



— mobiliteam presents —

be / yond

CASESTUDY

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1. EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Today's cars are **parked 95% of the time**. As the utility of private car ownership is being increasingly questioned, we think **the 5% of the time that we do spend in a car should become more meaningful**. That is why we created **beyond**; a **platform** that **provides an entertaining and functional passenger experience** that **turns rides into memories**.

beyond comprises three big trends in technology: **autonomous vehicles**, **NFTs** and **Metaverse**. We satisfy a new set of needs, with a tailored experience to every customer that seamlessly integrates the vehicle and offers prestige and a superior quality associated with the Porsche brand.

With **beyond**, we want to **inspire people to explore the universe beyond reality** by **pushing the boundaries of what a car can be**.



Find the teaser video by clicking [here](#)



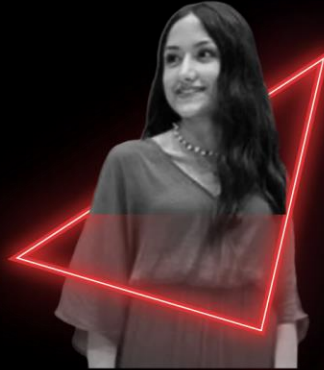
2. THE TEAM

MEET THE TEAM



Ilaria Romeo

Italy
Architecture



Irmak Yilmaz

Turkey
Computer Science,
Front-end
Development



Joy Lim

Singapore
Law, Management
Consulting



Maurice Paul

The Netherlands
Marketing



Pietro Maschera

Italy
Psychology, Human
Technology Interaction



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Peru
Electronics and
Telecommunications
Engineering



3. INTRODUCTION

3.1 Problem Statement

3.2 Mission & Vision

INTRODUCTION

3.1 PROBLEM STATEMENT

Our journey began at the start of 2022 when we were challenged by Porsche Digital to reimagine the passenger experience.

In this context, we began to think about what lies ahead in the world of mobility, against the backdrop of recent technological advances.

While doing so, we encountered this startling statistic:

≡ **TODAY'S CARS ARE PARKED 95% OF THE TIME.**

— Fortune Magazine

This brought to our attention how little we actually interact with our vehicles on a daily basis. It is no wonder that the trend of shared mobility is gaining momentum, as more and more people look for alternatives to private car ownership.

It made us think that for private car ownership to continue making sense, the 5% of the time that we are in our cars would have to become more meaningful. This is especially pertinent with the advent of autonomous vehicles, which would make everyone a passenger.

With this in mind, the following question arose:

≡ **WHAT IF A CAR WAS MORE THAN JUST A VEHICLE?**

Cognizant of the increasing digitisation of our lives, we believed that the answer to this question lay in embracing this trend, rather than fighting against it.

Thus, we set off to conceptualise the next generation of passenger experiences, one that would bridge the gap between the physical and digital worlds.

INTRODUCTION

3.2 MISSION & VISION

» Mission

We want to create a novel experience in cars that bridges the gap between the physical and digital worlds.

» Vision

We want to inspire people to explore the universe beyond reality by pushing the boundaries of what a car can be.



4. UNIQUE SELLING POINT

4.1 Core Values

4.2 Value Proposition Story

UNIQUE SELLING POINT

4.1 CORE VALUES

To create a novel passenger experience that inspires people to explore the world beyond reality, five core values are incorporated in the product and its strategy.



FREEDOM

Live limitless



CONNECTION

Build communities



PASSIONATE

Believe in the power of your dreams



INSPIRATIONAL

Be inspired beyond borders



EXPLORE

Embrace the adventure

UNIQUE SELLING POINT

4.2 VALUE PROPOSITION STORY

Based on our vision to push the boundaries of what a car can be, we envisioned a novel passenger experience where the physical and digital realms could converge. We thus arrived at the following value proposition for beyond:

≡ **BEYOND IS A PLATFORM THAT PROVIDES AN ENTERTAINING AND FUNCTIONAL PASSENGER EXPERIENCE THAT TURNS RIDES INTO MEMORIES.**

Our solution comprises three big trends in technology:

NFTS



**AUTONOMOUS
VEHICLES**



METAV ERSE

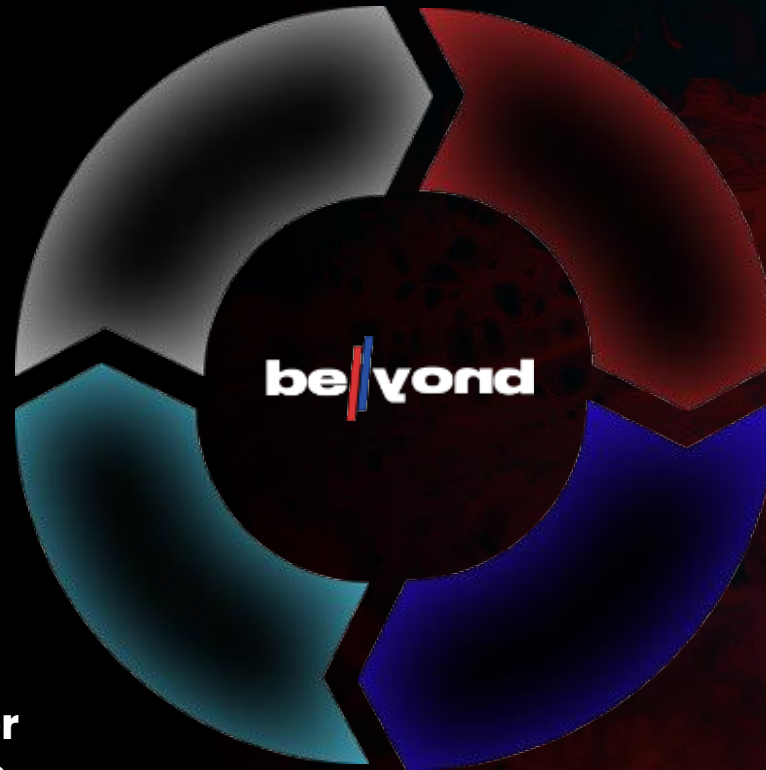
Our product creates value in the following ways:

NEWNESS

Satisfies a **new set of needs** not previously perceived by customers.

STATUS

Offers **prestige** and **superior quality** associated with the Porsche brand.



PERSONALIZATION

Provides a **tailored experience** to each customer, based on their **needs** and **preferences**.

USABILITY

Seamlessly integrates the vehicle with an **easy-to-use interface**.



5. MARKET VALIDATION

5.1 Trends

5.2 Opportunity Size

5.3 Market Segmentation

5.4 SWOT Analysis

MARKET VALIDATION

5.1 TRENDS

The rise of autonomous vehicles (AVs)

A key trend within the automotive industry is the steady development of autonomous vehicles.

According to [Gartner](#), automakers have **begun to announce Level 3 autonomous driving cars** and are **already working on self-driving trucks and robotaxis**.

Gartner analysts even predict that by 2030, there would be **four times as many Level 4 autonomous taxis** operating globally than there are taxis in 2022.

A rapidly changing technological landscape

Additionally, these trends in mobility are taking place against a **rapidly changing technological landscape**.

Within this gamut of technological trends, these are two that stood out to our team.

First, is the **proliferation of NFTs (Non-Fungible Tokens)**.

Second, is the **resurgence of the metaverse**.

MARKET VALIDATION

5.2 OPPORTUNITY SIZE

AVs

It was reported that the global autonomous vehicle market size was USD \$1.45 billion in 2020, with [experts](#) **projecting growth to USD \$11.03 billion in 2028.**

Apart from heavy hitters such as Tesla and Alphabet chasing self-driving cars, it is [estimated](#) that there are **up to 40 other companies also investing in autonomous R&D.** This could present many exciting collaboration opportunities for beyond.

NFTs

At the same time, a [meteoric surge](#) in activity can also be observed in the NFT marketplace, with **NFTs ballooning to a USD \$41 billion market** in 2021. [Reportedly](#), there are up to **USD \$20 million worth of NFTs sold in the blockchain every week**, with up to **250,000 people trading NFTs every month** on OpenSea.

Metaverse

Likewise, the global metaverse market is on an **upward trajectory.** It was worth USD \$38.85 billion in 2021 and is [expected](#) to rise to USD \$47.48 billion in 2022, before **soaring to USD \$678.8 billion in 2030.**

MARKET VALIDATION

5.3 MARKET SEGMENTATION

Cognizant that Porsche Digital is our key partner, we thought it would be relevant to first uncover the demographics of Porsche's clientele. The **average Porsche customer tends to be male**, where up to **85% of Porsche cars are purchased by men**, with **household incomes of at least USD \$100,000**. It was [found](#) that the **typical Porsche owner also had a high likelihood of owning more than one Porsche**, or with plans to buy another one, high customer satisfaction with the brand. The average Porsche owner is 40 years old in the United States and 35 years old in China. [However](#), **Porsche is targeting the generational age of 25–54**, aiming for a **slightly younger audience**, as well as **females**.

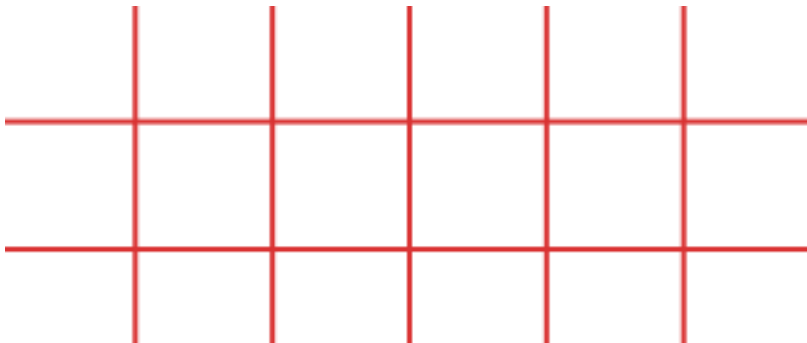
Pertaining to autonomous vehicles, we found that **there were age differences in acceptance of vehicle automation**, where older adults were generally less likely to be comfortable with higher levels of automation. It was found in a [study](#) that the proportion of people who were **most comfortable with full self-driving cars** was higher **amongst younger adults between ages 25–44**, compared to other age groups.

As for the **metaverse**, which **exists mainly within the gaming context today** the **average age of players** on [popular platforms](#) such as Fortnite, Roblox and Minecraft are about **27 years old**, and **getting younger**. In terms of gender, metaverse players also **skew male** (59% vs 41%).



In the realm of NFTs, [surveys](#) indicate that the **majority of people interested in NFTs are between the ages of 18 and 24**. Among this age group with the largest interest, it was [found](#) that **men and women owned NFTs fairly equally**. The data also shows that those earning less than \$25,000 (lower-income) investing in NFTs are equal to those making more than \$150,000 annually (upper-income.) Both of these demographics [said](#) they have invested in non-fungible tokens.

Thus, we have determined that **our target market segment would lie in the intersection of all these groups**.



MARKET VALIDATION

5.4 SWOT ANALYSIS



STRENGTHS

- Establishes a new product category by satisfying new user needs
- Offers both practical and functional use cases
- Incorporates up-and-coming technologies
- Association with the Porsche brand



WEAKNESS

- Dependency on the readiness of level 5 AVs
- It will be a costly product, at least at the beginning



OPPORTUNITIES

- Potential for many ecosystem partners
- Vehicle-agnostic platform which could be adopted by other car brands as well
- Integration with technologies that have sizeable market potential, which could attract investors



THREATS

- Motion sickness is a concern
- New technologies developed by a competitor or market disrupter could pose a threat in the future





6. UX & UI BENCHMARKING

6.1 Competitors

6.2 UX Business Benchmarking

6.3 UI Benchmarking

UX & UI BENCHMARKING






6.1 COMPETITORS

To assess our market fit, we analysed our competitive landscape.

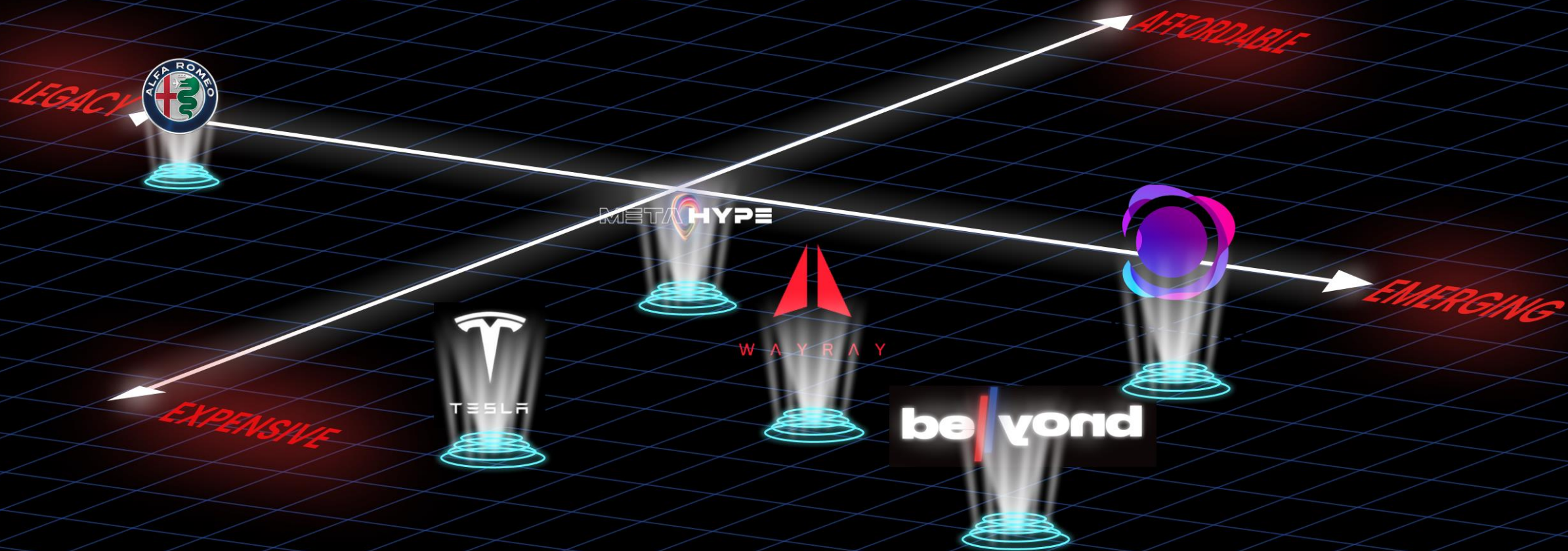
The aim of this exercise was to understand our competitors' strengths and weaknesses in comparison to beyond, and in so doing, find any gaps in the market that our product would be able to fill.

We used the framework on the right to determine who our direct and indirect competitors were.

The competitors we identified are **holoride**, **WayRay**, **Meta Hype**, **Tesla** and **Alfa Romeo**.

	Customer	Problem	Solution
 holoride	✓	✓	
 WAYRAY		✓	✓
 META HYPE	✓		
 TESLA	✓		
 ALFA ROMEO	✓		

COMPETITIVE LANDSCAPE MATRIX





UX & UI BENCHMARKING

6.2 UX BUSINESS BENCHMARKING



Company



of Employees

39

250

200

70757

16.000

Founded

2019

2012

2018

2003

1910

Funding

€10 million

€100 million

—

\$20.2B

—

Investors

Terranet AB, Schell Games, Audi

Alibaba, Porsche, Hyundai and more

CUPRA / VISYON

Vanguard Group, Capital Research & Management, BlackRock Fund Advisors, SSgA Funds Management, etc.

Stellantis

Acquisition

—

—

—

—

First FIAT, then FIAT Chrysler and then Stellantis

of Customers

Not launched yet

Not launched yet

Not launched yet

47,3136 (August 2021)

Market Share: 0.22%
Since 2017, gradually losing market share.

Strengths / Weaknesses

Strengths

- Strong advisory board featuring various industry leaders
- Partnership with Audi other major car companies

Weaknesses

- Market uncertainty
- Discomfort from wearing VR glasses

Strengths

- Many collaborations with big car manufacturers

Weaknesses

- Market uncertainty
- Technical feasibility

Strengths

- Partnerships with major brands such as Primavera Sound and Ubeat

Weaknesses

- Market uncertainty
- Discomfort from wearing VR glasses

Strengths

- Greatest market share of the luxury electric vehicle market
- Self-produces most of its components for its vehicles

Weaknesses

- Expensive
- Battery supply issues

Strengths

- Attention to design and styling
 - Innovation
 - Racing history
- Weaknesses**
- High pricing
 - Poor distribution channels

- Hard to keep up with competition

Target Customer



Product	A hyper-immersive form of backseat entertainment which combines navigational and car data with XR	Holographic AR technologies for connected cars	A virtual reality space, where Cupra will team up with partners from multiple fields to inspire a new generation.	Electric Vehicles	Hybrid SUV
Primary Buyer / Decision Maker	Car owners	Car manufacturers	Car owners	Car owners	Car owners
Secondary Buyer	Car Manufacturers (Vehicle Localization)	Ride sharing companies	Younger generations	<ul style="list-style-type: none"> • Renting businesses • Taxi companies 	-
Target Customer	Car Owners, Car Manufacturers, Content Creators	Ride sharing customers	Car Owners/Younger generations	<ul style="list-style-type: none"> • Car owners • Youngsters 	Younger generations - Sports car enthusiasts
Messaging	"Elastic Content: A whole new media experience"	Metaverse on wheels	We are a brand that goes beyond the automotive industry	To accelerate the advent of sustainable	Emotion is innovation, passion, beauty, functionality

Product



Product Features	Motion-synched, Traffic-aware, Location-aware	Holographic AR technologies for connected cars	Events, Concerts, Community	100% electric power engine, autopilot, entertainment features,	Hybrid and prestigious SUV, first coming with an NFT to track the history of the vehicle.
Pricing	Price to be determined	Ride-sharing relatively cheap, because of options for advertising with the ar.	Price to be determined	Starting from 50k€	35.000€ - 45.000€
Free Tier	No	No	No	No	No
Customers	Passengers	Drivers and Passengers	Drivers and passengers	Passengers	Drivers and Passengers
Product Strengths	<ul style="list-style-type: none"> Passengers can enjoy constantly changing experiences that adjust to their route Can be applied in many contexts <ul style="list-style-type: none"> Creation and consumption content is incentivised 	<ul style="list-style-type: none"> The display can be customized to meet the specific integration requirements of any car model. The seamless connection of the real and virtual worlds (metaverse) will offer greater safety, comfort, services, and entertainment. Holograktor can either be driven conventionally or by VR remote control. <ul style="list-style-type: none"> Car adjusts to passengers preferences, unique metaverse interaction Safe remote ride-hailing 	<ul style="list-style-type: none"> A collaborative space where brands, start-ups and content creators can host a variety of events and experiences to create and share culture." 	<ul style="list-style-type: none"> First ever commercial electric cars A lot of attention from the young generations Network of chargers all around the world Autopilot Bringing new experiences in the private mobility world 	<ul style="list-style-type: none"> It is a collaborative space where brands, stratus and content creators can host a variety of events and experiences to create and share culture."
Product Weaknesses	<ul style="list-style-type: none"> Scepticism from the public Potentially high cost 	-	-	<ul style="list-style-type: none"> Car batteries recycling problem 	<ul style="list-style-type: none"> Innovative. Functional. Useful. Quality car.
Customer Reviews	No reviews yet	Launch of concept in November 2021 Expected launch of Holograktor 2023 - 2025	No reviews yet	Highest customer satisfaction of any car manufacturer (Forbes 2021)	Launch of the concept February 2022 No expected launch yet

Positioning



How to Win

Remove the necessity of VR headsets

Making the car available for more than 3 people

Taking away the VR headset

Build a superior product, with a better and more refined style. Better entertainment system. Using the Porsche branding and history.

Add an emotional and entertainment part to the functionality of the NFT.

Why Customers Should Choose Us

VR experience without VR Goggles

More flexibility in customization of the interior of the car.

VR experience without VR Goggles

Superiority of features and classics never die.

More entertaining experience

UX BENCHMARKING CONCLUSIONS

From this exercise, we came to the following conclusions:

- ↳ beyond should fully leverage its partnership with Porsche. As our product would be first launched on Porsche cars, it would allow us to both tap into an initial customer base, as well as instil confidence in our product quality due to its association with the Porsche brand.
- ↳ Car data should be combined with navigation data to create the most immersive experience, as well as guard against passenger motion sickness.
- ↳ Our market reach should be expanded to target not only car owners, but also car manufacturers as well as content creators.
- ↳ NFTs are one of beyond's unique selling points. Hence, we should explore how we may expand the use of NFTs in a useful, but also playful way, to appeal to younger generations.



UX & UI BENCHMARKING

6.3 UI BENCHMARKING



UI PERSONALITY



Fun



Serious

Intense



Calm

Playful



Sophisticated

Enthusiastic



Matter-of-facts



holoride



Brand Colours



Typography

Adding thrill to every ride

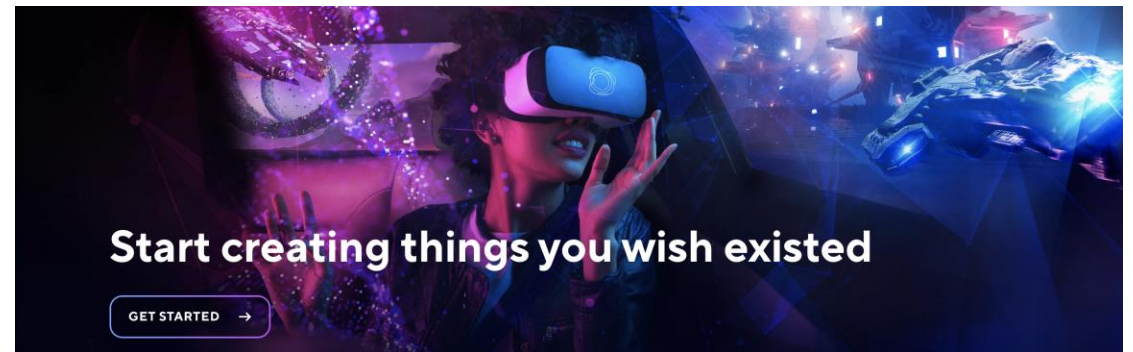
Icons



Buttons



Imagery



Tone

Turning  vehicles into moving theme  parks.

Pushing the boundaries of what's possible



WAYRAY



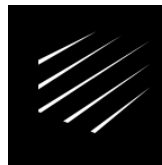
Brand Colours



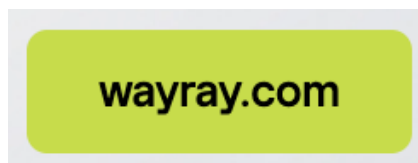
Typography

Metaverse on Wheels

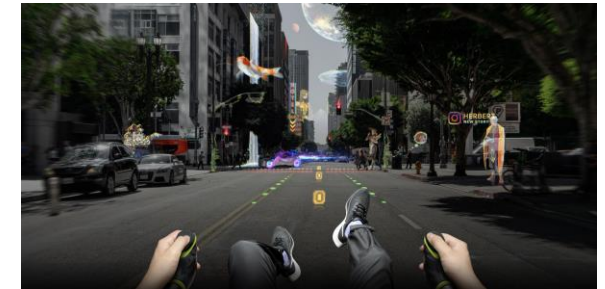
Icons



Buttons

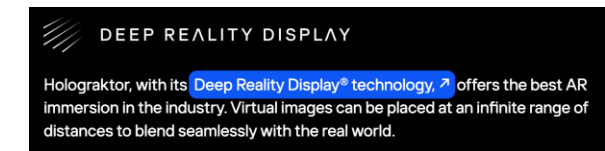


Imagery



Tone

A car journey will never be boring again. Vehicle occupants can enjoy a completely new level of safety and comfort. Holograktor users will see the seamless connection between the real and virtual worlds through the windshield and side windows thanks to WayRay's Deep Reality Display® technology.





W A Y R A Y



Gamification Elements

Combining real world objects and gamification elements together. Rewards are used for entertainment.



Useful for the elements which can be used in the product for entertainment and serving as a delighters to users.

Infotainment

According to the interests of the users, the information about surrounding can be given and can be personalized.



The personalization of the features can be used for the product.

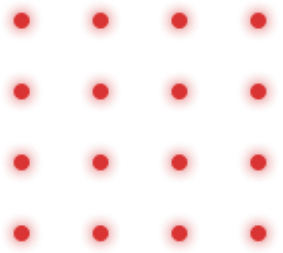
Safety Information

Some information and warning system, such as showing obstacles, line and car detection and navigation system are provided to users



Not relevant for the product.





Brand Colours



Typography

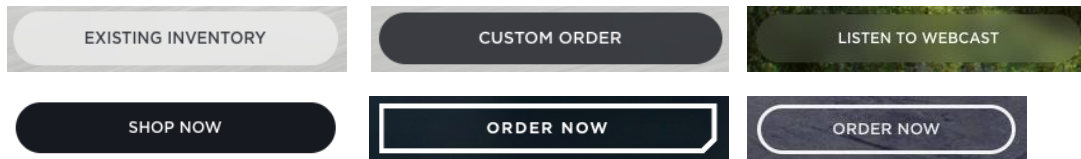
Accessories

Gotham

Icons



Buttons



Imagery



Tone

Efficient ⚙️

Built Around the Driver



Brand Colours

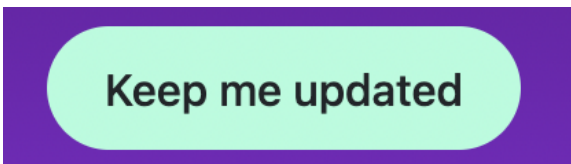


Typography

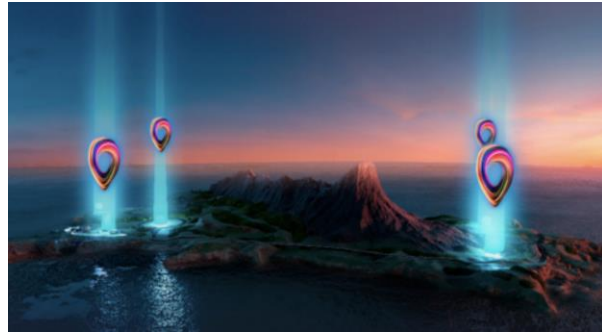
METAHYPE

METAHYPE is a virtual island

Buttons



Imagery



Tone

Be yourself

show the world who you are without the limits of the physical world.





Alfa Romeo Tonale



Brand Colours



Typography

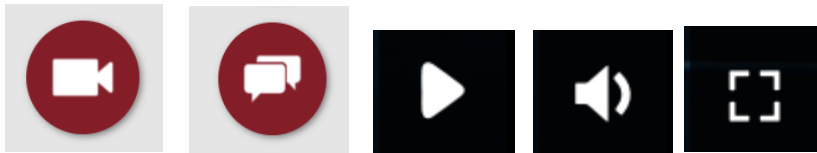
**ALFA ROMEO
TONALE**

un conjunto completo de
n de blockchain NFT,
os exclusivos de Amazon

Sequel

Helvetica Neue

Icons



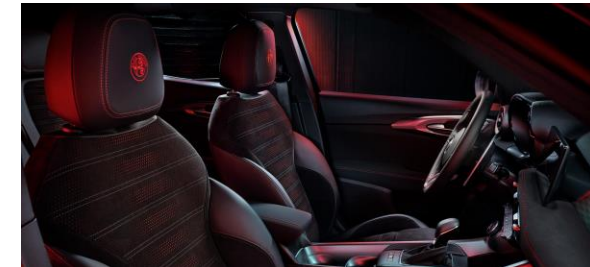
Buttons

MANTENME INFORMADO

DESCUBRE MÁS



Imagery



Tone

Solemn 🎭

Exclusive 💎

El comienzo de una nueva era Alfa Romeo

EL CONDUCTOR EN EL CENTRO

Micro-interactions

¿Buscas una Oferta?
Un agente Alfa Romeo te
realizará un
presupuesto con
precio, descuento y
financiación a medida
para pedidos a fábrica
y en stock.

Videollamada

Chat

UI BENCHMARKING CONCLUSIONS

From this exercise, we came to the following conclusions:

- ❏ The look of and feel of the brand should be futuristic, to communicate that beyond is a state-of-the-art technology. At the same time, we also want to adopt a minimal aesthetic, as we believe that less is more.
- ❏ To facilitate the look and feel that we are going for, in terms of typography, we will select a modern, san-serif font to evoke a clean and crisp visual.
- ❏ The primary colours we have selected are black, red and white to align with Porsche's brand colours. However, we would also introduce blue as a pop of colour to add a splash of fun, while still distinguishing from Porsche's other existing offerings.
- ❏ The tone of voice we want to adopt is one that is playful and inspirational. We want to encourage our users to venture beyond their comfort zone to explore the world around them with the help of our product.



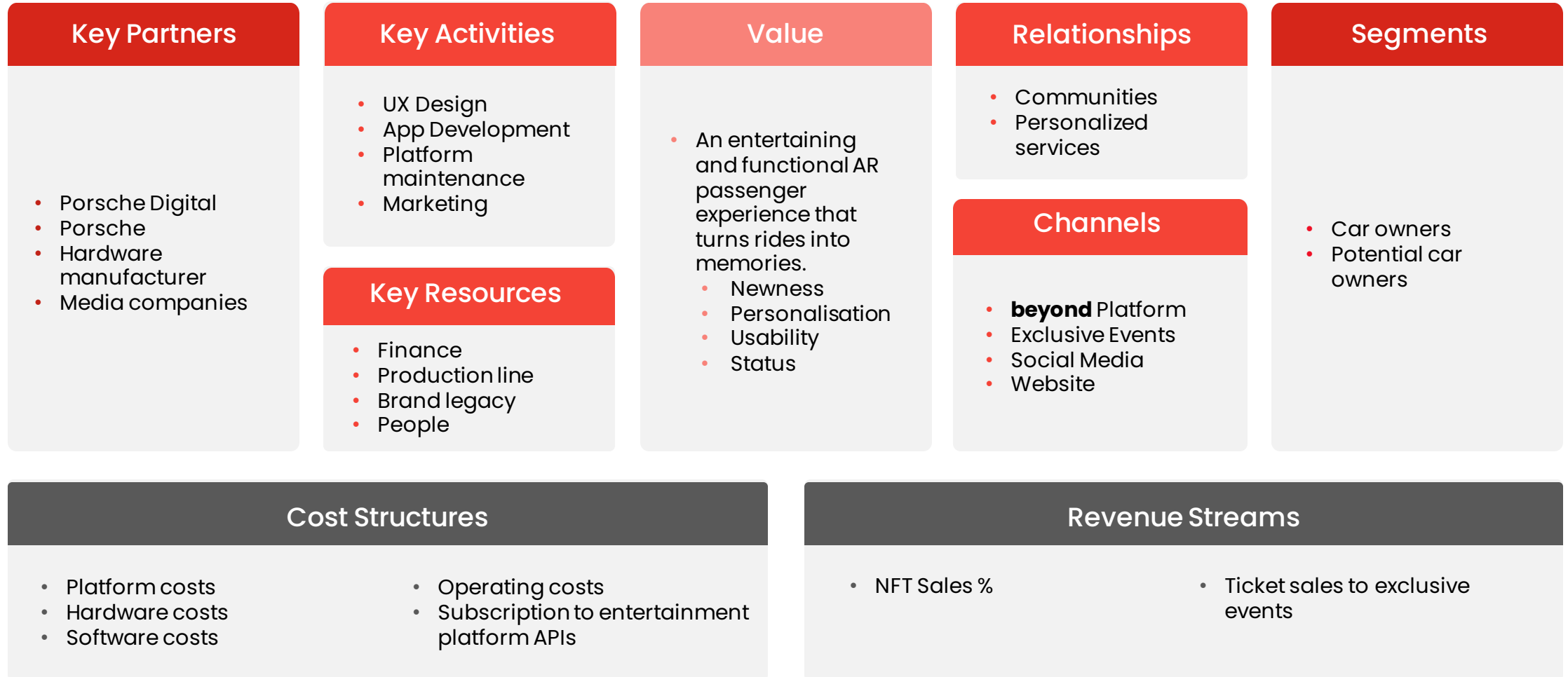
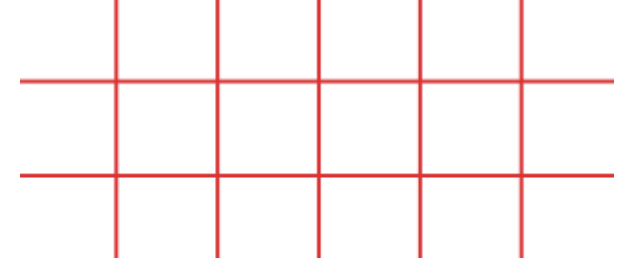
7. BUSINESS PLAN

7.1 Business Model Canvas

7.2 Marketing Strategy

BUSINESS PLAN

7.1 BUSINESS MODEL CANVAS



Key Partners

Our **primary partner** is **Porsche Digital**, whose purpose is to **find and scale new digital business models**—such as the one we are trying to create with beyond—as well as **optimise existing products**.

By extension, another of our primary partners is **Porsche**, with **whom we would roll out the first batch of autonomous vehicles equipped with beyond**.

Additionally, we have identified the following **strategic partnerships** that we would need to forge as well, for purposes of **business optimisation, risk reduction** and **resource acquisition**:

- **Hardware manufacturer** – We would want to establish **buyer-supplier relationships** with manufacturers of components that are necessary to our product but are not provided by Porsche (e.g. AR windshields).

- **Media companies** – We would also want to **collaborate** with leading streaming media services for movies or shows (e.g. Netflix) and music (e.g. Spotify) for our passengers to enjoy their subscriptions while using beyond.





Key Activities

The following are activities we have identified which are imperative for our business to work:

- **UX Design** – beyond is an experience in itself. Hence, UX design will be an ongoing endeavour to **continuously improve the passenger experience** and ensure that it is as pleasant as possible.
- **Platform maintenance** – This includes all the activities around **development and maintenance of the beyond OS.**
- **Marketing** – Cognizant that beyond is a very contemporary offering in the automotive space, we would need to invest in marketing to both **spread awareness** and **educate the public** about our product.



Key Resources

These inputs have been identified as the main assets required to deliver our final product, and would either purchased, leased or acquired from our key partners:

- **Brand legacy** – Porsche is an **established household name** that we want to leverage on to legitimise our product by association.
- **Finance** – As we are developing a capital-intensive product, a steady **cash flow** or **credit line** is a critical resource.

- **Production line** – In view that beyond is a digital experience that is offered through a physical product, this resource refers to the **manufacturing facilities** and its **associated structures** (e.g. machinery, equipment etc.)
- **People** – The employees behind beyond are indispensable because it is a very niche product that **requires a lot of specialised and extensive knowledge.**

Value

In a nutshell, this is our value proposition:

“beyond is a **platform** that **provides an entertaining and functional passenger experience**, which **turns rides into memories.**”



Segments

In the future, when fully autonomous cars are a reality, **everyone will be a passenger.**

However, we posit that this group could be segmented into two separate groups that we would interact with differently.

The first segment comprises **car owners**, who either own a Porsche car, or a car from another brand.

The second segment comprises **potential car owners**, who use cars as means of transportation, but do not own one of their own.



Relationships

Our company would establish different types of relationships with each customer segment.

For **car owners** that **already own a Porsche car**, the focus would be on **customer retention**. We aim to build **long-term relationships** with our customers by **leveraging existing Porsche communities**.

These communities would enable us to become more involved with our customers while facilitating connections between members.

For **potential car owners**, the focus would be on **customer acquisition**. We will do this by providing **dedicated personal assistance** to the customer to get help during the sales process and after the purchase is complete.





Channels

We intend to reach our customers through a combination of channels.

- **beyond platform** – The OS of beyond itself is a **channel to reach customers**, to bring the Porsche community together and to **grow brand loyalty**.
- **Exclusive Events** – This channel refers to **Porsche branded events** that serve as a way to increase brand loyalty and lets the Porsche community grow

- **Social Media** – This channel refers to maintaining a presence on various social media networks to **communicate directly** to existing and potential customers.
- **Website** – This channel will serve as the place where **ticket sales** for exclusive events will take place.



Cost Structure

Our company has a **value-driven cost structure**, where our focus is on value creation and less on cost implications, given that beyond is positioning itself as a product that offers a premium value proposition.

We project that most of our costs would be fixed (e.g. salaries, rents, manufacturing facilities etc.).





Revenue Streams

We have identified the following ways in which beyond would generate cash from our identified customer segments.

- **NFT sales** – One of the novel XR experiences that we are introducing to passengers is the concept of a **“NFT Art Gallery/Exhibition”** in which they can view and admire NFT art pieces or monuments during their ride, as well as **purchase** them.
- **Ticket sales to exclusive events**
 - We see an opportunity to leverage on **existing Porsche communities** around the world to host events within the **metaverse**, where guests can **connect with other like minded Porsche enthusiasts and more.**



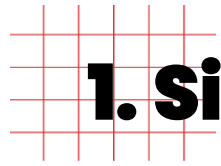
BUSINESS PLAN

7.2 MARKETING STRATEGY

Based on the business model and its revenue model, we created a **marketing strategy**.

To **structure this strategy**, the **SOSTAC model** has been used, which divides the marketing strategy in **6 different stages**.

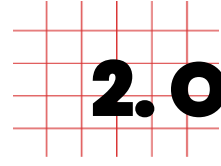




1. Situation analysis

Where are we now?

We have explained the current situation for **beyond**. This is used as the starting point for the marketing strategy. It helped us understand **beyond**'s current performance, customer insights, SWOT analysis and the competitor positioning.

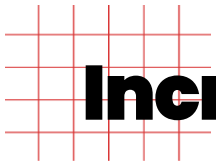


2. Objectives

Where do we want to be?

We have set several marketing goals, based on the mission, vision and company goals.





Increase brand loyalty

Objective 1

With **beyond**, we reinvent the value of owning a car. Besides giving passengers more value to a car with the features included in the OS, we want to reinforce the connection they have according to the brand and the community. We therefore use the possibilities of the metaverse to increase the brand loyalty of Porsche owners. We anticipate to the opportunity of organizing immersive metaverse events. We will be hosting exclusive events to leverage on the existing Porsche Clubs around the world.

Short term:

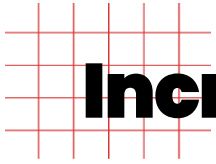
In the first year, Porsche's brand loyalty has to be increased by 10%.

Longer term:

After 3 years, Porsche's brand loyalty has to be increased by 30%.

KPIs: customer satisfaction, brand value, brand trust





Increase revenue among existing car owners

Objective 2

We aim to add value, tailored to our specific users. As mentioned, we therefore organize exclusive events. Similar to how Porsche gains extra revenue by organizing event for the existing Porsche Clubs, revenue will be increased by the tickets sold for the events.

These tickets will be sold in the form of NFTs, which makes the events even more exclusive. Next to these tickets, users will be able to collect special NFTs, connected to the events. Besides NFTs connected to the exclusive events, NFTs can be collected all over the world on special locations.

Ticket sales:

Short term:

In the first year, 120 **beyond** x Porsche events tickets are being sold monthly.

Longer term:

After 3 years, 480 **beyond** x Porsche events tickets are being sold monthly.

KPI: revenue growth

Other NFTs:

Short term:

In the first year, 1,625 NFTs are being sold monthly.

Longer term:

After 3 years, 2,149 NFTs are being sold monthly.



3. Strategy

How will we get there?

The marketing strategy focuses on (potential) car owners, based on the business model. To empathize with this audience, we defined two buyer personas, namely Ralph Jensen and Klara Müller.

The marketing strategy follows a multichannel strategy, including the **beyond** OS, the metaverse, social media, email and a website. The campaigns on the different platforms will all be interconnected to reinforce the whole strategy. Content will be created for the different platforms, tailored to the specific user.



RALPH
JENSEN
35 YEARS OLD
PRODUCT MANAGER

ABOUT

Interest: Invests in crypto currency and new technologies.

Expectations: He wants to stay up to date with the latest technology.

Goal: Travelling the world with his family in comfort and style.

MAIN CHALLENGES

Making the driving experience more enjoyable

SOCIAL NETWORKS



KLARA
MÜLLER
24 YEARS OLD
FRESH GRADUATE - BACHELORS IN COMPUTER SCIENCE

ABOUT

Interest: Love to travel and learn about different cultures and collect souvenirs of the places, photography.

Expectations: To have an efficient commute, personal space.

Goal: To have fun roadtrips with her friends, to progress in her career and go to events and festivals with high tech.

MAIN CHALLENGES

Make commutes more fun, to create a private space for enjoyment.

SOCIAL NETWORKS



4. Tactics

What do we need to do to win?

As explained before, content has to be tailored to the specific situation of a potential customer. Therefore, we need to offer content for different personas, but also for the different stages of their buyer journeys. The content is created based on the tone of voice and style of the **beyond** brandbook.

In order to deliver the right content to the right person at the right place and time, it is important to understand where and when the different audiences can be reached most easily. The campaigns will therefore be targeted based on the personas.

Growth hacking in the exclusive events:

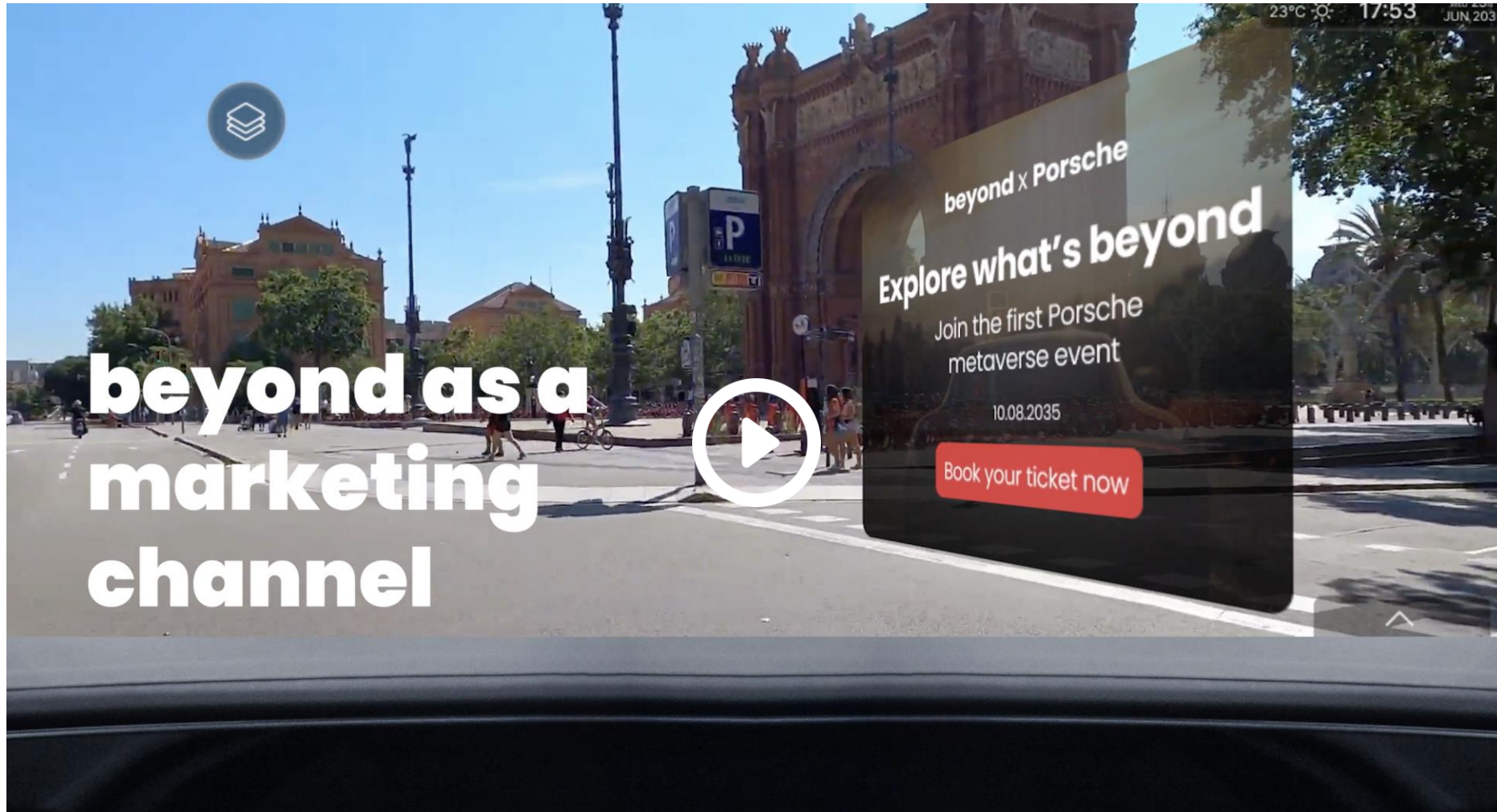
To let the community and brand loyalty grow, we created a way to let the events grow bigger each time.

The event tickets in the form of NFTs add extra exclusivity to the events, as the tickets belong to a specific user. The NFT will automatically be part of the NFT collection, where the user collects all the NFT's that have been collected, for example during road trips.

Of course, car owners want to share their experiences among their own community. Therefore, every ticket owner can invite someone to be part of the experience and with that become part of the exclusive community. These invitees won't receive the NFT, but will be more triggered to join the next event, or to invest in becoming a **beyond** user, if they were not one yet. In this way, the events will get bigger every time and the **beyond** community will grow.

Guideline for content:

To give a first impression of how the different campaigns will be designed, we created several mock-ups, functioning as a guideline for the marketing team.



Find the marketing video by clicking [here](#)

5. Action

Who's doing what and when?

A content based marketing strategy is an ongoing process, which needs to be well structured. Content creation needs to be planned, work has to be divided among the team and also the timing and dates of posting has to be scheduled in a content calendar.

In the current team, **beyond** works with a Marketing & Sales lead, who focuses mainly on marketing strategy and the execution of sales related activities, and two marketers who both focus on content marketing. They will work closely together, to plan and stay aligned on the work that has to be done.

6. control

How do we monitor performance?

With the described marketing campaigns and the strategy behind it, the marketing team of **beyond** has a good starting point of how to create the right content.

In order to achieve the goals, it is important to monitor the performances of the different marketing activities. Therefore, we use the analytics tool of a marketing automation tool like Hubspot, that gives insights on the performance of the full campaign.

Those analytics will help to better understand the performance of the different aspects of the campaign, among which conversion rates between different steps, which helps to improve the overall campaign.



8. FINANCIAL MODEL

REVENUE STREAMS

Within our business model, we have two revenue streams:

Sale of limited edition Porsche NFT memorabilia

- » The average price of an NFT sold on OpenSea is **€4,000**.
- » The average number of NFTs sold monthly is **32,500**. We try to get **2%** of this market, which is **650**.

Sale of tickets to exclusive Porsche events

- » The average price of a Porsche event is **€3,500**.
- » As our events are hosted on the metaverse, fewer logistics are required. Hence, they will be priced cheaper at **€1,500**.

From here, we can derive an estimate of our gross revenue in the first year:

Estimated Annual Gross Revenue in Y1			
Revenue Stream	Unit Price	Units Sold / Month	Annual Earnings
Sale of NFTs	€4,000	1,000	€1,500,000.00
Sale of event tickets	€1,500	650	€2,600,000.00
Annual Gross Revenue			€4,100,000.00

COST STRUCTURE

Our costs* can be broadly split into two categories:

Platform costs

» We have set a monthly budget of **€10,000** for platform maintenance costs.

Operating costs

» This includes staff salaries and other office expenses which would cost **€1,006,400** annually. See annex for details.

From here, we can derive an estimate of our gross revenue in the first year:

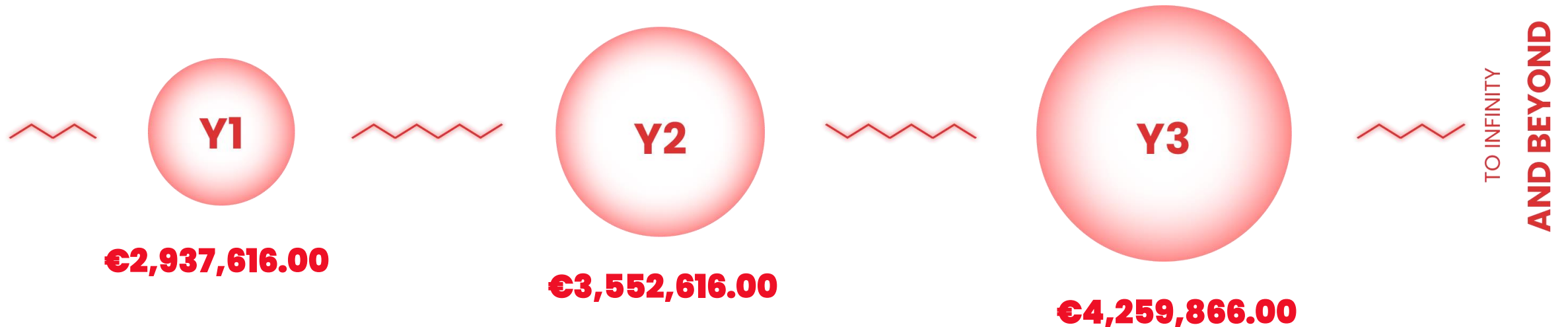
Estimated Annual Costs in Y1	
Cost Item	Annual Cost
Platform costs	€120,000.00
Operating costs	€1,006,400.00
One-time setup costs**	€35,984.00
Annual Gross Revenue	€1,162,384.00

*Given that we are a business unit of Porsche and that the product will be launched on Porsche cars, manufacturing costs would be borne by Porsche.

**This refers to the purchase of equipment (i.e., computers) for staff.

PROJECTED PROFITS

Setting ourselves a target of **15%** year-on-year growth, here are our projected profits for the first three years:



By leveraging on our position as a business unit of Porsche, we will be able to hit the ground running. This would allow us to be profitable from the get-go, demonstrating the potential of our company.



9. USER RESEARCH

9.1 Scope & Goals

9.2 Results

9.3 Personas

9.4 Empathy Map

9.5 Customer Journey Map

USER RESEARCH

9.1 SCOPE & GOALS

Following the conclusion of our secondary research, our team had derived the following hypothesis:

≡ **WE BELIEVE THAT TIME SPENT IN AN AUTONOMOUS CAR WOULD BE MORE PLEASURABLE IF PASSENGERS COULD CARRY OUT ADDITIONAL ACTIVITIES.**

We then proceeded to test it during our user research, as part of our Discover Phase.

The goal of our user research was to eventually land on a defined problem statement and validate that we had identified the right problem to solve.

Due to the short timeframe, we had to be highly selective in our user research methods.

≡ **STAKEHOLDER INTERVIEWS**

The first method we selected was **stakeholder interviews** with Porsche Digital, as they were our key partner. Given that our plan was to launch beyond Porsche cars, it was important for us to spend some time learning about **who Porsche's customers were, their specific problems and need-gaps that our product may be expected to solve.**

≡ **FOCUS GROUPS**

The second method we selected was **focus groups**. We chose this method over individual user interviews because **we wanted to incite group discussion, and observe the interactions between participants.** We believed that this would be **a more dynamic way to generate ideas**, as participants could bounce off of one another. We also saw it as the most effective forum to explore what people believe, feel and think about the key themes that we were delving into autonomous vehicles, NFTs and the metaverse.

USER RESEARCH

9.2 RESULTS

Stakeholder interviews

We had the privilege of speaking with two key members of Porsche Digital's User Experience Design Team:



Ingo Feisthamel
Head of UX



Tobias Miki
UX Design Manager

The objective of these conversations were to **obtain Porsche's perspective** on the luxury automotive industry, up and coming technologies, as well as their business priorities for the future.

We were able to derive the following key takeaways:

- ❯ Porsche would like to become relevant to a younger audience, as well as more women.
- ❯ With the rise of autonomous vehicles, everyone would be a passenger in the future.
- ❯ Beyond the context of digital artwork, could NFTs also have a functional use case?
- ❯ Leverage on Porsche's fanbase with exclusive memorabilia and communities.

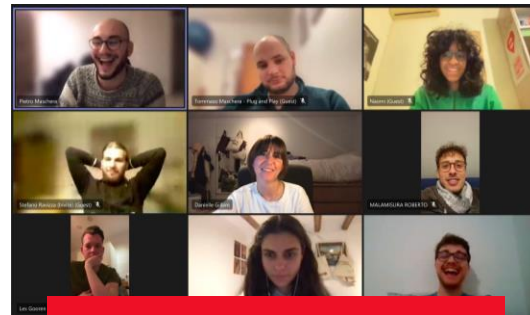
Focus Groups

We conducted 2 focus group sessions, each lasting 2 hours in duration.



Focus Group #1

Presential



Focus Group #2

Online

Cognizant of Porsche's desire to connect with a younger demographic and more women, we assembled **14 university graduates** from **9 countries** of **ages 23-33 years old, half of whom were women.**

During these conversations, we discussed the **passenger experience**, the **future of private mobility**, the **metaverse** and **NFTs**.

During the focus group sessions, we had the following observations:

- During a car ride, people can appreciate occasional boredom.
- Different activities appeal to different people at different times.
- People generally want to feel connected with others, particularly those in the car with them.
- Whilst open to the metaverse, participants were fearful of being cut off from the real world.

Learnings & Insights

From our observations, we learned the following about people's preferences when it comes to their passenger experience in a car:

People want to choose whether to engage in an activity or not.

They like having options in the types of available activities.

They may prefer to connect or disconnect depending on context.

They were generally receptive to the option of a mixed reality experience.

Decisions & Actions

From these insights, we decided to take the following action:

THEREFORE, WE WILL DEVELOP A FLEXIBLE PASSENGER EXPERIENCE WITH OPTIONS FOR USERS TO ADAPT THEIR CAR ACCORDING TO THEIR VARYING NEEDS AND PREFERENCES AT DIFFERENT TIMES.

USER RESEARCH

9.3 PERSONAS



RALPH
JENSEN

33 YEARS OLD
PRODUCT MANAGER

STATUS

- Lives in Denmark
- Married
- Father to 2 children

PAIN POINTS

- Feeling like he has not enough time.
- His children get restless during long car rides.
- Feeling tired from driving too far and too long.

INTERESTS

- Enjoys staying active, particularly cycling and playing padel.
- A fan of Formula 1 racing.
- Invests in crypto currency and new technologies.

CHALLENGES

- Make commutes more productive.
- Maintain a peaceful environment in the car during long rides with his family.
- Making the driving experience more enjoyable.

GOALS

- To start a successful business.
- Travelling the world with his family in comfort and style.
- To live more mindfully.

NEEDS & EXPECTATIONS

- He prefers to buy high quality and functional goods.
- He wants to stay up to date with the latest technology.
- His car needs to be practical for his family life.



KLARA
MÜLLER

24 YEARS OLD
FRESH GRADUATE - BACHELORS IN COMPUTER SCIENCE

STATUS

- Lives in Switzerland
- Single
- She lives with her parents and her brother

PAIN POINTS

- Long distance to travel to work.
- lack of personal space to unwind.

INTERESTS

- Love to travel and learn about different cultures.
- Snowboarding
- Hiking
- Photography

CHALLENGES

- Make commutes more fun.
- to create a private space for enjoyment.

GOALS

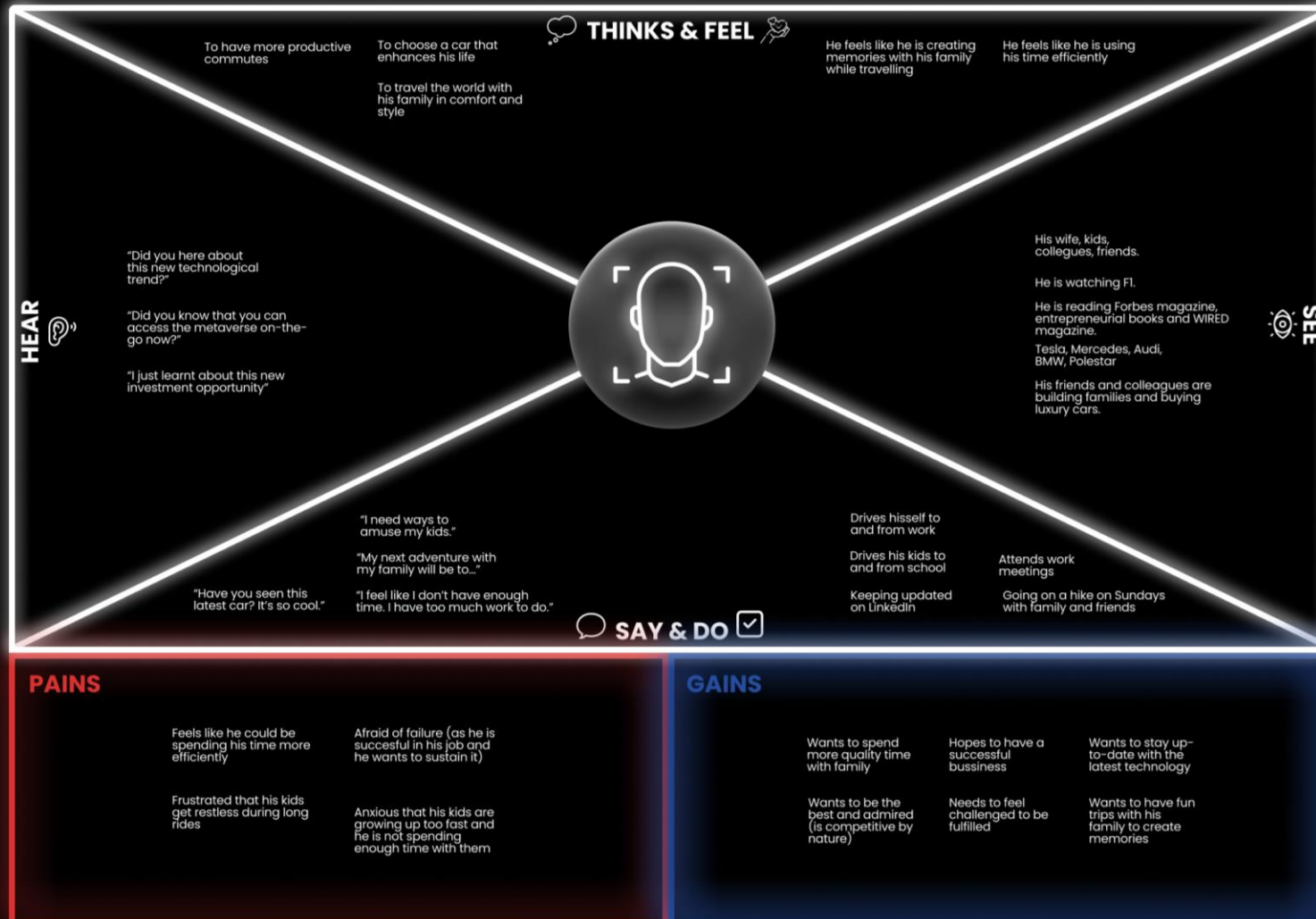
- To have fun roadtrips with her friends.
- to progress in her career.

NEEDS & EXPECTATIONS

- To have an efficient commute.
- Personal space.

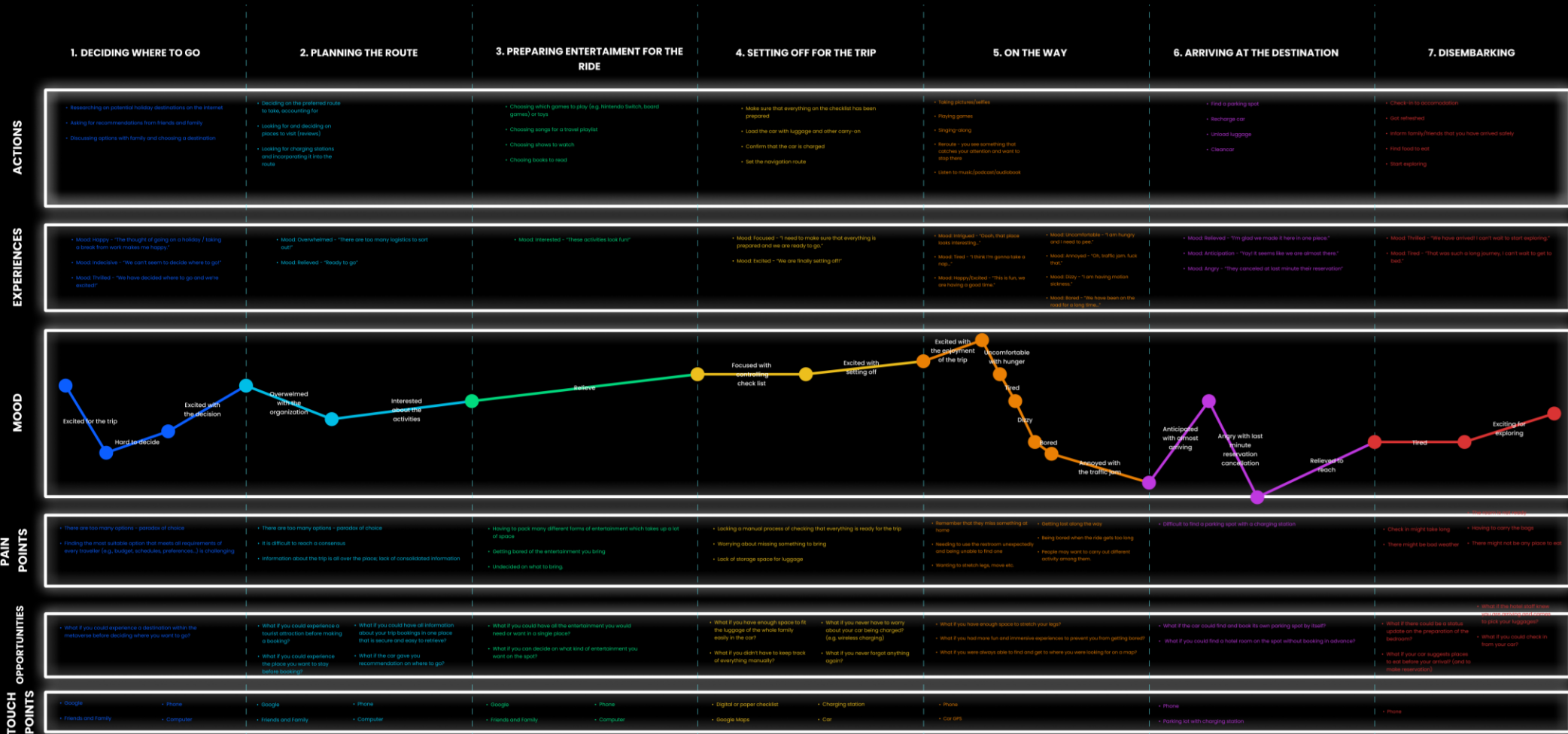
USER RESEARCH

9.4 EMPATHY MAP



USER RESEARCH

9.5 CUSTOMER JOURNEY MAP



Find the customer journey map by clicking [here](#)



10. FEATURE DEFINITION

10.1 MVP

10.2 Feature Prioritisation

10.3 Value Pyramid

FEATURE DEFINITION

10.1 MVP

The needs and preferences of our users were our starting point in defining an MVP.

However, **we did not stop there**. We went **a step further** by **building upon their suggestions**. This ensured that we would not only **meet their current needs** but **also anticipate their future ones**.

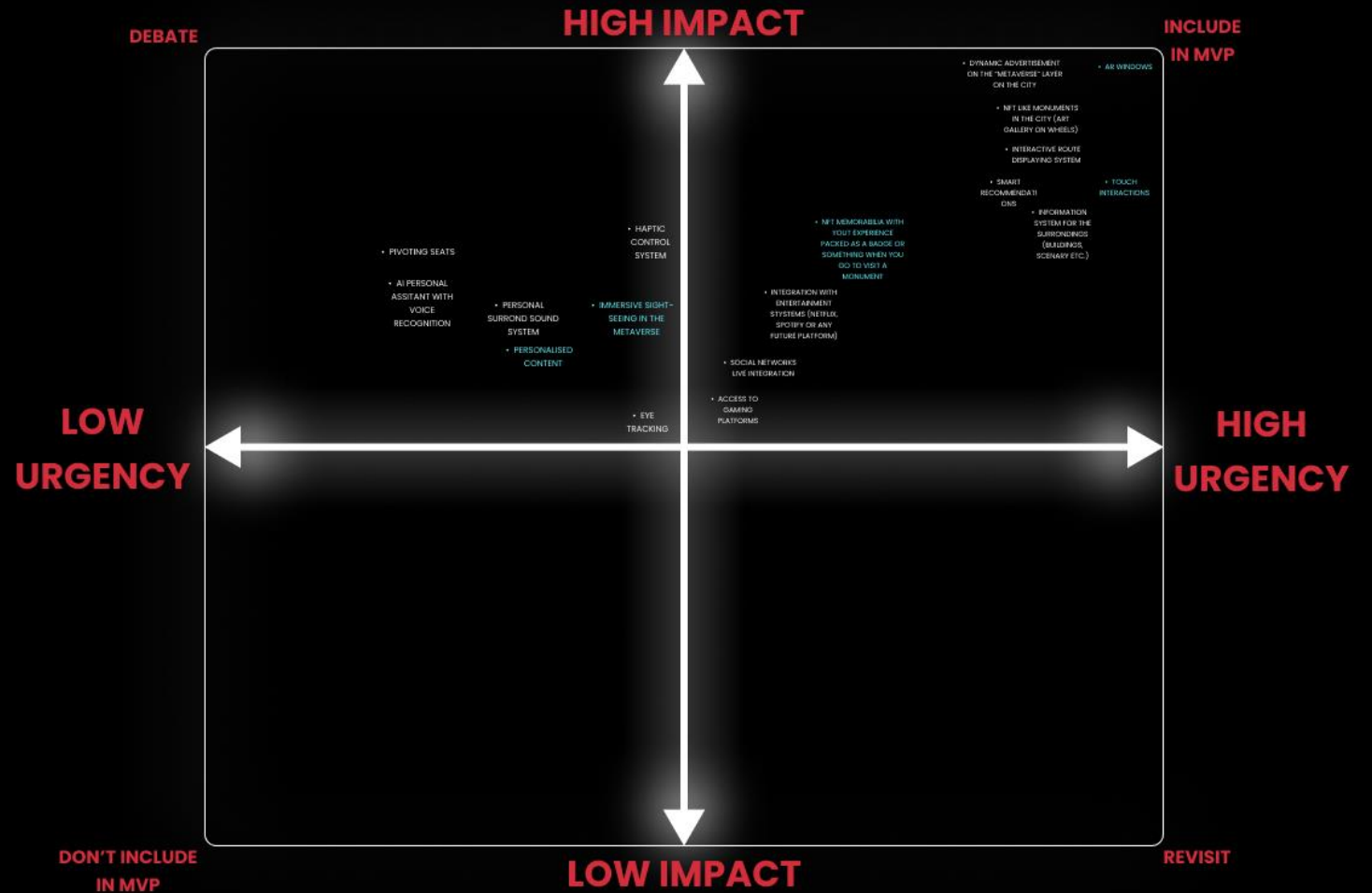
This can be demonstrated in the way we **incorporated NFTs into our product experience**. While our target users did not possess deep enough knowledge on the topic to be able to articulate how they may engage with NFTs, we were **nevertheless able to create something that would be interesting and useful to them**.

What we envisioned originally was a **360° immersive experience** in a self-driving car where **every detail is tailored to each passenger's unique needs and desires**.

We imagined pivotable seats, 360° interactive windows and individual seat sound system, amongst other features.

Having to **narrow down our big idea** to a **more realistic project** to accomplish in a shorter term, we decided **to focus first on implementing strictly necessary features**.

To help us decide on what feature to include in the MVP, we used the feature prioritisation canvas.



FEATURE DEFINITION

10.2 FEATURE PRIORITISATION

We acknowledge that a big part of **our success depends on the experience we provide to our users**. Hence, we decided to incorporate some elements that could make it an MLP, even if this could result in a higher initial implementation cost.

At the current stage, our MVP includes the following features:

≡ EXPLORE AS YOU PASS BY

Through the “wheel” menu, you can turn on “layers” that provide an extra level of information about the world around you, allowing for an enhanced interaction with the surroundings through the AR windshield.

- Look for any restaurant or store around you as you go on your way.
- Access the metaverse and connect with family and friends, no matter where they are.
- Experience the physical and digital worlds merging during unique social events.
- Admire NFT monuments around.

- » Commemorate your adventures by collecting badges and buying memories in the form of NFTs.
- » Learn more about points of interest that you visit by listening to audio descriptions.

» **PERFORM A WIDE RANGE OF ACTIVITIES**

Turn your car into your personal workspace or play and enjoy content. These activities can be performed through apps that run on the windshield, such as productivity, videoconferencing, streaming, music, games, social media, shopping, utility apps and more.

» **GESTURE INTERACTION AND VOICE CONTROL**

Interact with the windshield, and therefore the external world, in an intuitive way.

FEATURE DEFINITION

10.3 VALUE PYRAMID

Beyond addresses several functional needs. It enables users to **save time** as it **simplifies** several daily tasks by **organising information** to facilitate decision-making and reduce the effort required for everyday life. It also offers a **variety of uses** while allowing users to **connect** with one another.

Emotionally, Beyond provides several means of **fun and entertainment** which incorporates **rewards** to the user in the form of **badge value**. All of this is served on an **aesthetic interface** to increase the **attractiveness** of the experience.

To some extent, Beyond is life-changing, as it **motivates** users to go out and explore the world while embracing digitization. Moreover, it also serves the broader purpose of creating a community, which creates a **sense of belonging and affiliation**.

SOCIAL IMPACT



SELF - TRANSCENDENCE

LIFE CHANGING



MOTIVATION



AFFILIATION & BELONGING



PROVIDES HOPE



SELF-ACTUALIZATION



HEIRLOOM

EMOTIONAL



REWARDS ME



DESIGN/ AESTHETICS



BADGE VALUE



ATTRACTIVENESS



FUN/ ENTERTAINMENT



REDUCES ANXIETY



NOSTALGIA



WELLNESS



THERAPEUTIC VALUE



PROVIDES ACCESS

FUNCTIONAL



SAVES TIME



SIMPLIFIES



ORGANIZES



CONNECTS



REDUCES EFFORT



VARIETY



MAKES MONEY



REDUCES RISK



INTEGRATES



SENSORY APPEAL



QUALITY



REDUCES COST



INFORMS



11. LOW FIDELITY PROTOTYPE

11.1 Testing

11.2 Results

11.3 Analysis

LOW FIDELITY PROTOTYPE

13.1 TESTING

The first round of user testing was conducted on our low-fidelity prototype and consisted in testing the concept behind our product. We created frames of what the product would potentially look like, showcasing its features.

≡ DETERMINING ALIGNMENT WITH USER NEEDS

Our goal was to find out whether the features we envisioned to include into our product were a fit for people's needs, as well as if there was any other feature that users might want to see implemented.

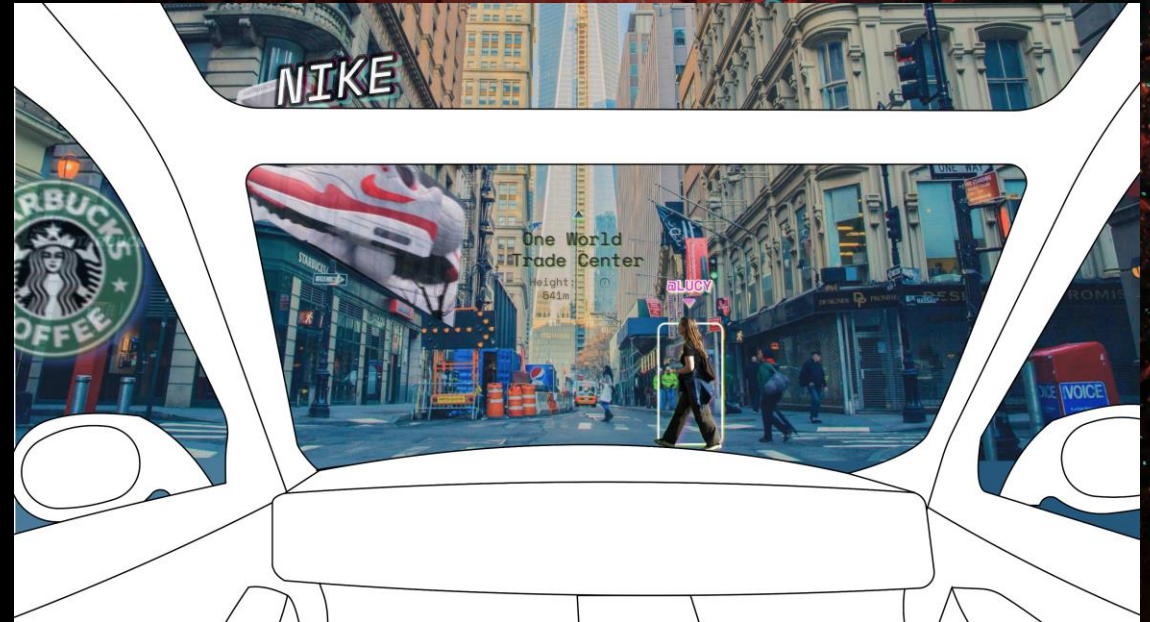
≡ 6 TESTING SESSIONS

The six moderated hybrid testing sessions were conducted on 6 participants in a week timeframe.

≡ OPEN ENDED QUESTIONS

Even though the frames we showed were static, we asked questions about what they thought would happen if they clicked on a certain element or how they would ideally accomplish a task.

Below are some shots of our low-fidelity prototype:



Check out the whole Low-Fidelity prototype [here](#).

LOW FIDELITY PROTOTYPE

13.2 RESULTS

Overall, we received positive feedback from our target users. The feedback can be broadly group into these categories:

≡ LAYOUTS

- » People suggest they would want the layout to be as close to smartphone as possible, mentioning elements such as customization, “widgets”, and the presence of a grid system.
- » Users expect important information to be placed on the left side of the screen, and less important information or features to be kept of the home screen.

≡ CONCERNS

- ≫ Users have privacy concern about the type on content visible on their screen when other passengers are in the car.
- ≫ People want to have the possibility to easily turn of the system.

≡ ACTIVITIES

- ≫ About the NFTs monuments, they mention that it would be nice to learn about the history of a place, to collect “digital souvenirs” and to have NFTs that complement the experiences, rather than representing distractions.
- ≫ People state they prefer functional activities rather than entertaining ones.

LOW FIDELITY PROTOTYPE

13.3 ANALYSIS

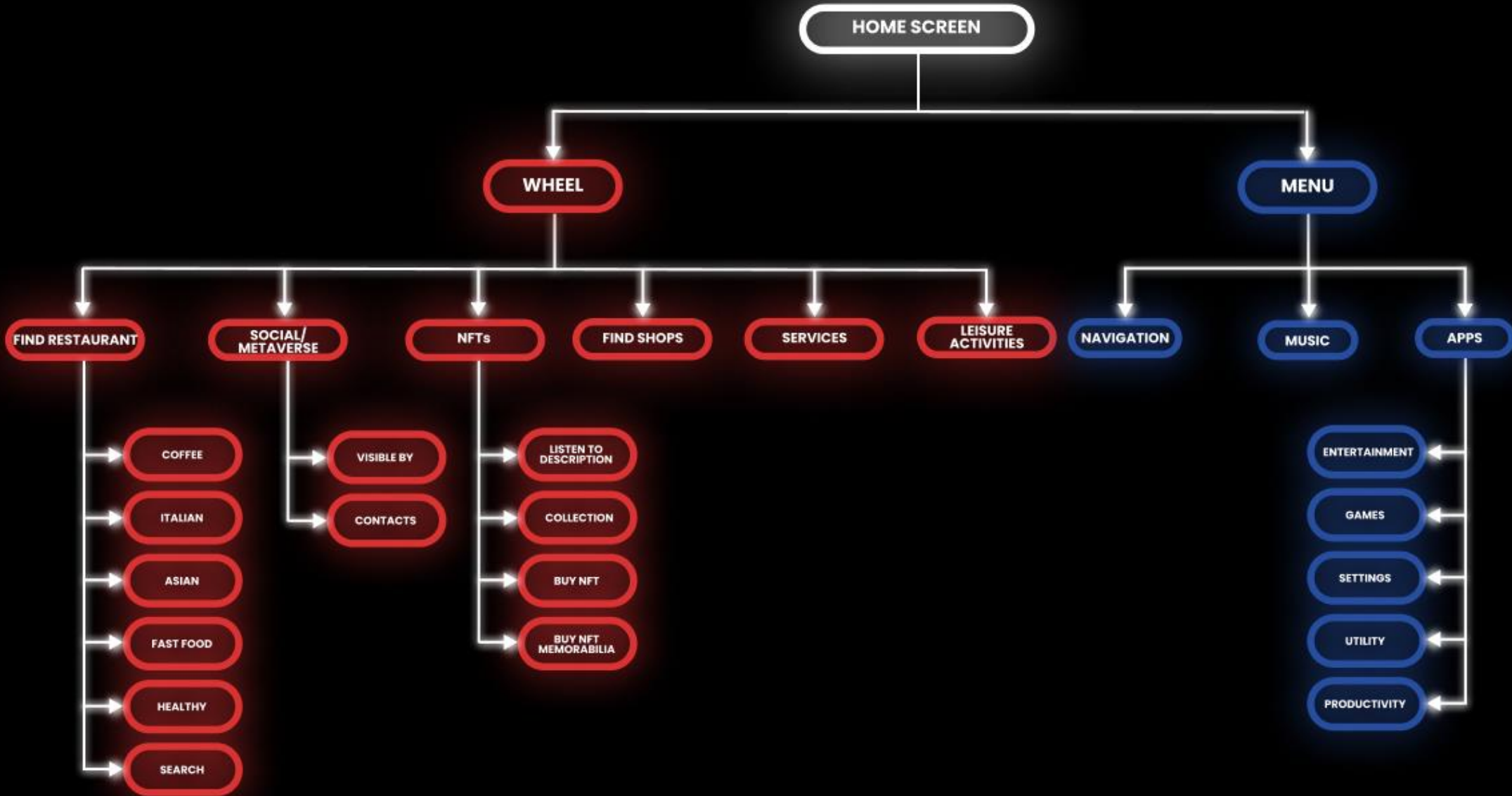
We conducted **affinity mapping** and **categorized the various feedback into major topics**. Afterwards we **prioritized the findings according to the relevance** we assumed those had into the improvement of our products.

The feedback collected was **paramount** to come up with the **first wireframes** and to **decide which features to prioritise**. We created an interface that would be as similar as it could to a smartphone or a desktop and **placed the information in a way that we thought was intuitive and logical for users**; we **prioritised features that had less to do with games**, and more with exploration and carrying out tasks or activities.



12. INFORMATION ARCHITECTURE

INFORMATION ARCHITECTURE





13. MID / HIGH FIDELITY PROTOTYPE

13.1 Brand Book

13.2 Product Showcase

13.3 Testing



HIGH FIDELITY PROTOTYPE
13.1 BRAND BOOK



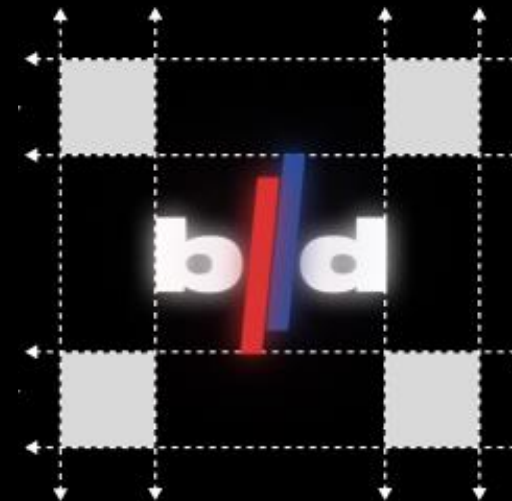
BRAND BOOK

13.1.1 LOGO

The word is separated between «be» and the «yond» (over there).

Be represents the physical world (to be) and the yond represents the digital (something that is out there, unreachable and untouchable).

The two elements are facing each other (yond is mirrored) but are separated by the red bar, which has the function to make the two worlds confront each other. We, through the metaverse, represent the bridge that connects those two dimensions.



BRAND BOOK

13.1.2 TAGLINE

**"TURN RIDES INTO
MEMORIES"**

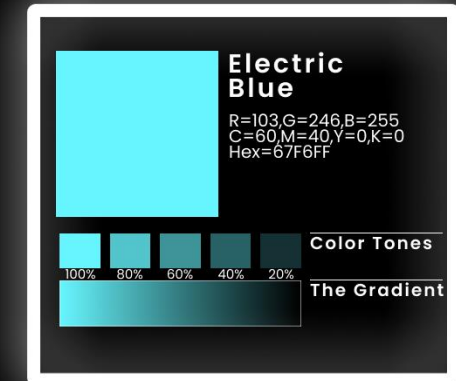
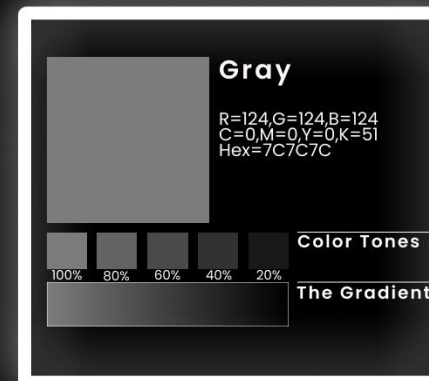
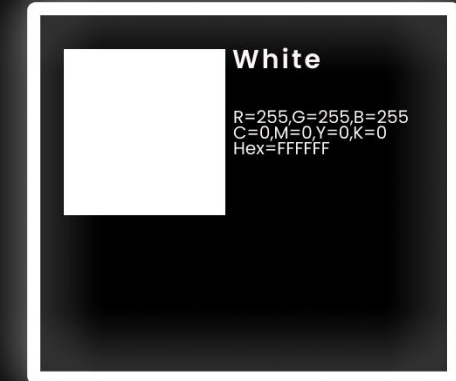
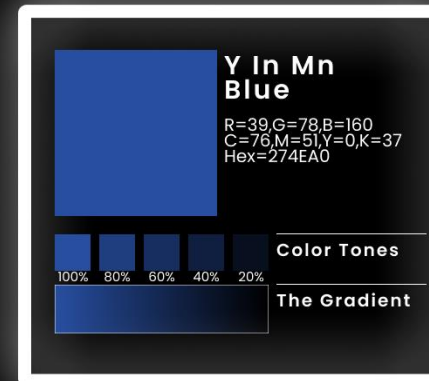
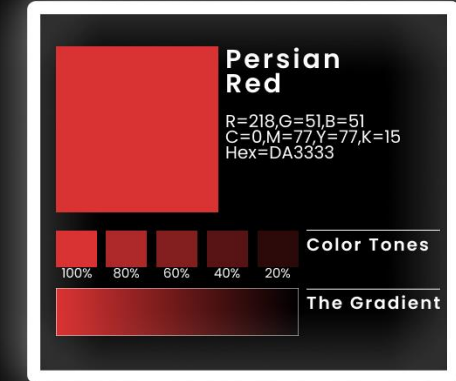
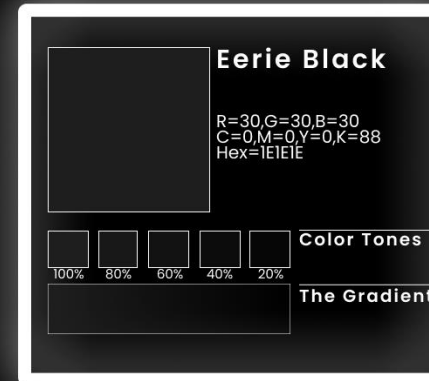
BRAND BOOK

13.1.3 COLOR PALETTE

Beyond has four official colours: Persian red, Y In Mn Blue, Eerie black and white. These colours have become recognizable identifier for the company

Use them as the dominant palette for all internal and external visual presentations of the product.

The Secondary colours: Grey and Electric blue, are complementary of the official colours, but are not recognizable for our product.



BRAND BOOK

13.1.4 LOGO VARIATIONS

Logo

be//yond

white background

be//yond

Negative

be//yond

Positive

be//yond

BRAND BOOK

13.1.5 TYPOGRAPHY

As we intend to evoke a sense of minimalism and modernity, while maintaining at the same time a playful and natural tone, we elected a sans-serif font, Poppins.

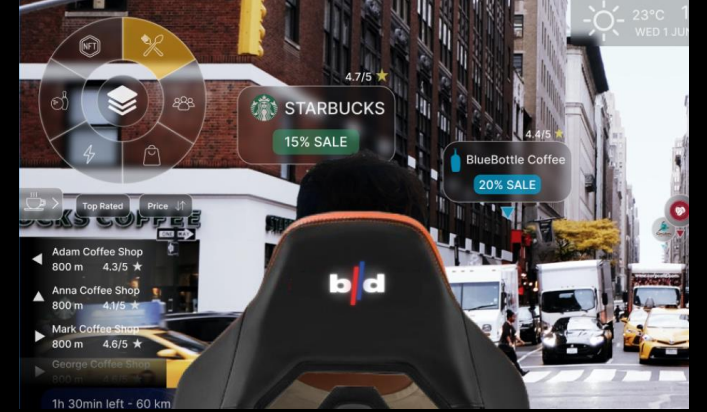
Header	aA
	Poppins Black
	Aa Bb Cc Dd Ee Ff
	Gg Hh Ii Jj Kk Ll
	Mm Nn Oo Pp Qq Rr
	Ss Tt Uu Vv Ww Xx
	Yy Zz 00 01 02 03
	04 05 06 07 08 09
	@#\$/^&*()

Body 1	aA
	Poppins Semibold
	Aa Bb Cc Dd Ee Ff
	Gg Hh Ii Jj Kk Ll
	Mm Nn Oo Pp Qq Rr
	Ss Tt Uu Vv Ww Xx
	Yy Zz 00 01 02 03
	04 05 06 07 08 09
	@#\$/^&*()

Body 2	aA
	Poppins Regular
	Aa Bb Cc Dd Ee Ff
	Gg Hh Ii Jj Kk Ll
	Mm Nn Oo Pp Qq Rr
	Ss Tt Uu Vv Ww Xx
	Yy Zz 00 01 02 03
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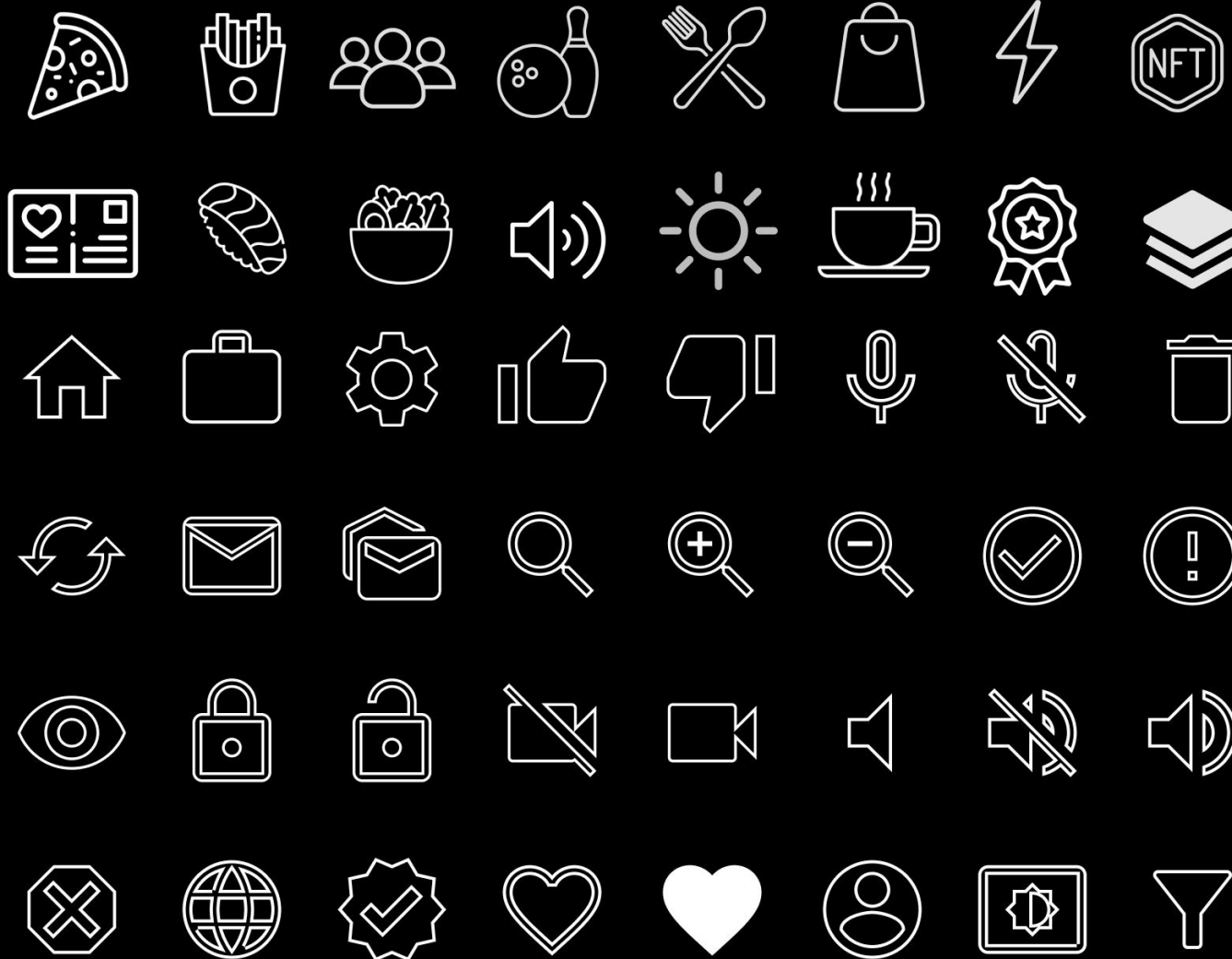
BRAND BOOK

13.1.6 PHOTOGRAPHY



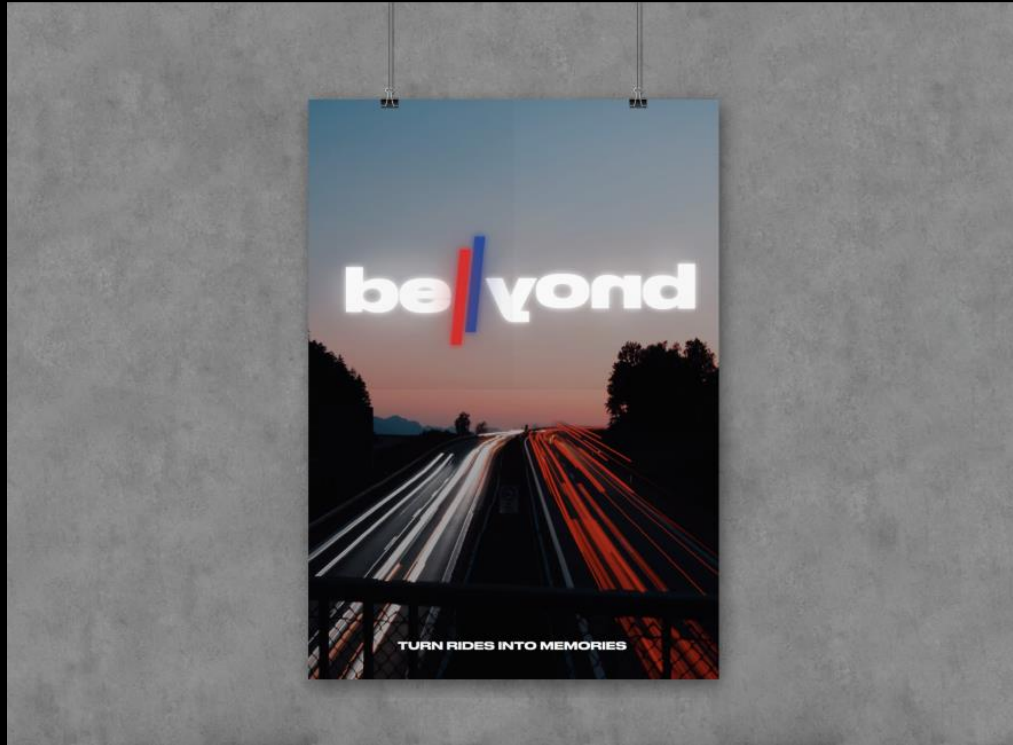
BRAND BOOK

13.1.6 ICONOGRAPHY

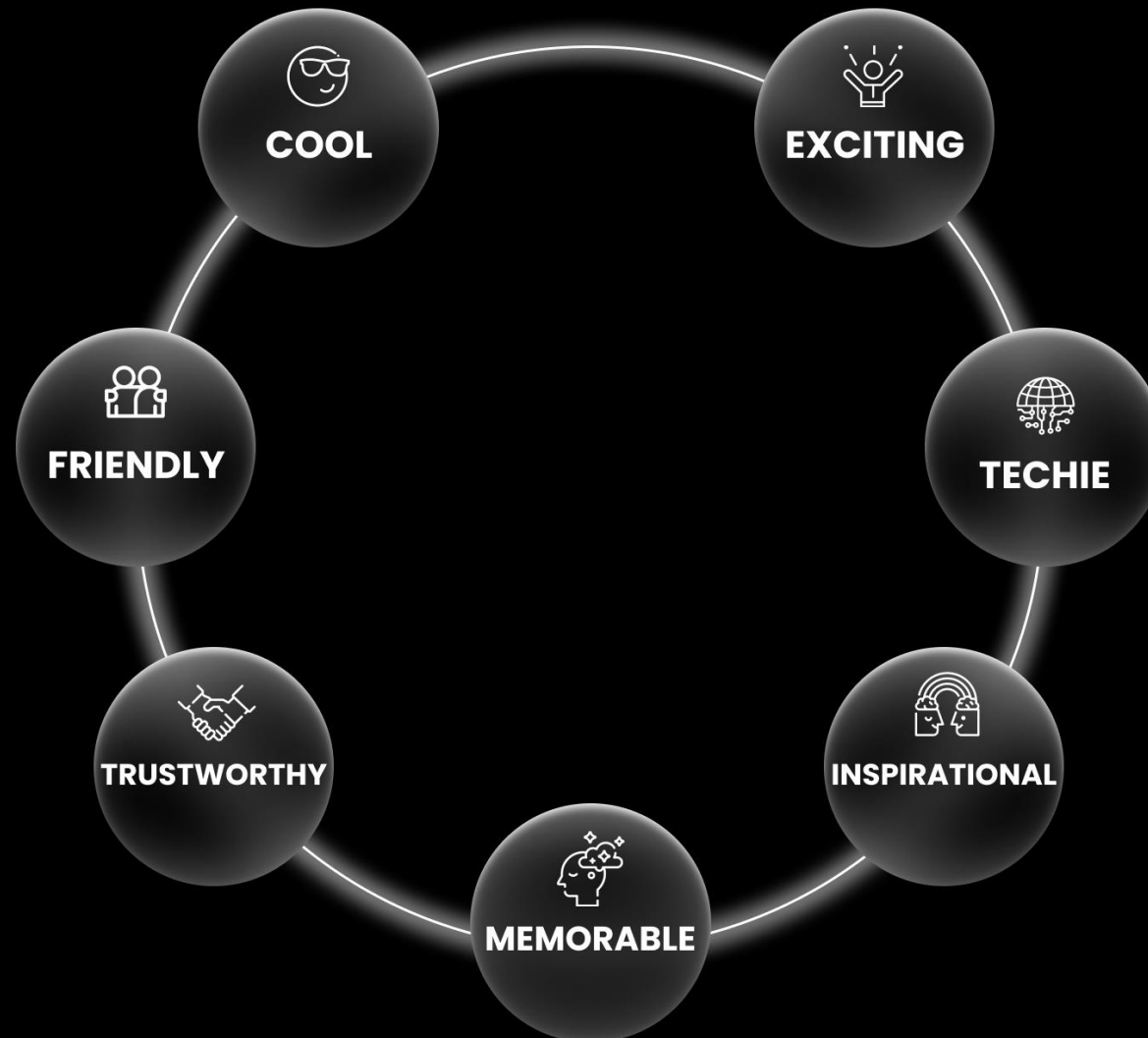


BRAND BOOK

13.1.7 BRAND EXECUTION



13.1.7 BRAND TONE & VOICE





HIGH FIDELITY PROTOTYPE

13.2 PRODUCT SHOWCASE



be/|yond

FUTURISTIC

glowy

INNOVATIVE

color coding

BLUR

SMART

TRANSPARENT

This is a heading - Inter / Medium / 23 pt

This is a subheading - Inter / Medium / 17 pt

This is an example of body text - Inter / Medium / 14 pt

This is an example of small body text - Inter / Medium / 10 pt



GO

Button text



Coffee



Coffee



Favorite



Favorite



Audio



Audio



#000000 Opacity: 40%

#FFFFFF

#0B5EFF

#00BEE7

#00DB7F

#EDBF1D

#EA8004

#BF38E0



Find the video by clicking [here](#)



HIGH FIDELITY PROTOTYPE

13.3 TESTING



TESTING OVERVIEW

As a team of UX Designers, we know that **user testing** is a **core part** of **designing successful and delightful products**. Not testing would result in a product that does not meet users' needs and that therefore will not provide a remarkable user experience, which is the core of what we believe will drive interest in our product.

Goal

» The goal of our user testing was to **evaluate the usability of our prototype** and to **gain feedback** on how to improve it to make it more user-friendly.

Focus area

» The product under test is our **interactive AR windshield**. In particular, the focus is on **our main flow**, which revolves around the core features of our product which are:

- **Navigation**
- **Restaurant Layer**
- **Metaverse Ads**
- **Social Feature**
- **NFT Monuments**



Objectives

Assess the usability of the windshield's interface.

Gain user feedback for improvements.

Evaluate the overall experience and feelings of the users while using the product.



Research questions

Is our interface intuitive and easy to navigate through?



What can be improved to improve the usability of the product?



What do users think about our product? What are their feelings while using it?

Participants

5 users (2 men and 3 women) were tested. The **age** range was **between 23 and 35**. **Students** or **young professionals** who had **buying potential** for technological products **in 10 to 15 years time**. They were **interested in technology** and **articulate in providing feedback**.

Responsibilities

The whole team was involved in the process.

- **Moderator:** Ilaria Romeo
- **Assistant:** Pietro Maschera
- **Notetakers:** Maurice Paul, Joy Lim, Richard Urizar, Irmak Yilmaz
- **Results Analysis:** Whole team

Location and Dates

- Testing was conducted over **3 days**, from Monday to Wednesday, at the **beginning of June 2022**.
- The sessions took place in the **big classroom at BTS**.

Equipment

- **Projector** and a **big whiteboard**
- **Highchair** for participant's ergonomics
- **Laptop** to show and control the prototype
- **Laptop** to read the script when needed
- Notetakers' **laptops**
- **Phone** to audio and video record in each session

Procedure

Write Script



Recruit Participants



Conduct Pilot



Conduct Tests



Analyse Results

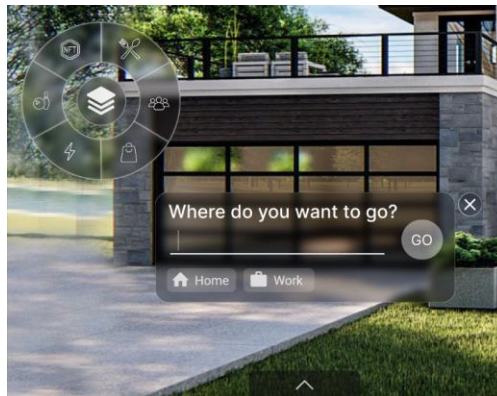


Write Report

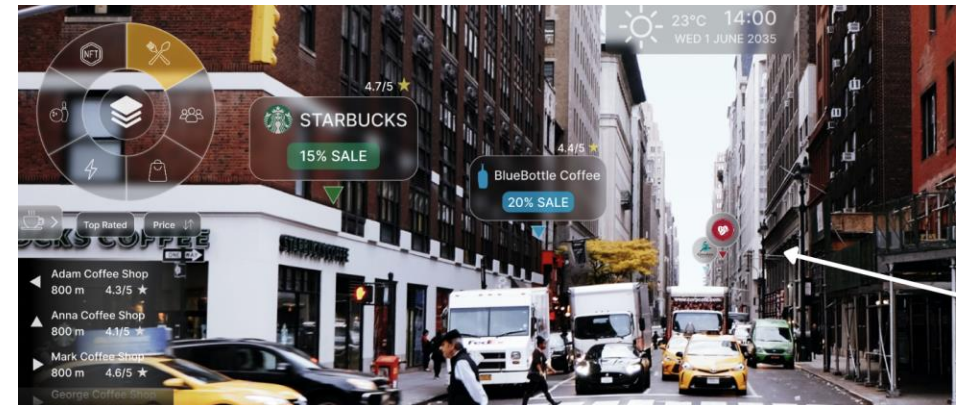
Key findings

- » The average usability score was 4.2 out of 5.
- » Some UI elements were not spotted right away:

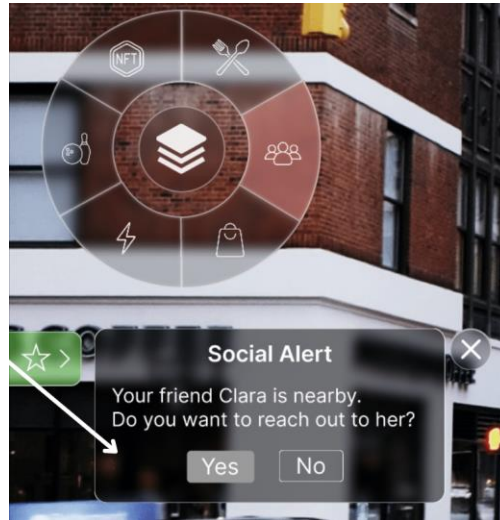
» The bottom menu was not visible enough.



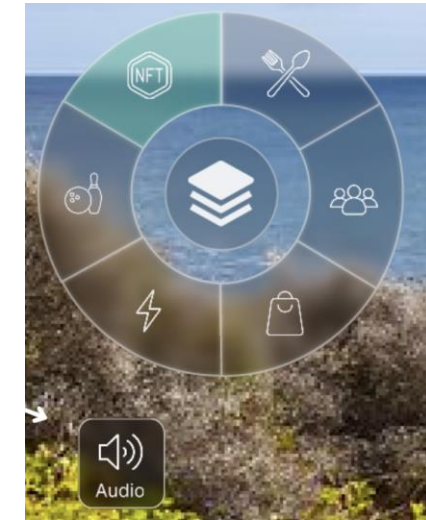
» Restaurant markers could be more clearly indicated.



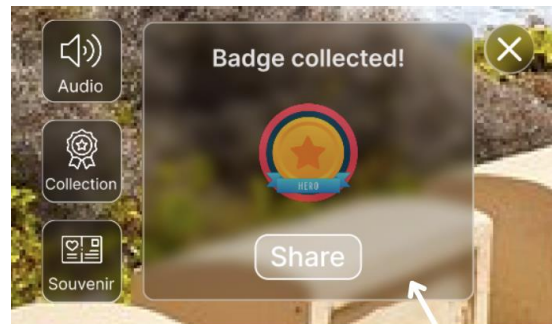
≡ Lack of clarity in some call to actions.



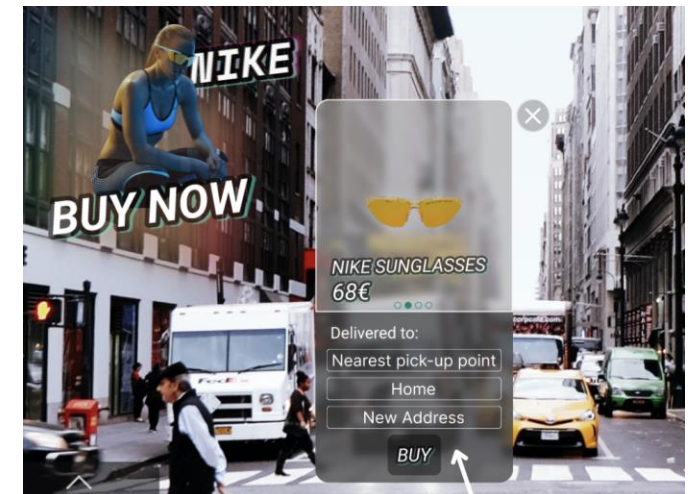
≡ Not all the wheel menu icons were understood right away by the users.



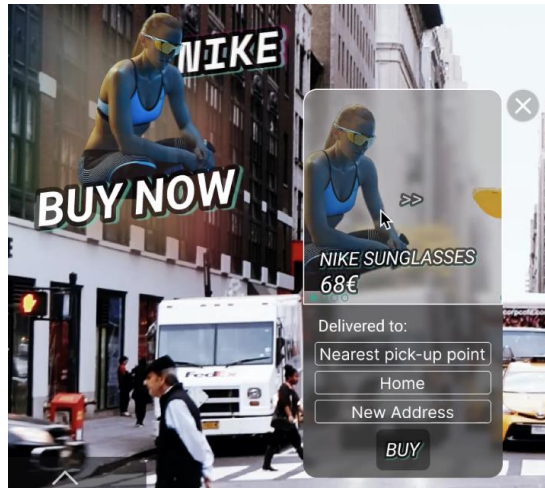
≡ Some information was missing to help to user to decide.



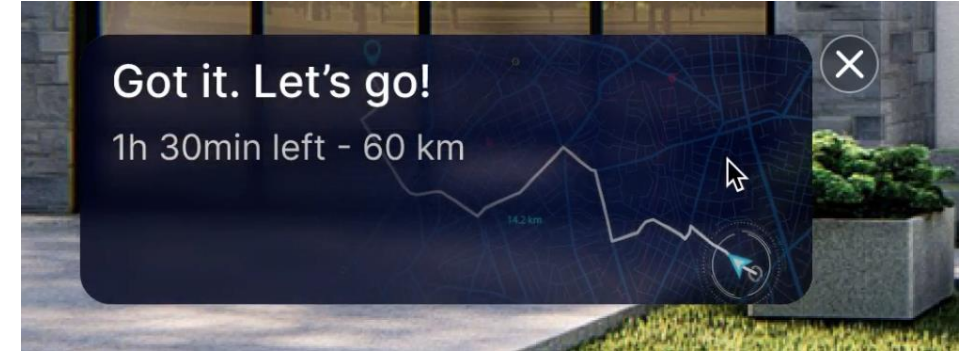
≡ Payment methods and pick up points for shopping were missing.



- Ad is stuck on the windshield once you tap on it.



- Lack of feedback when inputting by voice.



Other findings

- It was not clear to users how the social feature would function.
- Users would pay to not see AR ads anymore.
- Users would prefer targeted ads and content rather than random ones.
- Users' validation were overall positive.

Check out the Mid and High-Fidelity prototypes [here](#)

Conclusions

- » To make elements more visible or clickable, consider adding some sort of visual cue, like a glimpse.
- » Add labels below icons on the wheel menu.
- » Clarify what are the consequences of selecting a certain call to action. For example, in the social feature, instead of saying "reaching out to", be more specific by saying "video call", or provide different button options.
- » Specify payment methods when making a purchase, as well as the price where it is missing.
- » Make sharing options clearer.
- » Give feedback before leaving for the set destination.
- » Find another way to show that the product you are buying comes from the ad.
- » Rethink the social feature.



14. HUMAN FACTORS CONSIDERATIONS

14.1 Core Considerations

14.2 Inclusivity & Support Strategies



HUMAN FACTORS CONSIDERATION

14.1 CORE CONSIDERATIONS



OUR PRODUCT LOOKS AHEAD, INTO THE FUTURE.

Although companies have been working on similar projects, it is **still too early** to get **access to detailed and exhaustive guidelines** on how to design interfaces for in-car AR experiences while being mindful of the users.

Therefore, what we did was **create our own set of guidelines**, based not on a defined set of rules, but rather on **several different research papers on the topic**, as well as **established practices** from companies such as Apple for designing AR for devices like smartphone

First, it is important to clarify why we believe that AR is the most suitable medium to convey the user experience we want to deliver. There are three main reasons for this:

≡≡≡ **PASSENGER COMFORT**

For the sake of the **passenger's comfort**, we decided to **implement the AR technology on the windshields** of the car itself, rather than having it embedded into any external device or wearable.

≡≡≡ **TECHNOLOGICAL FEASIBILITY**

A portable AR headset has to pack in a whole lot of advanced technology to a relatively compact form factor, while a car, on the other hand, has **plenty of room to fit the various sensor suites and processors needed**. In terms of UX, we thus avoid underpowered (and underwhelming) AR experiences.

≡≡≡ **OVERCOMING EXISTING CHALLENGES WITH AR**

People do not move their head as much as they do wearing an AR headset. While it is true that a car can travel quickly, the direction does not change that often; this makes it **easier to overlay information in a smooth, controlled way** that can **pull up relevant, contextual information**.

AR DESIGN PRINCIPLES

To create an engaging and comfortable experience, we apply the following principles to our AR design:

Let passengers use the entire display

Employ audio and haptics for immersiveness

Minimise text in environment

We have applied these principles across the following categories:

- ≡ **Controls**
- ≡ **Object Interaction**
- ≡ **User Communication**
- ≡ **Content Display**
- ≡ **View Management**
- ≡ **Interaction Model**

Controls

- **Avoid cluttering the screen** with controls and information that diminish the immersive experience.
- **Consider using indirect controls** when you need to provide persistent controls. Indirect controls are 2D elements displayed in screen space, so users always have access to them.
- **Add necessary additional information or controls in screen space.** As it remains stationary while the underlying AR environment moves with the device (the car in our case), it is easy for the user to find it.
- **Consider using translucency** in an indirect control to help avoid blocking the underlying scene.

Object Interaction

- **Be mindful of people's comfort.** To help avoid causing fatigue, consider placing objects at a distance that reduces the need to make users move too much.
- **Enable people's occlusion.** If there are virtual objects placed behind people, enhance the illusion of reality by letting the people occlude the objects.
- Let people **use direct manipulation to interact with objects when possible.** It's more immersive and intuitive when people can interact with onscreen 3D objects by touching them directly, than by using indirect controls in screen space. However, we keep in mind that sometimes indirect controls can work better.
- Let people **directly interact with virtual objects** using **standard, familiar gestures.**

User Communication

- When displaying instructional text, **use approachable terminology**.
- In a three-dimensional context, **prefer 3D hints**. For example, placing a 3D rotation indicator around an object is more intuitive than displaying text-based instructions in a 2D overlay.
- **Make important text readable**. Use screen space to display text used for critical labels, annotations, and instructions.
- **Text in 3D spaces should face people** and **be the same type size** regardless of the distance between the text and the labelled object.
- If necessary, **provide a way to get more information**. Design a visual indicator to show people that they can tap for more information.

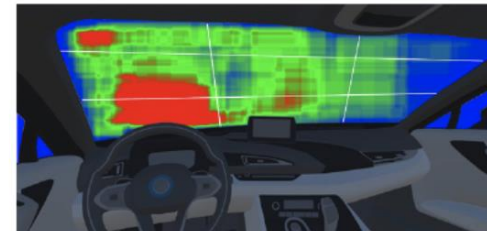
Content Display

- For our project, we plan to utilise both types of content: **screen fixed content** is mostly for controls and menus. The other type is for **variable content** that relies on the outside context.
- A study conducted on 63 participants provides indication about how to display the content in the windshield in level 3 and level 5 (L5) autonomous vehicles. From this study, relevant information for our project emerged (see next page).

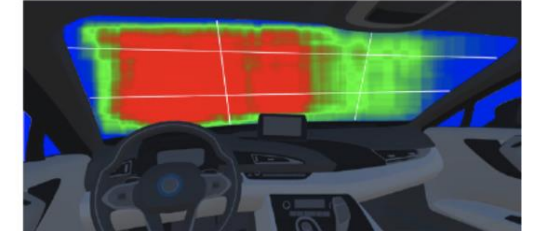
Content in L5 AVs

- While in L3 automation users still wanted more visual contact with the real world, in L5 automation **users placed the content all over the windshield, especially in their line of sight area.**
- In L5 automation, **users put less importance on warnings and vehicle-related dashboards.** Contrarily, entertainment, work-related, and social media content was valued more by the participants, with more than 80% of the total interaction space used.
- In L5 driving, not only warnings, also work-related, entertainment, and social media windows were **significantly larger than vehicle-related dashboards.**

- Even though people trust the vehicle, they still expressed their willingness to be aware of “what the system thinks”, therefore **warning messages still hold a certain relevance.**



(a) Level 3 heatmap.



(b) Level 5 heatmap.

Resulting heatmaps based on the aggregation of the individual content windows for level 3 and 5 automated driving scenarios.

View Management

- Approximately one-third of participants **wanted to utilise the same space on the WSD for multiple different contents**.
- Additionally, participants also stated that a separate section of the WSD for the front passenger would make sense. Therefore, **dynamic window management is highly preferred** as opposed to a static one where each space on the WSD is assigned a content type.
- Few participants mentioned that they **would like to utilise the side window** in addition to the windshield for customizable content.
- Participants strongly **preferred to place content on the driver side**, in order not having to rotate or tilt the head to see the content.

Interaction Model

- People find **more natural** to interact with such an interface mostly by **gestures** and **voice commands**.
- Further answers included already existing hardware interfaces, such as **rotary knobs** and **buttons/switches** on the steering wheel.

Other Considerations

- **Privacy.** While participants noted that for some content types privacy may not be an issue (e. g., watching a movie), work-related or social media content would be preferred to “invisible” to other passengers.
- **Contextual awareness.** Context aware systems could include users’ daily routines and adapt WSD contents according to their preferences.



HUMAN FACTORS CONSIDERATION

14.2 INCLUSIVITY AND SUPPORT STRATEGIES



WE GO BEYOND MERE ACCESSIBILITY.

We are aware of the **responsibility for the social impact** of the product we shaped. Negative, exclusionary, and discriminatory user experiences come in many forms, and **we want to avoid all these with beyond**. We are aiming to ensure that users are not excluded because of their abilities.

Therefore, we followed the **accessibility standards** and **best inclusivity AR practices** to intentionally guard against any risk of exclusion.

ACCESSIBILITY PRINCIPLES

Colours

- Especially for wind shields, we are giving a significant importance to the **contrast of our colours**.
- We followed W3C standards for setting the contrast to **make the content readable** not only for users with on healthy vision but also for those with **visual impairment and blindness**.

Focus States

- We used **indicators** such as **text labels** or **patterns** besides colours.

Focus States

- We used **focus indicators** for the people who are **blind** and **require screen readers**, individuals with limited mobility to make them understand what they selected

Markups

- We used **markups for the headers** and the content to make visual impaired people **use the screen readers efficiently** with our product.

WE GO BEYOND THE ZONES.

We followed the **new rules** for the **new worlds** for **inclusive design** so everyone can have the opportunity to create those strong **positive connections** **without fear of being harassed** or dealing with **unwelcome interactions**.

≡ **CONSIDER IDENTITY OF USERS**

- The impact of virtual harassment is that AR interactions can feel incredibly real.
- Especially for the aspects of metaverse, the socializing is an important core value for the product.
- We are aiming to give all people have complete ownership of their bodies and any interactions that should occur to them.

≡ **GIVE USERS AGENCY TO NAVIGATE NEW PLACES**

- » The most crucial part of designing safer virtual social places is to understand how people perceive appropriate behaviors in the real world.
- » To craft safety into virtual interactions, we built granular controls that are easy to access and surfaced before interactions begin. The users are asked if they want to interact or not.

≡ **SET EXPECTATIONS FOR ACCEPTABLE BEHAVIOURS**

- » To make virtual social places safer, we referred to how people behave in similar, real-world environments.
- » We considered universal rules and behavioral expectations for virtual violation and harassment.

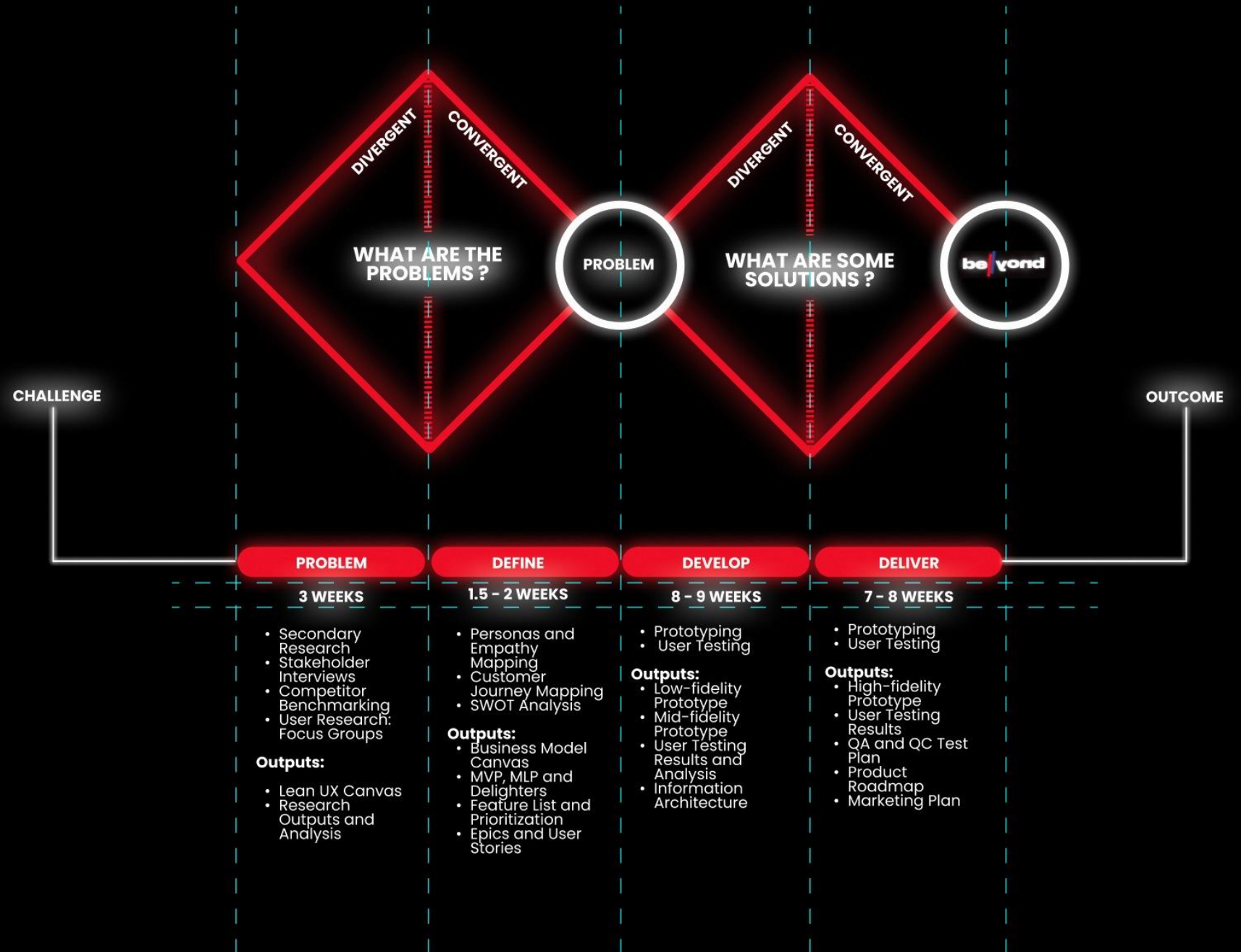
The background features a complex, abstract pattern of thin, wavy lines in red and blue, set against a solid black background. The lines are dense and layered, creating a sense of depth and movement, resembling a digital or data visualization.

15. UX PROCESS

DOUBLE DIAMOND

We adopted the Double Diamond framework to guide our design process and structure our project delivery.

It was instrumental in helping us understand our customer's perspective and verify, while working, whether our user's needs were being met.





16. PRODUCT ROADMAP

16.1 Where will we be 2, 5, 10 years from now?

16.2 Short-term Product Roadmap

16.3 Long-term Product Roadmap

16.4 Product Backlog

PRODUCT ROADMAP

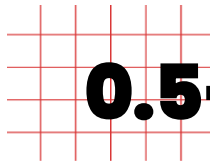
16.1 WHERE WILL WE BE 2, 5, 10 YEARS FROM NOW?

0–0.5 years

The past 6 months have been spent **conceptualising the right solution for the right problem**.

We did this by **following an iterative development process** after conducting comprehensive research and basing all design decisions on user feedback at each stage of prototyping. Through these efforts, we have **arrived at an MVP**.

Concurrently, we also **devised a digital marketing strategy** to build brand awareness through various online channels. As our offering is very novel, **continuous and concerted effort is critical** during these early years to **educate the public** about our product, as well as **generate interest** from potential customers.



0.5—2 years

In the following months, we will finalise and then **start to release our digital marketing campaigns in Europe**, which we have identified as our first target market. The aim is to **generate leads** and **cultivate the potential customer base** for our product when it launches. By **analysing the results of these campaigns**, we can then determine if our strategy needs to be adapted.

Meanwhile, we will also be working on **establishing strategic partnerships**, so that we can leverage on their assets to avoid having to manufacture all the components in-house. Once our key partners are finalised, our **MVP will go into production** and be **launched by the end of year 2**.





2–5 years

In the near future, **following the initial launch of our product**, we will focus on **improving our product** based on customer feedback and **adopting any relevant technological advancements**. As part of our product backlog, we would also be **actively adding on features** that did not make it into the MVP in **subsequent releases**.

During this time, we should be **generating revenue from our first paying customers**. We would seek to expand this revenue base by **launching our product in other markets with high potential**, such as the United States, China and Japan, to name a few. **Localised marketing campaigns** would be designed and realised in order of priority.



5–10 years

In the long term, we aim to **have our reach expanded globally**, with **our product available worldwide**, wherever Porsche cars are also sold.

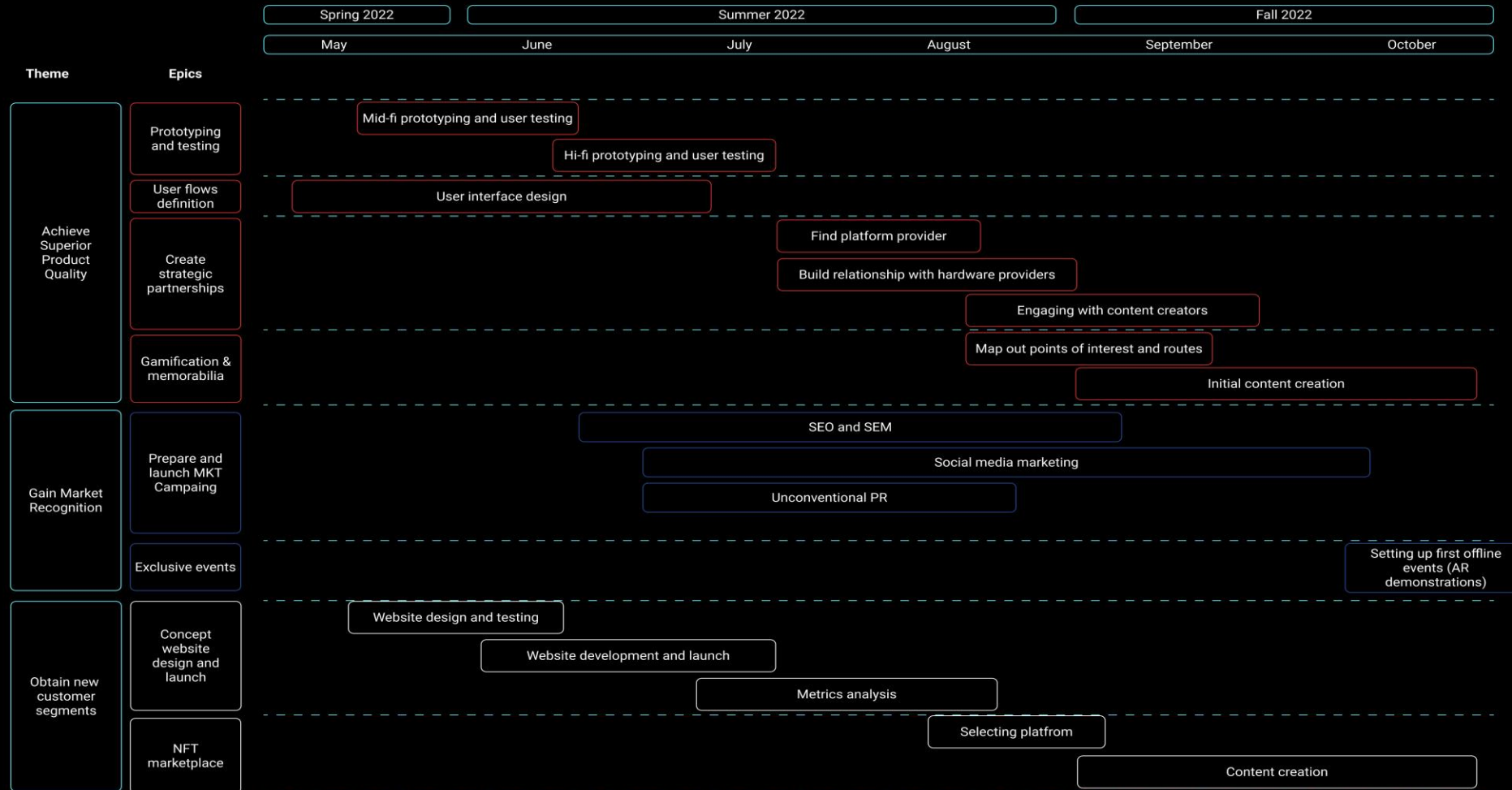
As Porsche Digital is our first strategic partner, **our product would first be launched in Porsche cars**. However, we would want to make the use of this technology more widespread by **partnering with other car brands** as well, such as BMW or Mercedes, and having it integrated with their autonomous car models. This would not only enable us to **increase our bottom-line**, but also **enhance the overall experience for our customers**. The widespread availability of our technology would translate to more users, which would in turn incentivise more content creators to join the platform, creating a richer catalogue for our customers to enjoy.

Lastly, at this juncture, we should have either **implemented all the features** that were identified during the product development phase that did not make it into the MVP or **scrapped those that had become redundant**.

Hence, we would be in a good position to **focus our efforts on continuous user research**, to not only **improve on what we already have**, but also to **identify additional features that could be added** into our product backlog to delight our customers. As the core technology powering our product should be stable at this point, we would be well-poised to explore the new possibilities that we can offer to our new and existing customers.

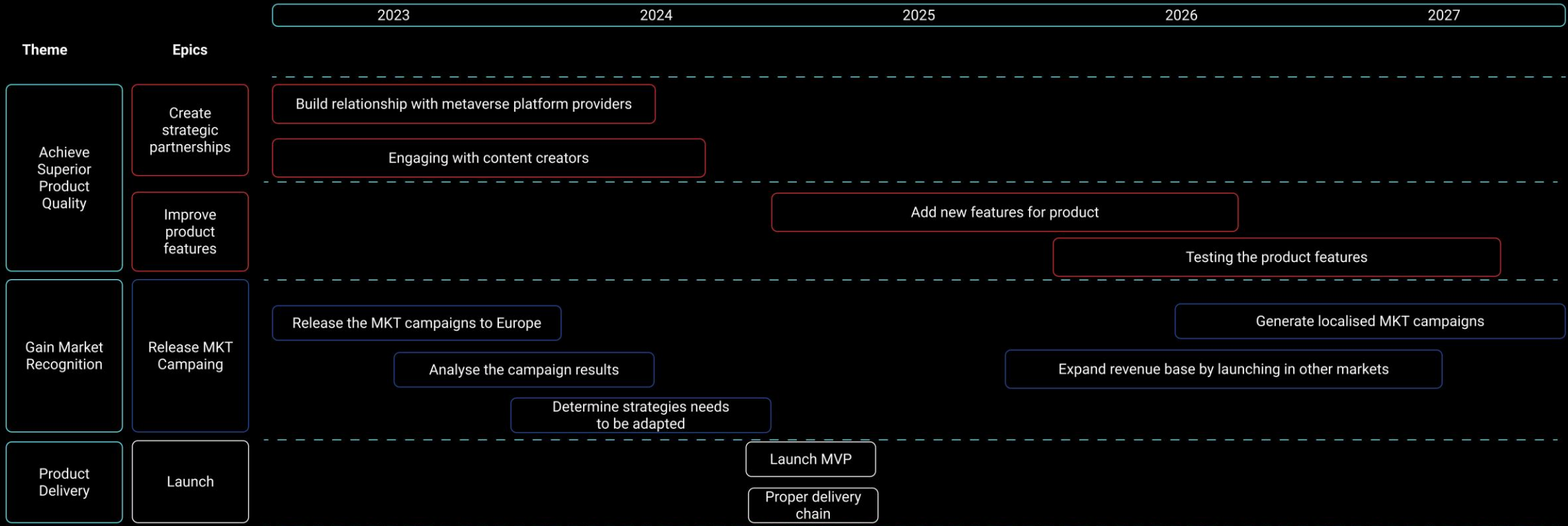
PRODUCT ROADMAP

16.2 SHORT-TERM PRODUCT ROADMAP



PRODUCT ROADMAP

16.3 LONG-TERM PRODUCT ROADMAP



PRODUCT ROADMAP

16.4 PRODUCT BACKLOG

		Spring 2022	Summer 2022			Fall 2022	
		May	June	July	August	September	October
Theme	Epics						
Achieve Superior Product Quality	Prototyping and testing	<p>TASKS</p> <ul style="list-style-type: none"> • Complete mid-fidelity prototyping. • Conduct user testing for mid-fidelity prototyping. • Analyze feedback and list the findings. • Create high fidelity prototyping. • Conduct user testing for high fidelity prototyping. • Analyze the feedback and list the findings. • Implement 					
	User flows definition	<p>TASKS</p> <ul style="list-style-type: none"> • Sketch out wireframes for the primary use case of the product • Test with users • Mid-fidelity prototype • Testing • High-Fidelity prototype • Testing 					
	Create strategic partnerships	<p>TASKS</p> <ul style="list-style-type: none"> • Identify platform to use • Outline hardware components • Outsource software and hardware creation • Recruiting content creators and building relationship with them 					
	Gamification & memorabilia	<p>TASKS</p> <ul style="list-style-type: none"> • Identify where the NFT monuments will be placed • Design monuments (content creators) • Design badges for user's collection • Integration between digital wallet and other social media platforms 					

Spring 2022 Summer 2022 Fall 2022

May June July August September October

Theme	Epics	
Gain Market Recognition	Prepare and launch MKT Campaing	<p>TASKS</p> <ul style="list-style-type: none"> • Find and organize keywords. • Optimize the landing page. • Create content for instagram. • Create content for youtube. • Partnership with influencers. • Unconventional PR ideation. • Unconventional PR creation and launch.
	Exclusive events	<p>TASKS</p> <ul style="list-style-type: none"> • Define offline events strategy. • Look for upcoming events around Europe.
Obtain new customer segments	Concept website design and launch	<p>TASKS</p> <ul style="list-style-type: none"> • Sketch out wireframes • Organize content. • Design UI • Develop website • Launch • Connect to Google Analytics to analyse user's reaction
	NFT marketplace	<p>TASKS</p> <ul style="list-style-type: none"> • Identify platform • Define logic of NFT in-car purchase • Keep content creators engaged



17. ANNEX

ANNEX

OPERATING COST ESTIMATES

Staff	Role	Base Salary	Additional Costs*	Annual Cost
1	CEO	€80,000.00	1.25	€100,000.00
2	CTO	€60,000.00	1.25	€75,000.00
3	Software Engineer	€40,000.00	1.25	€50,000.00
4	Web Developer	€40,000.00	1.25	€50,000.00
5	Graphic Designer	€30,000.00	1.25	€37,500.00
6	CFO	€50,000.00	1.25	€62,500.00
7	Finance Team Member 1	€30,000.00	1.25	€37,500.00
8	Finance Team Member 2	€30,000.00	1.25	€37,500.00
9	Marketing & Sales Lead	€50,000.00	1.25	€62,500.00
10	Marketer 1	€30,000.00	1.25	€37,500.00
11	Marketer 2	€30,000.00	1.25	€37,500.00
12	Sales Executive	€30,000.00	1.25	€37,500.00
13	UX Lead	€50,000.00	1.25	€62,500.00
14	UX Designer 1	€30,000.00	1.25	€37,500.00
15	UX Designer 2	€30,000.00	1.25	€37,500.00
16	HR Executive	€30,000.00	1.25	€37,500.00
Total				€800,000.00

Expenses	Item	Price/ Month	Units Required	Annual Cost
	Workspace Rental	€450.00	16	€86,400.00
	Marketing	€10,000.00	1	€120,000.00

One-time Cost	Item	Price	Units Required	Annual Cost
	Macbook (14')	€2,249.00	16	€35,984.00

*Additional Costs = Insurance + Bonuses + Others



THE END