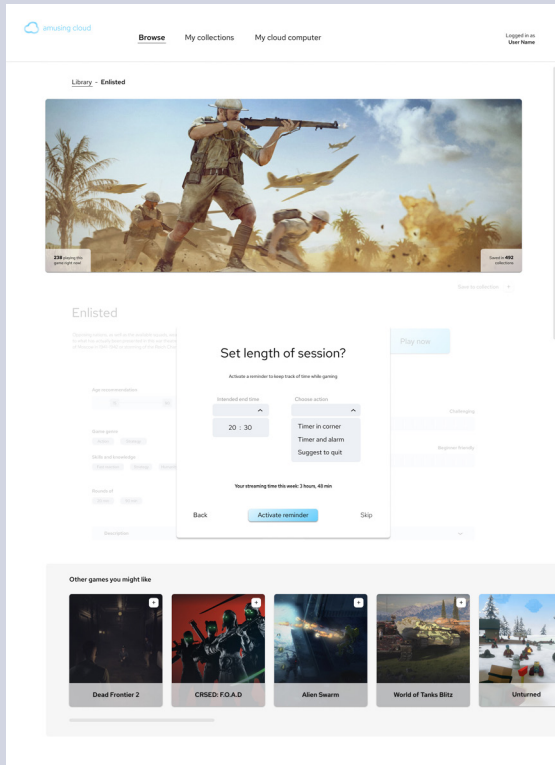


Instagram has introduced two features to avoid social media addiction: “Take a Break” and “Daily Limit.” Both features encourage users to stop using the app after a set amount of time and break the scrolling cycle. (Antonelli, 2021)

The reminders may have a limited impact, as users would have to be motivated to set up the new control for themselves. But head of Instagram’s Mr. Adam Mosseri says: “Ultimately, you know what’s best for you when it comes to how you use the app. And we want to make sure we provide tools for you to shape Instagram into what works for you,” (P S, 2021)



Telia, a big competitor of Telenor has launched “Spillskolen”, that consists of online videos for advising parents on how to take part in their kids’ gaming, and how to put healthy constraints to it (Telia, 2021), (Telia, 2022).



There is no doubt that many big enterprises and social actors try to take responsibility of the consequences of their offerings, but like Instagram’s Adam Mosseri admits, their solutions require inner personal motivation and self discipline from the users to be activated.

As my solution for Telenor includes an economical benefit for the users when setting a time constraint, this might add the necessary extra motivation they need to ensure healthy use of the cloud gaming service. But also keeping self discipline and liability as a part of the motivation for setting an end to a gaming session, I have learned is a positive move for nudging the users to take responsibility for themselves, and respect their self chosen constraints, as they have been considering before starting to play, how much gaming is good for them at this moment.

Words from Telenor

«Cloud gaming er et relativt nytt konsept og som sammen med 5G vil kunne skape nye mulighetsrom for Telenor. For å forstå mulighetsrommet har vi hatt behov for kundeinnsikt for å forstå hvem som gamer, hvilke type spill de spiller, hvorfor noen ikke gamer, hvor og når de gamer, hvilke nye problemstillinger som dukker opp ved cloud gaming og hvordan evt Telenor kunne ha lansert et unikt konsept som kunne skapt verdi for våre kunder.

Vilde har løst oppgaven på en særdeles god måte og har vist stort engasjement og selvstendighet gjennom hele oppgaven. Hun har bidratt til at vi i Telenor har fått masse nyttig innsikt innen gaming og at det er mange nyanser innen gaming og gamere. Vi ser stort potensiale i Vildes konseptforslag, og kommer til å ta dem med oss videre i utviklingen av vår cloud gaming tjeneste.»



“We see great potential in the concepts that Vilde has designed, and we will take them with us further in our development of a new cloud gaming service.”

- Telenor

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Photoes

Freepik, downloaded photo: [Woman computer photo created by wayhomestudio - www.freepik.com](https://www.freepik.com/photos/woman-computer)

Background photo on front cover of report: Photo by elCarito on Unsplash. <https://unsplash.com/photos/MHNjEBeLTgw>

What mood? Hit the game for the moment!

Sort by popularity

Genre ▾

Action

Game activity ▾

Skills and knowledge ▲

- Communication
- Coordination
- Creativity
- Culture

Search specific game 🔍

Star Conflict

Action Strategy Management Space and flight

Save to collection +

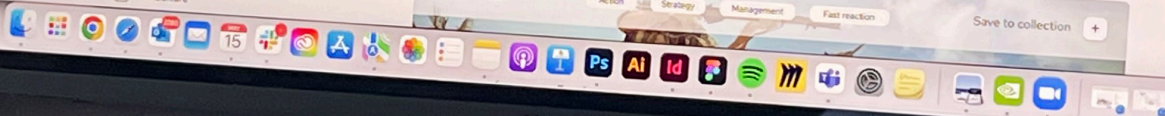


500 playing this game right now

Enlisted

Action Strategy Management Fast reaction

Save to collection +



MacBook Pro



