AI boosted User Experiences for Polestar

Ben Perk
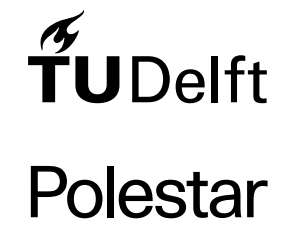Master Thesis
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Polestar

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Experiences for Polestar

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Master Thesis

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Master Thesis
by Ben Perk

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Executive summary

This thesis explores the strategic application of Artificial Intelligence (AI) in enhancing user experience (UX) within the automotive sector, specifically for Polestar, a luxury electric car manufacturer renowned for its design-driven approach. The primary aim is to identify meaningful, innovative, and strategic UX opportunities powered by AI, to reinforce Polestar's distinctive market position and enhance user value.

This thesis makes four contributions aiming to help Polestar's UX team to navigate an AI-centered future: A Future Vision that is grounded in user values, a Tool for Ideation in form of a Card Deck and Concept generation, three Opportunity Tracks which Polestar should prioritize and a Strategic Roadmap integrating findings and proposing design modules for these areas.

The research adopted an exploratory and strategic design approach structured through a double diamond methodology, incorporating expert interviews, technology scouting, trend analysis, and co-design workshops. Key findings emphasize the necessity for AI-driven experiences to be context-aware and trustworthy as a basis, but also need to be aimed at increasing the joy of driving and time spent in the car, in order to align with Polestar's performance-driven identity, and customer preferences.

Three Opportunity Tracks for R&D developments were identified:
1. Contextual Zone: Enhances in-car productivity and convenience, using AI to enable seamless and intuitive interactions comparable to those on personal devices.
2. Get to Know Each Other: Provides an immersive, personalized onboarding experience, beginning from the moment of purchase, facilitating deeper user engagement and satisfaction.
3. Confusion Remover: Utilizes proactive, AI-driven assistance to reduce common driving pain points and enhance overall driving pleasure and safety.

A Strategic Roadmap outlines these opportunities in design modules across three implementation horizons, emphasizing progressive integration and alignment with user values such as transparency, driving enjoyment, and maximizing time spent in Polestar vehicles. This work offers Polestar a strategic reference point for future AI integration, enabling strategic innovation and reinforcing the brand's unique value proposition in an increasingly software and AI-centric automotive market.

Abbreviations

ADAS   Advanced Driving Assistance System
AI   Artificial Intelligence
AR   Argumented Reality
CSD   Center Stack Display (Infotainment Screen)
DIM   Driver Information Module (Dashboard)
GenAI   Generative Artificial Intelligence
GenUI   Generative User Interface
HUD   Head up Display
LLM   Large Language Model
OTA   Over the Air Update
SDV   Software Defined Vehicle

01

Project Introduction

In this chapter the project is introduced, providing the context and scope, design approach and an overview over the four project outcomes.

01.01. Project Context

Artificial Intelligence (AI) is reshaping all technological sectors and the automotive industry is not an exception. AI is enabling smarter, more connected cars that respond to real-time data and enhance the experiences of users on many levels: driving, safety, efficiency, onboard life, daily routines and needs, and the user interaction with the in-car systems. But this is just the beginning of the revolution towards the future of mobility driven by electrification, software-defined vehicles and deeper integration of AI into the products.

The blend of users' digital and real-world lives are transforming how users perceive and use technology. Cars are becoming one more device of users' smart ecosystems where the differentiation by added value is key to stand out in the market, and for a successful adoption. As a luxury design brand, Polestar products are appreciated by the pleasures they bring and how they make our users feel. Designing for meaningful user experiences with our products is at the very core of our business.

"The electric-vehicle market is going through its biggest change yet, and it's not pretty"

(Naughton, 2024)

01.02. Project Objective & Scope

The original brief at the beginning of the project looked as follows:
In this thesis project, I will explore UX design opportunities for experiences with the car and beyond, with AI as a tool to create something new, even disruptive, meaningful, and loaded with the Polestar DNA. I want to approach user experiences holistically and focus on the value of the ideas over creating the ultimate gimmick or a gazillion of AI features just because It's possible. My role and project will help the UX Design team to improve its research bandwidth and get inspired with new ideas and define how they should approach upcoming ai related design projects in the future. In this sense, adding unique value for Polestar users is more important than a finished product.

The initial company briefing was expanded upon my request to include a strategic component, to fit my SPD master graduation. The revised brief handed in at TU Delft looks as follows: Explore opportunities for AI powered user experience concepts in order to create strategic value for Polestars UX team and its Customers.

Project Scope:

Polestar: This thesis is written in collaboration with and for Polestar. The project outcomes are designed to support and provide value for Polestar as a brand, and its customers.

Exploratory nature: In this project adding unique value for Polestar and its customers is more important than a finished product, as such Opportunity Tracks were identified and highlighted, in an early stage of exploration.

These should be understood as recommendations for further research, not finalized UX concepts.

Strategic approach: The project and its outcomes are aimed to guide Polestar in a strategic way, enabling the UX team to use it as a reference and starting point, and using it for communication with external and internal stakeholders.

The target Group UX Team:

In this project Ideas are generated, explored and mapped with the intention of supporting the UX team. The UX team decides which features to order from Polestar's suppliers, conducts research on new User Experiences and translates Geely-Group technology towards being a Polestar experience. As they have not worked on AI related projects before, this project is meant to guide them and provide a starting point to further explore and prioritization.

Supervision:

This project was supervised and guided by Antonio Cobaleda Cordero, Polestars UX Research Lead, who defined and lead the project from Polestar side. Project outcomes were adjusted to match the strategic nature of the SPD Master from TU Delft.

01.03. Personal Motivation

My motivation for this thesis stems from the combination of a compelling project brief and the opportunity to collaborate with an inspiring partner company. Polestar, a brand renowned within the design community and one I have followed for years, presents an ideal environment for me to both contribute meaningfully and grow

professionally. The project's focus on artificial intelligence – an area where new developments arise almost daily – adds an extra layer of excitement. The key challenge of developing a long-term, sustainable AI strategy for Polestar, while ensuring clear user value, aligns strongly with my interests.

I was particularly motivated by the fact that the thesis brief was authored by a design team. This design-driven approach, with its emphasis on value creation, created a natural entry point for my own exploration. As a Strategic Product Design (SPD) student, I am drawn to complex, multi-stakeholder contexts where design can play a strategic role in navigating an uncertain future. Additionally, my academic background in UX and Interaction Design during my bachelor's studies provides a foundation I aim to build upon. This thesis offers the opportunity to merge these two educational paths, strategic design and user experience – into a cohesive UX strategy.

Finally, the automotive sector itself is interesting to me. It represents a unique intersection of physical and digital experiences, and it is undergoing a huge transformative shift. I find this convergence of design, technology, and systemic change to be an exciting space in which to work and innovate, especially after experiencing the new and technologically advanced Chinese car brands on my recent exchange to Shanghai, which build cars vastly different from traditional, European manufacturers.

01.04. Design Approach

In a broad sense the double diamond was chosen for this thesis due to its explorative nature, with different activities being chosen for each of the stages, building towards my set of project outcomes.

"A future vision is a desired future, a strategic reference point, a guide for decision making." (Simonse 2024)

Discover

The goal in the discovery phase was to understand Polestar as a brand (context), its users, and the technology field of AI. I conducted expert interviews to get to know my client (the UX team), as well as to get insights into the brand DNA and history. Data from marketing and sales was used to build personas that represent current customers, and targeted customers. Then technology scouting on the field of AI, and the field of AI in automotive were conducted, as well as a creative trend research on AI experiences and AI in automotive. I also explored GenUI Systems and other AI technologies, to learn the affordances this technology offers for design. This functioned as a broad exploration and foundation for the project, which let me set a first focus.

Define

The goal of the define phase was to synthesise the findings from the discover phase into a Future Vision, which was created through a value mapping workshop with the team. Insights were generated from the technology scouting and trend clusters from the trend research. With this foundation in combination with the personas was used to build a value driven future vision, which concluded this stage.

Develop

In this phase a card deck for the structured exploration of the design space was developed, and with it concepts were generated in an iterative process. These concepts were then evaluated, clustered and three Opportunity Tracks identified. One of these Opportunity Tracks was explored further through codesign sessions with early adopters, with the intention of identifying real use cases and value scenarios for this concept.

Deliver

A strategic roadmap was developed, outlining value drivers, trends and technology over three horizons, towards the future vision. The generated concepts were mapped as design modules along these three horizons of the roadmap, and a video was created to communicate the value the opportunity areas can give to polestar and its customers.
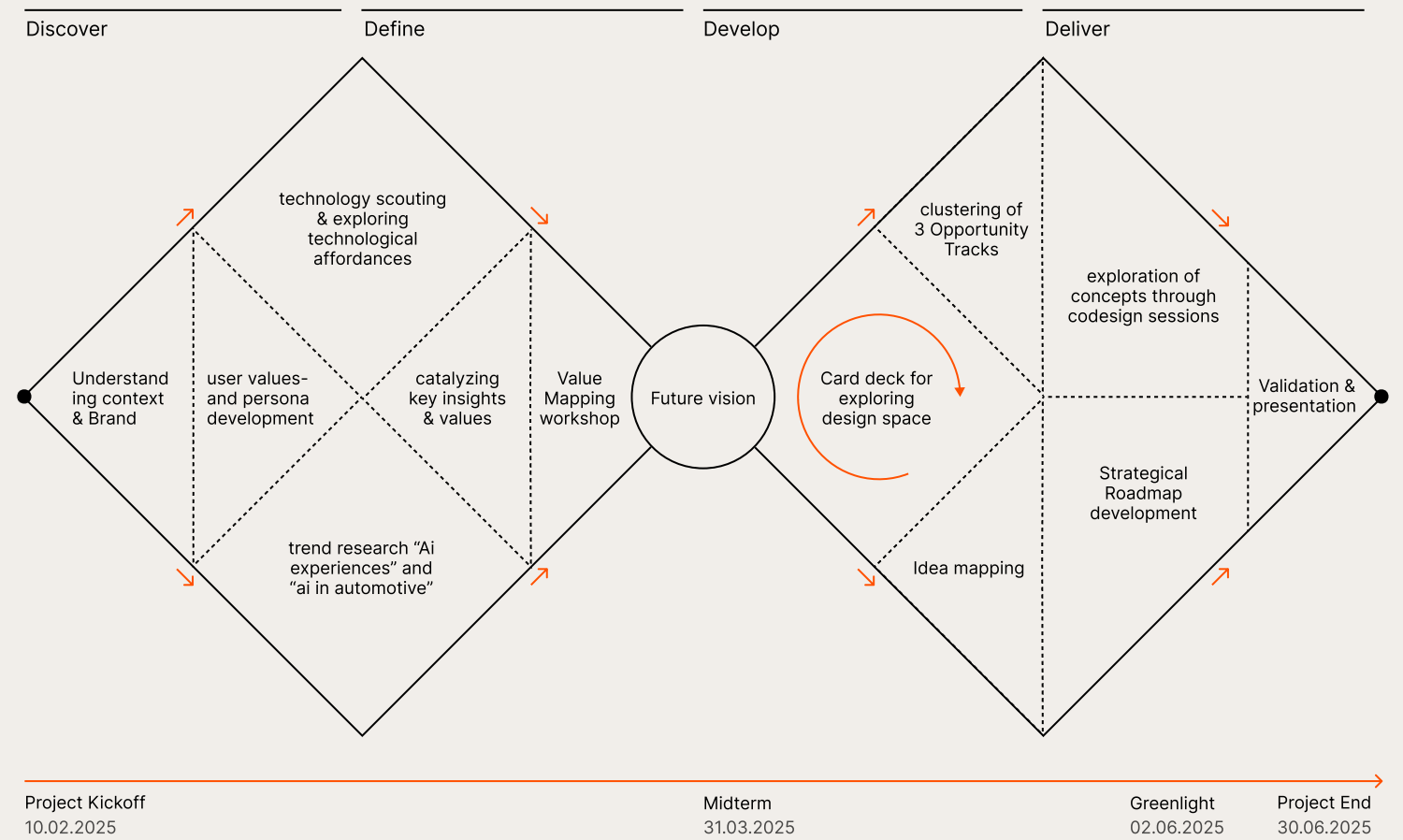
01 Future Vision

Grounding Polestars direction in user values.
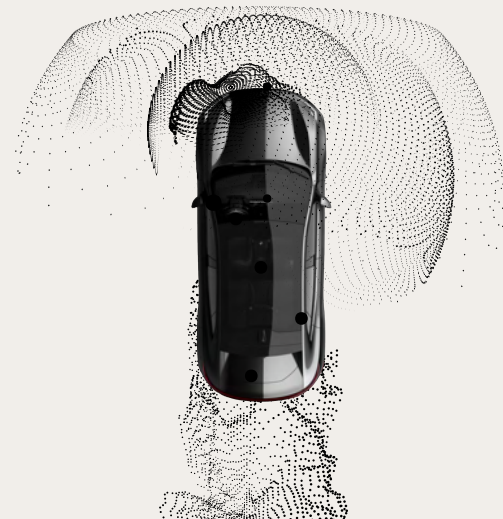
02 Card Deck

A tool for Ideation in a structured and tangible way.

Sensor / input

Actuator / Touchpoint

Action / AI Behavior

Driving Scenario

UX Goal

Interaction Style

04 Roadmap

Mapping the findings across three horizons towards the Future Vision.

01 02 03

03 Opportunity Tracks

Three tracks to prioritize with R&D projects for Polestar AI experiences.
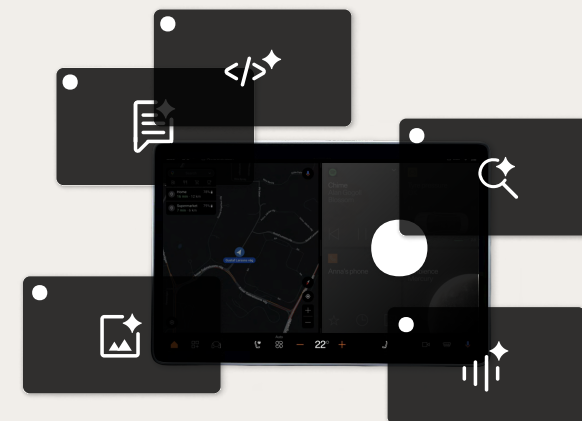
01.05. Set of four Project Outcomes

This project concludes with four outcomes, which function as building blocks of this project. The thesis started with research about the brand, where expert interviews were conducted to develop criteria for brand fit. Personas were developed to analyze the user values of current and future customers. Then technology scouting and creative trend research were used to collect insights about the context. These insights were then used together with brand and user values to develop the Future Vision through a value mapping workshop.

In the second half a design space card deck after Lomas et al. (2021) was developed as a tool for Ideation activities following up on the Future Vision. This was then followed by a codesign activity – which lead to the identification of three opportunity tracks of AI boosted user experiences Polestar should prioritize and start R&D projects on.

All project findings were then mapped in a strategic roadmap, combining value drivers, technology scouting and trends with design modules for the three identified opportunity tracks, scaling throughout the horizons. The resulting roadmap can be used as a strategic reference for internal and external communication, moving Polestar from a reactive stance on AI to a more proactive one.

02 Brand and Company Analysis

To design a successful UX strategy for Polestar it is crucial
to develop a understanding for the brand and company, get
to know the team and develop design criteria for brand fit.

We are determined to build the
best electric performance cars.

Our focus is on uncompromised
design and innovation, with the
ambition to accelerate the
change towards a sustainable,
electric future.

We are Scandinavian.
Our passion is design, and creating
desirable cars for people seeking
pure, progressive, performance.
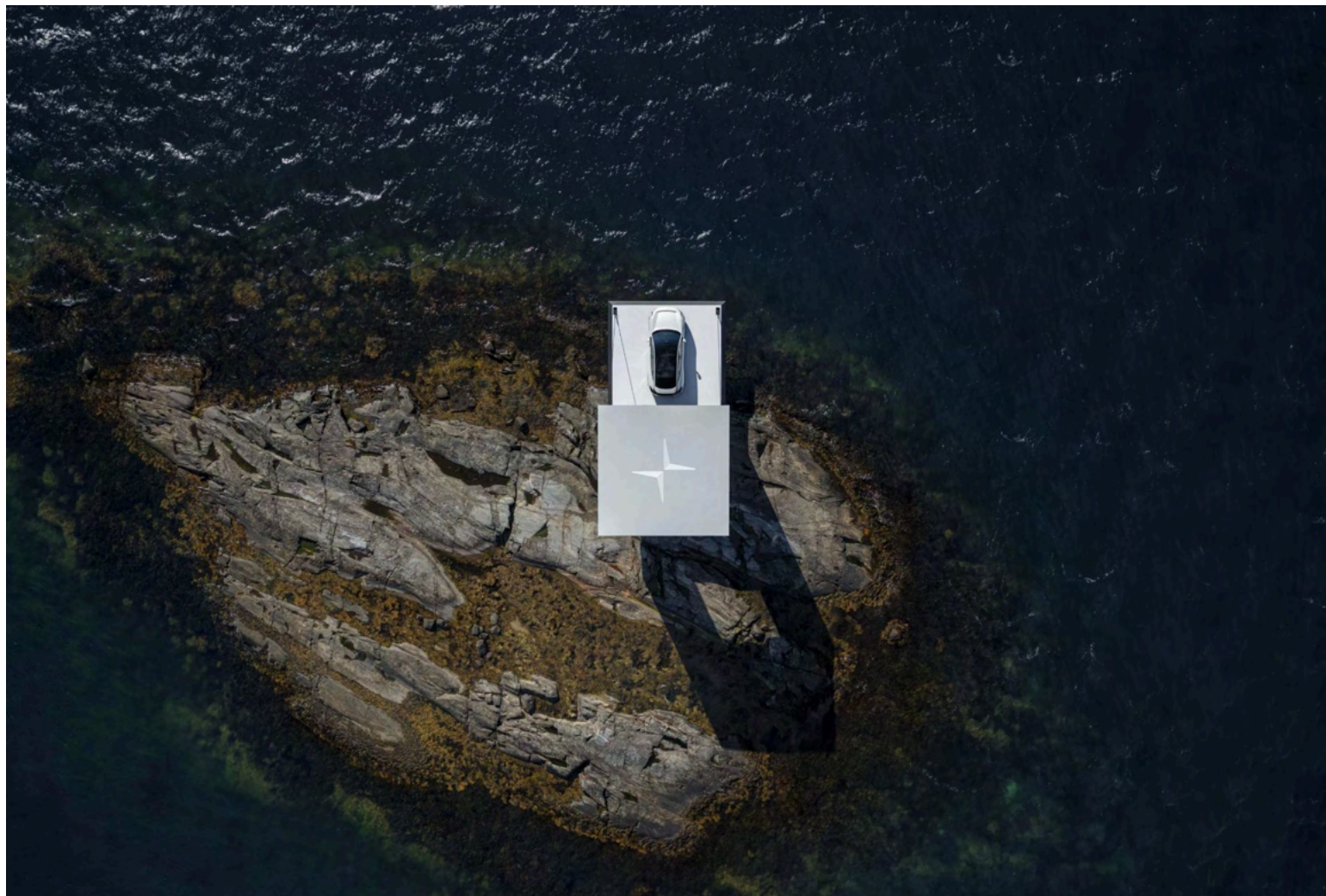
02.01. Company

With Polestar's USP in a crowded market being
its strong and distinct brand, understanding the
company structure and its brand DNA first was a
key foundation for me in this project.

About the brand:
Polestar is an electric car manufacturer from
Sweden. As a brand it is highly design and
technology focussed and a young brand.

Polestar is a Swedish electric performance car
brand determined to improve society by using
design and technology to accelerate the shift to
sustainable mobility. Headquartered in
Gothenburg, Sweden, its cars are available
online in 27 markets globally across North
America, Europe and Asia Pacific.

Polestar plans to have a line-up of four
performance EVs by 2026. Polestar 2, the
electric performance fastback, launched in 2019.
Polestar 3, the SUV for the electric age,
launched in late 2022. Polestar 4, the SUV
coupé, launched in 2024. Polestar 5, an electric
four-door GT is coming 2025.

Polestar also pursues a ambitious sustainability
strategy with their Polestar 0 project that
represents the company's ambitious goal of
creating a truly climate-neutral production car by
2030. The research initiative also aims to create
a sense of urgency to act on the climate crisis,
by challenging employees, suppliers and the
wider automotive industry, to drive towards zero.

Google
tech-partner & software platform

External

Polestar
Brand, Sales & performance technology

GEELY
EV-Technology, procurement

VOLVO
Service Infrastructure, safety heritage
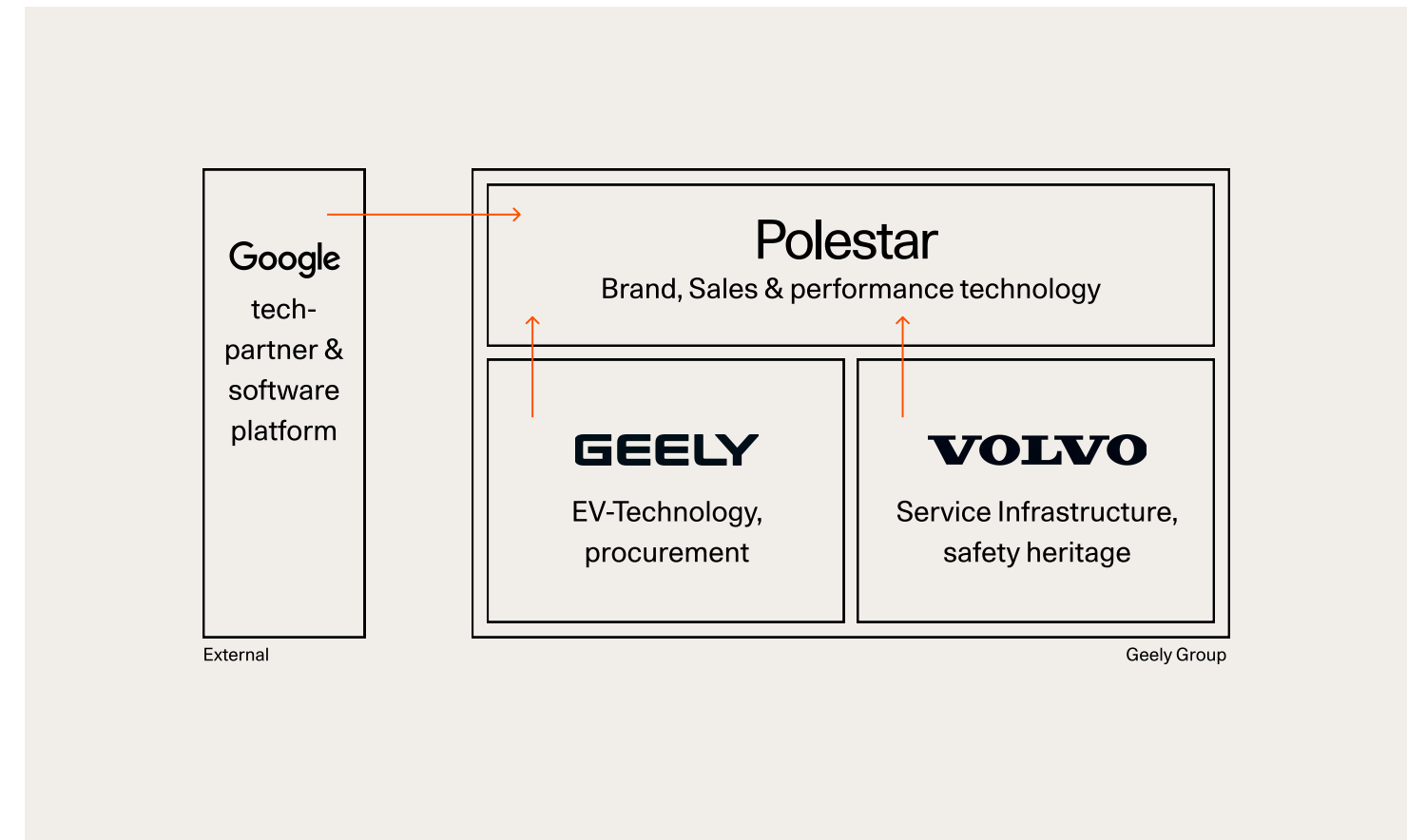
Geely Group

Polestar was born as a startup, therefore the company is still relatively small, roughly 2300 (About Polestar | PoleStar, n.d.) It is a sub-brand of the Geely Group, in close connection to Volvo. Cars are built on top of technology from these Partners, and collaboration is strong. In the context of this project, Polestar Cars run on Android Automotive OS, being connected closely to the Google-Ecosystem, with platform technology varying per model.

My Team:
For this Thesis I am working in Polestar's UI/UX design team, which is operating in the company's headquarters in Gothenburg, Sweden. Particularly I am working under the guidance of Antonio Cobaleda Cordero, who is Polestar's UX research Lead. Within the UX/UI team in Sweden there are 8 core members plus an extended team in Sweden and India, In Sweden they mostly focus on vision, concepts and a part of the production, whereas in India it is production focussed.

02.2. Brand analysis

In the automotive industry branding is one of the key factors in differentiation from the customer side (Li et al., 2021) and as a result one of the most important criteria for developing my design solution and vision. Every design solution needs to be aligned with Polestar's brand and brand values, in order to provide value for not only users but also the company.

To better understand and develop these criteria 10 interviews with Polestar employees (8 designers, 1 R&D and the UX attribute manager) were conducted, with some of the participants having been in Polestar since day 1 and were involved in shaping brand and product identity. Each interview was set up for 1 hour, and followed the same interview guide.

Goal of these interviews was for me to develop the criteria for "brand fit", which was used to evaluate and prioritize the generated concepts, inform the future vision and validate the final outcomes. This was crucial to creating a Vision and Roadmap that helps Polestar to maintain their USP in a future where every car manufacturer will have AI integration. In addition it also served as a get to know for the team, which essentially functioned as the "client" in this project, as solutions were designed with the intention of helping them. And third the participants were also invited to participate in my value mapping session.

Over a course of two weeks the interviews were completed and evaluated using affinity mapping to generate insights. Following up on these interviews, the criteria for brand fit were created based on the resulting insights.

01	UX Designer
02	UX Design Project Lead
03	UX Design Manager
04	Product Identity
05	UX Researcher
06	UX Research Lead
07	Concept Lead
08	Art Director Brand
09	Innovation lead
10	Head of UX

Table of Participants position within Polestar

01 Core Brand Identity & Personality
- Polestar is a premium, design-driven brand, combining Scandinavian minimalism with performance and tech.
- Feels more bold and daring than Volvo, not trying to please everyone.
- Should evoke passion, excitement, and uniqueness – not generalist or utilitarian.
- "If Apple and Porsche had a baby" – strong emphasis on quality hardware/software integration.

02 Emotional & Sensory Experience
- Should feel refined, simple, exciting, with a clear sense of driving pleasure
- Experiences should make the driver feel in control, not managed or entertained.
- No "nannying," minimal intrusive alerts, and avoid beeps or distractions.

03 Design Language & Visual Style
- UI and physical design must be bold, precise, timeless, sober.
- Strict typography, minimal color, no gradients, no unnecessary animations.
- Simplification of advanced technology is key – it should appear simpler than it is.

04 Scandinavian Values
- Emphasis on sustainability, honesty, and technical purity.
- "Lagom" – the Swedish idea of "just right": nothing too flashy, nothing over the top.

05 UX Principles
- UX should be seamless, fast, and contextual, respecting the driver's time and attention
- Should work without thinking - for example there is no "on" button, you can just go
- Prefer predictive, non-intrusive AI that quietly supports driving – no gimmicks.
- Holistic UX view: not just screens, but whole experience, interaction, and feel of driving.

06 Attitude Toward AI of interviewees
- Divided views: mostly skeptical of overuse or "gimmicky" AI.
- Support for contextual, useful AI (e.g., suggest a charging station with your favorite coffee nearby).
- AI should support human decisions, never overshadow them.

7. Team Culture & Brand Evolution
- Teams describe the company as fast-moving, non-hierarchical, and cross-functional.
- Brand DNA is considered collectively shaped, through discussion and shared understanding.
  - Some concern about brand dilution – maintain identity even when scaling.

02.03. Design Criteria "Brand"

Based on the research and interviews five design criteria were developed for evaluating the Brand Fit with Polestar.

01 — Emotional Alignment (progressive)

Does the concept evoke excitement, sophistication, or desire? Does it feel distinctive and passionate, not generic or utilitarian?

02 — Driving Experience Centered (performance)

Does the feature enhance the core driving experience? Is it non-intrusive, assumes a competent driver, and avoids distraction?

03 — Scandinavian Design Ethos (pure)

Is the design minimal, refined, and balanced ("lagom")? Does it embody technical clarity, not decorative or flashy?

04 — Simplicity of Advanced Technology

Is complex tech simplified into a clean, intuitive interface? Does it feel effortless and natural, not like "tech for tech's sake"?

05 — Honesty

Is the concept authentic and transparent in its intent and function? Does it not try to hide anything from the user?

03

User Values

Innovations succeed only when closely aligned with users' wishes, desires, and needs (Simonse, 2024). Therefore it is crucial to define personas and user values for this project.

03.01. Persona Development

"In design roadmapping, user values are central because innovations succeed only when closely aligned with users' wishes, desires, and needs. A future vision grounded in these values ensures innovations are embraced and achieve critical mass acceptance, driving their success and sustainability over time" (Simonse, 2024).

From Marketing- and Sales data I received from Polestar, I developed two future personas, that represent future customers of Polestar and will be used for my workshop, to inform the future vision and value drivers in the horizons of the roadmap.

The first persona is Andreas, he represents the current Polestar customers, and customers in the near future. He is based on the Sales data I received, which illustrates who is actually purchasing Polestars at the moment, and the majority of Polestar customers and drivers in the European market. He is older, high income and has a more conservative approach to technology. He is switching to Polestar from a Combustion engine car, and doesn't feel like he needs more technology in his life. He is more performance oriented and driving experience centric. Many of Polestar's current customers fall in this category. In a roadmap he would be the customer in the first horizon.

From the marketing team I received data on their target audience, targeted mindset and customer segmentation. From this data I build the second persona Elena, which represents the User they Wish to capture better in the future.

Elena, can be understood as a representation of Polestar's target customers, and the customer it is marketing towards. She is younger, already drives a EV and more tech savvy and fashionable. She values the design and technology in Polestar, as it is closest to the UX of her phone. In a roadmap she would be the third horizon of the roadmap, and is a group that polestar wants to expand in, especially being a younger demographic that can afford a Polestar

Both of these Personas are high income, and drive cars mostly through their companies as business/leased cars. Notably there is an absence of sustainability in their values, which still is an important part of Polestar's brand identity, but not a primary purchase reason for both of them.

Andreas Keller

Known for his thoughtful, analytical nature, Andreas prioritizes reliability and simplicity, both professionally and personally. Transitioned to Polestar from a combustion car.

Demographics	Age: 55
	Occupation: Financial Advisor
	Location: Munich, Germany
	Married, 2 Children

Personality
- Analytical
- Trustworthy
- Pragmatic
- Detail Oriented
- Reserved

Apps & Services
- FAZ (News)
- Podcasts
- Whatsapp (Family Groupchat)

Hobbies
- Going skiing in the Alps
- Working in the Garden on weekends

Values
- Reliability and long-term quality
- Minimal technological interference
- Data privacy and security
- Authentic driving experience
- Simplicity in life

Frustrations
- Overly complicated user interfaces and intrusive digital technology
- Concerns about inadequate transparency from companies regarding data privacy, security, and personal information usage.
- Doesn't want his work life to intervene his free time

Goals
- To maintain a clear separation between technology that enhances convenience and technology that unnecessarily complicates life
- To safeguard his and his family's personal data and digital identity
- To keep a balance in life between work and personal time. Enjoying his free time and weekends.

"Technology should simplify life, not complicate it. I don't need all of these functions.

(Rigny, 2023)

Elena Rossi

Passionate about technology, she continually seeks innovations to streamline her busy professional and social life. Recently moved to Polestar from another electric car.

Demographics
Age: 36
Occupation: IT Consultant
Location: Milan, Italy
In Relationship

Personality
- Tech Savvy
- Ambitious
- Independent
- Forward thinking
- Environmentally conscious

Apps & Services
- LinkedIn
- Google Home/Nest
- Booking.com
- Spotify
- Evernote

Hobbies
- Going out for local culture and food
- Traveling
- Engages in Milans social scene

Values
- Personal growth and continuous learning
- Independence and self-sufficiency
- Sustainability and responsibility
- Simplicity and elegance in design

Frustrations
- Wanting to do everything at the same time
- Scheduling her busy life
- Devices that require excessive manual interaction or fail to integrate smoothly into her lifestyle.

Goals
- To maintain a clear separation between technology that enhances convenience and technology that unnecessarily complicates life
- To safeguard his and his family's personal data and digital identity
- To keep a balance in life between work and personal time. Enjoying his free time and weekends.

" A life well-lived is one where technology helps me, not the other way around – leaving room for what truly matters.

03.02. Evaluation Criteria for User Value

From these two Personas, first criteria for User Value can be concluded, which have to be addressed in the roadmap and future vision design:

01 Simplicity and Intuitiveness
- Andreas: Interfaces must be simple, intuitive, and unobtrusive. Technology should be minimalistic, enhancing convenience without causing confusion or overload.
- Elena: Technology should seamlessly integrate with daily tasks, requiring minimal manual intervention to streamline productivity.

02 Joy of driving a Polestar
- Andreas: Prioritizes the authentic driving experience, performance, and reliability. The design should enhance or preserve the pleasure and responsiveness of driving.
- Elena: Values elegant experiences. The driving experience should reflect the ease and simplicity of modern technology, similar to other devices in her life.

03 Contextual Relevance and AI Integration
- Andreas: AI must be contextual to the car but unobtrusive, ensuring that AI-enhanced
- Both: Features are clearly beneficial without invasive complexity.

- Elena: The AI must enhance daily efficiency by understanding context deeply, making predictive and helpful suggestions that align with her busy, integrated lifestyle.

04 Data Transparency
- Andreas: Highly values robust data privacy and security. Transparency regarding data use is essential. The system should explicitly communicate how personal data is handled.
- Elena: Values sustainability and responsibility. Data use should be transparent, responsibly managed, and clearly beneficial to her lifestyle integration goals.

05 Balancing Joy and Practicality
- Joyful Driving (both): Designs should amplify pleasurable aspects of driving and aesthetically pleasing interactions, aligning with Polestar's identity as performance-oriented and stylish.
- Supporting Moments of No Joy (both): Solutions must offer support during less pleasant driving conditions (traffic, weather), reducing cognitive load or stress, and enhancing comfort or productivity during these scenarios.

04 Trend Research & Technology Scouting

This chapter provides context to the project, and features insights about current technology developments relevant to the project and trends shaping society at the moment.

04.01. Technology scouting

I structured my technology scouting into two parts, one about AI in general and one about AI in the automotive Industry. The first was aimed for me to develop a strategic understanding about how AI is developing currently, and which developments to expect in the future on a strategic level. For this I mainly looked at technology reports from strategy Agencies, and combined this knowledge with an observation of recent AI announcements from big players in the market.

The second part was for me to help understand the automotive sector within this technology space, as it operates differently from digital products and is less mature in the space of AI. I also tried to build an understanding for Polestar's internal capabilities in this space, and which technology trends might affect the automotive market in the future.

04.02. Technology Scouting Part 1: AI Strategic Developments

Generative UI (GenUI) represents a transformative paradigm shift in interface design. (Porras Reyes et al., 2024) It leverages AI to dynamically generate and evolve interfaces tailored specifically to each user's context and preferences. Unlike traditional static interfaces, GenUI offers real-time personalization and adaptivity, significantly enhancing usability and user engagement (Porras Reyes et al., 2024). GenUI is expected to be widely adopted by enterprise and consumer applications, becoming the standard rather than the exception. By 2027, adaptive AI-driven interfaces are anticipated to become the default approach for most software platforms (De Ridder et al., 2025), meaning designers and brands will have to adapt to design parameters for this Generative UI to work in (Porras Reyes et al., 2024).

Contextual, Personal AI: Personal AI assistants will become ubiquitous, tailored precisely to individual preferences, contexts and integrated seamlessly into daily life routines – from recommending personalized activities and meals to managing professional tasks. (Y. Li et al., 2024) Currently Polestar's technology partner Google is at the forefront of this development, announcing an integration of Gemini into the users google ecosystem at their Google IO 2025 (About Gemini, n.d.) This development is already visible in the automotive industry mainly pushed by Chinese brands through their Human x Home x Car ecosystem, and this integration can be expected to follow for Google-build-in Cars like Polestar- and Android auto Car systems in the near future.

Ethics and Regulation: As GenUI and other AI functions collect extensive personal and behavioral data, stringent regulatory measures and ethical guidelines will become essential. (Corrêa et al., 2023) There will be a wave of regulations coming Ai's way, especially once it will start to take away more human jobs. Governing bodies around the world are developing a range of regulatory AI laws and policies (Chun et al., n.d.), and it can be expected that we will continue to have different regions with different sets of regulations. Namely the US, EU and China are key players, that all approach AI regulations differently and influence each other in the Process. (Chun et al., n.d.)
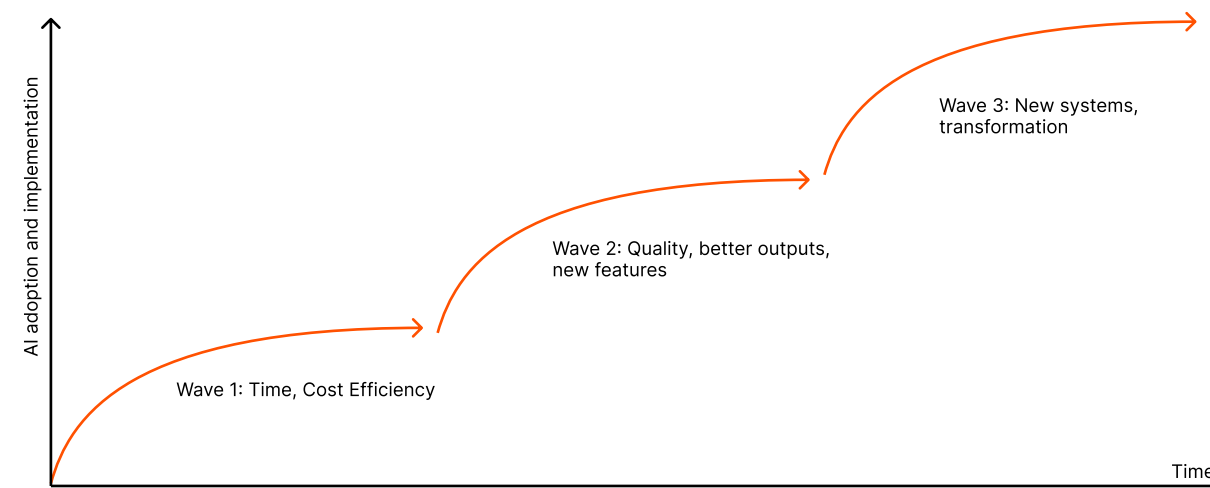
AI can be separated into four levels of adoption and advancement:

Advanced machine learning: Sophisticated algorithms and techniques (like deep learning, reinforcement learning, etc.) that learn from data to make predictions or decisions. It focuses on improving accuracy, efficiency, and scalability through progressively more complex models. (Wu et al., 2025)

Generative Ai: Uses data to learn patterns and then create new content—such as text, images, or music—that resembles the original data. Examples include language models that produce human-like text and image generators that produce realistic pictures from prompts. (Martineau, 2024)

Agentic Ai: Describes AI systems capable of autonomous decision-making and actions in an environment. They sense their surroundings (or receive inputs), reason about them, and then take steps to achieve a goal. Examples are virtual assistants or game-playing agents that adapt strategies in real time. (Wu et al., 2025)

Physical Ai: Combines AI with physical robots, enabling machines to interact with the real world. It involves systems that perform tasks like navigation, manipulation of objects, or working alongside humans, often leveraging vision, planning, and control algorithms. (Wu et al., 2025) Cars can be seen as this. (NVIDIA, 2025)

Physical AI

Agentic AI

GenAI

Advanced Machine Learning

Levels of AI
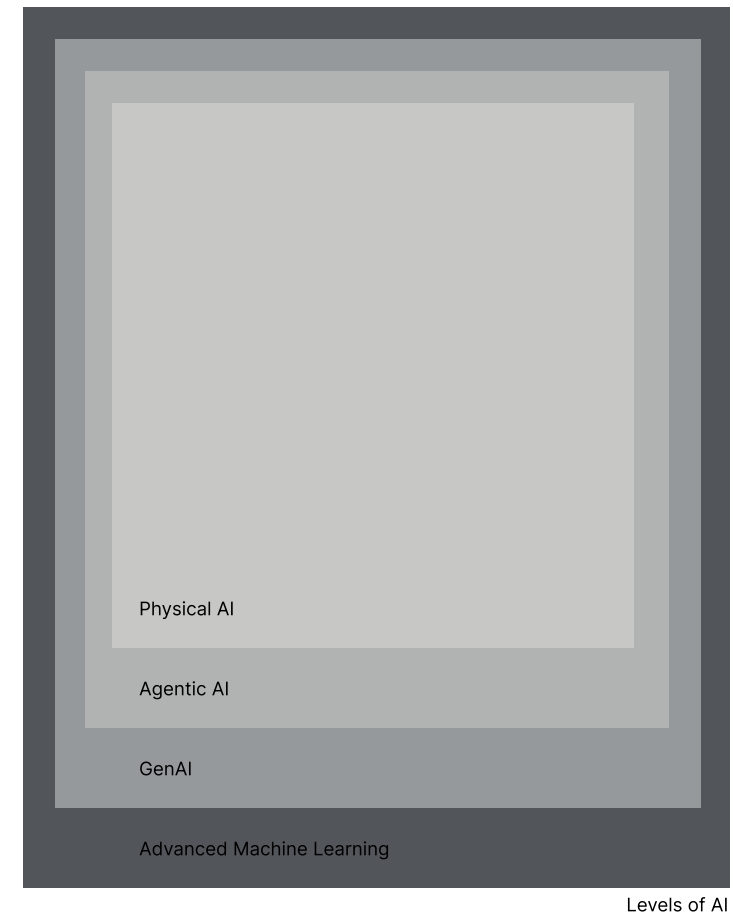
AI adoption is evolving through three distinct waves after De Ridder et al. (2025a):

1. **Efficiency and Automation:** Currently focused on automating routine tasks and improving operational efficiency.
2. **Quality Enhancement & new Features:** The near-term future will involve using AI to improve product and service quality beyond mere efficiency gains. This will result in enhanced Experiences and in new features added to existing systems.
3. **Systemic Transformation:** Ultimately, AI will lead to entirely new systems and paradigms, transforming industries and creating new types of interactions and business models. (De Ridder et al., 2025a)

AI adoption after De Ridder et al. (2025a)

AI adoption and implementation

Wave 1: Time, Cost Efficiency

Wave 2: Quality, better outputs, new features

Wave 3: New systems, transformation

Time

04.03. Technology Scouting Part 2: AI in the automotive Industry

These technology trends are mainly informed by developments in China, as these companies are more tech centered and advanced than western manufacturers, competing on different user needs and at a faster pace. In addition to my Research I received a scouting report about AI in Chinese EVs, which summarized the main market trends and with a focus on AI, and listed Ai Features that have been resealed or were announced to release as of January 2025, that was conducted previously in the UX team, with a focus on chinese language articles. I then extracted insights from this report and expanded upon it through my own desk research.

The rise of software-defined vehicles (SDVs) marks a fundamental shift in car development, enabling manufacturers to decouple hardware from software and rapidly deliver new features through updates and modular architectures. As detailed by Teixeira et al. (2023), this transformation allows carmakers to treat software as a core differentiator—turning it into a unique selling proposition (USP) by enabling continuous innovation, personalized user experiences, and faster adaptation to market demands. The SDV approach streamlines development cycles, supports over-the-air updates, and fosters a service-oriented ecosystem, making software the primary driver of value and competitiveness in the automotive industry.

Automakers invest heavily in advanced AI to differentiate their in-vehicle experience, ranging from personalized infotainment to sophisticated self-driving features and supply chain optimizations. (Koehler, 2025)

Ongoing Race for Sensor Strategies: Sensor fusion vs. purely vision-based solutions remains a competitive frontier, with each brand betting on data synergy, cost, or speed to refine autonomous driving capabilities. Also seen in western brands such as Tesla (vision based) vs Volvo (lidar sensor based). (Shah, 2024)

Despite it not being Polestar's brand and value proposition focus, Polestar needs to acknowledge the rise in self-driving cars and the acceleration this sector is experiencing enabled by AI: Particularly GenAI is rapidly transforming the landscape of self-driving vehicles. Automakers are leveraging advanced AI models to enhance vehicle perception, decision-making, and user interaction, moving beyond traditional algorithms to more adaptive and context-aware systems. (Beyond CES 2025: How Gen AI Is Revolutionizing Vehicle Tech, 2025). With Polestars brand being a car for drivers, it must consider how to position itself in the long term future, where cars will shift from being driven to driving the users.

Enhanced compute power and independently developed chips to facilitate self driving capabilities and LLM onboard operations. This development is fueled by the need to future-proof Vehicles with a longer lifespan than other tech products for an AI-centered future, and EV manufacturers are aiming to reduce their dependence on foreign suppliers of Chips. . (Miao, 2025)

Trend Toward Full Personal AI Assistants: Voice-based, empathic, and context-aware "car companions" are rapidly becoming core to brand identity, setting the stage for near-future vehicles that anticipate needs, provide emotional support, and streamline daily tasks. Pushed especially by companies like Xiaomi and Huawei, who offer one operating system for cars, phones and home appliances. (Business Wire, 2025)

(Princewill, 2022)

Nio's "Nomi" is an GenAI powered companion for the Car.

Multimodal interactions in the automotive industry are rapidly gaining prominence as automakers integrate advanced AI systems capable of processing diverse data types—such as voice, images, and sensor inputs—to create more intuitive and personalized in-car experiences. (Rana & Khatri, 2024) This trend reflects a broader shift toward AI-driven, context-aware technologies that enhance both user convenience and vehicle intelligence.

In China's automotive sector, AI development is increasingly characterized by a "symbiosis" between large cloud-based models and lightweight on-board models. Automakers are utilizing powerful cloud AI, such as large language models, for complex and resource-intensive tasks like trip planning and multimodal content generation. At the same time, compact in-vehicle AI models ensure fast, reliable responses and robust offline operation on the go (Business Wire, 2025). Interestingly a similar approach is used by Apple with the goal of maximizing data security, labeled as "Private Cloud Compute" (Apple, 2024), which should be considered for Polestar to leverage trustworthy AI.

In this topic, I think the discussion about Ai having an on/off button is interesting. Should users have the option to "opt out?" Since it is not really in the company's interest to stop collecting data, many companies do not offer the option, which could be an opportunity to stand out.

Quick mockup of a AI-privacy button, that would give users the option to engage and disengage AI functions which cannot be processed locally in-car. Exploration of a concept like this is part of my recommendations.

Polestar internal capabilities and factors:

Polestar relies mostly on collaboration with (external) suppliers for platforms and software. Polestar operates as a member of the Geely-Group, where many synergies are possible. Depending on the project and priorities they choose technology from either Volvo or Zeekr. Currently all production cars are built on different platforms, which makes it harder to offer a cohesive UX experience across all cars, and have updates synchronized. Therefore it is a priority for Polestar to unify and have a cohesive operating system across all next generation cars, which will make it easier to ship new functions to the whole Lineup.
Being in the position of a customer when it comes to software development, the Roadmap as a Project outcome is crucial to communicate to external stakeholders which AI features Polestar wants to own and add to their cars, and which should be developed group wide.

(The Next Step in Polestar's Evolution, n.d.)

Political environment:

In 2025, automotive manufacturers are competing in an environment defined by rapid technological change, persistent geopolitical tensions, and ongoing supply chain disruptions. It is crucial for automotive manufacturers to prioritize strategic resilience – embedding flexibility and scenario planning into every aspect of operations, from sourcing, technology development and production to investment and regulatory compliance. Automakers are challenged to balance the need for local resilience with the efficiencies of global scale, all while adapting to evolving brand perceptions and regulatory landscapes. (Herring et al., 2025). As a chinese owned, western car manufacturer, polestar finds itself in a position where it constantly has to carefully consider its steps through changing regulatory landscapes. For instance the manufacturing for future models is planned to be shifted back to Europe, as a response to tariffs and local market needs.

Insight from this for Polestar:
To remain competitive and future-proof, Polestar should accelerate the development of a cohesive operating system and AI strategy across its next-gen vehicles – enabling scalable deployment of context-aware, generative UIs and personal AI assistants, essential for differentiation in an AI-centric automotive future.

As a software customer within the Geely Group, Polestar must utilise its strong partnerships in order to compete, and clearly define and communicate which AI features it aims to control and own – especially those tied to UX, brand identity (e.g. in-car assistants), and data security. Focus should be on trustworthy, privacy-conscious AI integrations (e.g. hybrid local-cloud models), aligning with Western consumer expectations and regulatory trends.

(About Polestar | PoleStar, n.d.)

"Polestar 7 will be a premium compact SUV from Europe" (Polestar 2025)

04.02. Creative trend research clusters

Creative Trend Research was conducted as a preparation for the value mapping stage of the roadmapping process. For this project I combined intuitive visual trend spotting with strategic trend scanning to ensure a broad and grounded perspective.This included analysis of expert foresight reports across mobility, technology and governance, and environmental scanning across these relevant industries. From my creative trend research and technology scouting five trend clusters were developed to inform my design process and workshop. They essentially are a combination of (mobility-) AI trends with trends in society.

(Vestoa, 2024)

(Davies, 2014)

(Mehdi, 2023)

(What Are AI Agents? – NVIDIA Glossary, n.d.)

("Lagerautomatisierung Mit Autonomen Mobilen Robotern (AMRs)," 2025)

(Princewill, 2022)

Trend Cluster 01: Skill Erosion by more reliance on AI automation

Focuses on using AI to streamline operations and decision-making across mobility and industries. Think of it as making things easier for users and businesses, but also replacing tasks, currently fulfilled by humans. It raises considerations around regulatory support, cost savings, environmental benefits, and questions of liability and potential skill erosion as humans rely more on AI-driven systems.

(X9 Ultra Coupe MPV | XPENG Thailand, n.d.)

([Official] TeamLab Borderless TOKYO, Azabudai Hills, n.d.)

(Davenport, 2022)

(Jost, 2025)

([Official] TeamLab Borderless TOKYO, Azabudai Hills, n.d.)
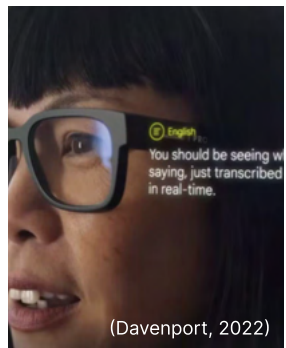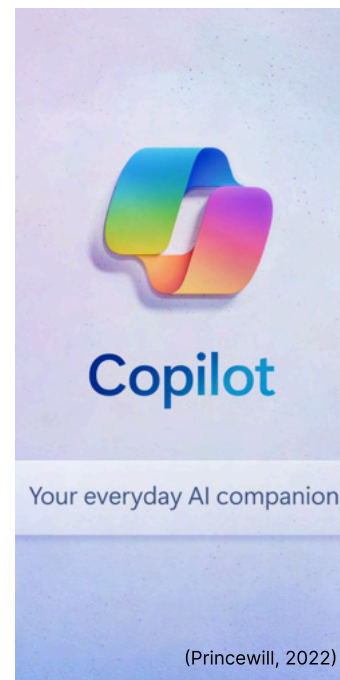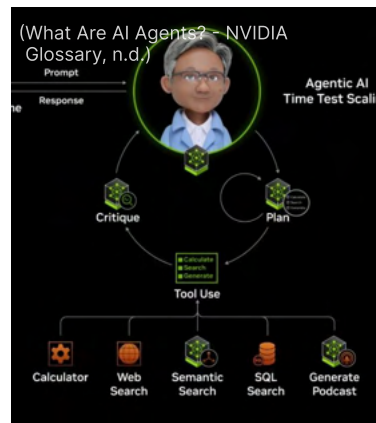
Trend Cluster 02: Reshaped Experiences of Brands and Content through immersive experiences

Centers on creating engaging, multi-sensory interactions through AI that can render environments in realtime and increase interactivity and responsiveness. In mobility, this might include smart cabins or tailored infotainment, and advanced, AR head up displays. In industries such as entertainment, art, and education, immersive technologies reshape how people experience brands and content.

(Volvo Cars Helps Warn U.S. Drivers and Municipalities of Slippery Roads and Hazards, n.d.)

(Electrical, 2025)

Human x Car x Home
All your needs in one smart ecosystem
(Xiaomi, 2024)

(Volumes, 2023)

(Schwartz, 2020)
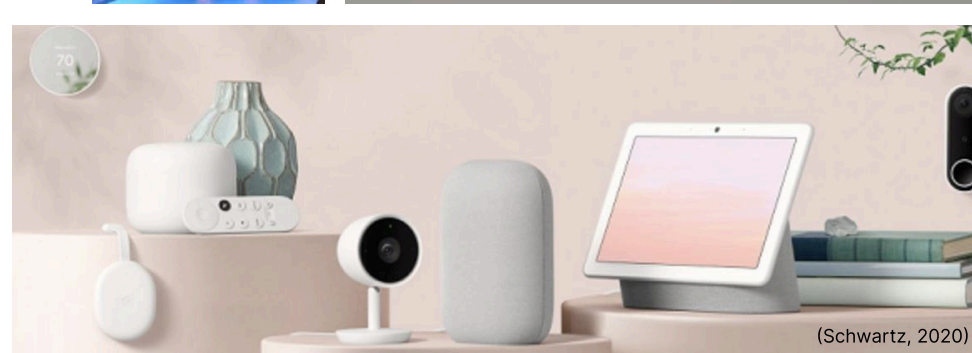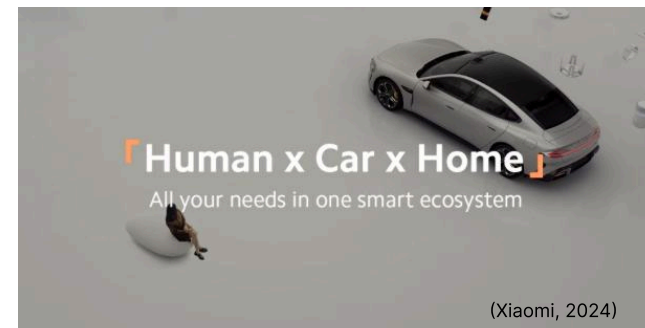
Trend Cluster 03: Balance of User Convenience with System Integration and App Overload

Increasing connectivity of roads, homes, digital ecosystems and industrial facilities (e.g., connected accounts, IoT, Smart Homes, Smart Cities & Agritech). This cluster also involves tackling the complexity of many apps and accounts, balancing user convenience with the challenges of system integration, cybersecurity and app overload.

MOVE FAST AND BREAK THINGS
(Dans, 2023)

(Worley, 2024)

(Sladden, 2022)

(Cooper, 2022)

Who's liable when a computer is at the wheel?
(Enjuris, 2024)
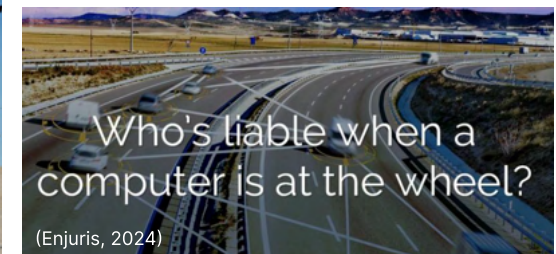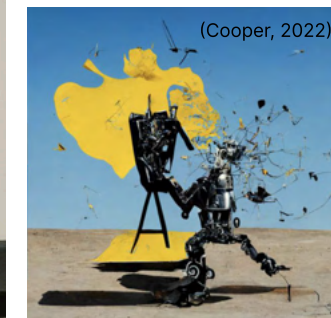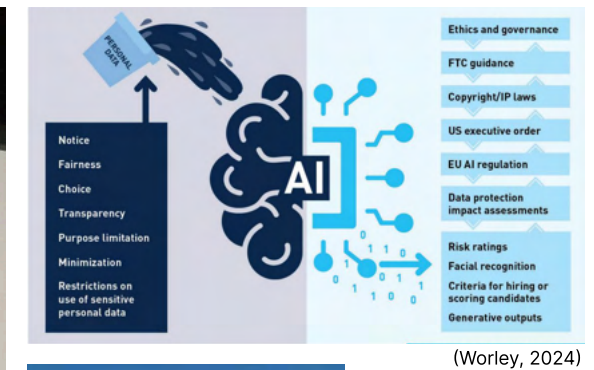
Trend Cluster 04: Personal Data Ownership

Addresses the evolving legal and societal implications of extensive data collection, including location tracking, biometric and emotion recognition, and insurance models that rely on personal data. A fragmentation of regulations around AI makes navigating this trend cluster even harder. The emphasis is on transparency, trust, and the balance between innovation and safeguarding individual rights in a data-driven world. Stronger and more fragmented regulations on Ai, data privacy and technologies.

(Yalcinkaya, 2017)

(Deshmukh, 2025)

For years, we've been fed a watered-down version of personalization

Traditional personalization has been primarily limited to content recommendations, such as Netflix suggesting shows or Spotify curating playlists. The app surfaces a relevant item or track, yes, but the interface—the way in which all navigation occurs—has remained static.

(De Ridder et al. 2025b)

Preferences and Explicit Feedback
Behavioural Data
(Bakusevych, 2025)

(Brannigan, 2025)

Trend Cluster 05: Hyper Personalization and over-profiling of user experiences

Focuses on tailoring both physical and digital experiences – from customizable vehicle interiors and soundscapes to personalized products, experiences, brands and social media expressions. This involves user-data-driven design, raising questions about privacy, user consent, and the fine line between personalization and over-profiling. Also how to keep a brand experience consistent if users expect personalized interactions?
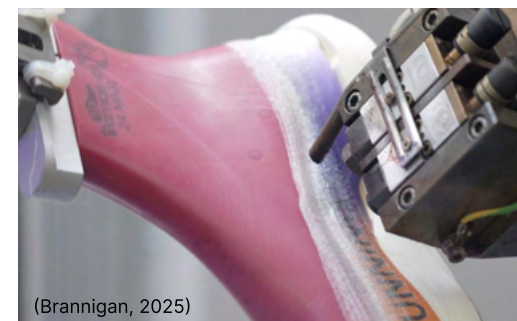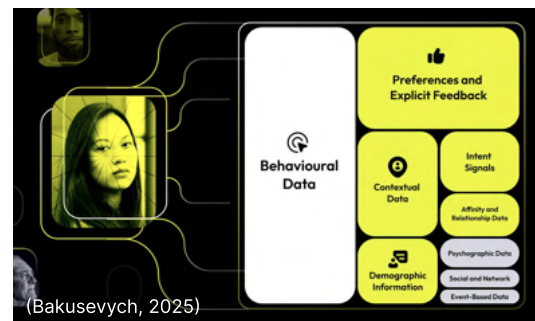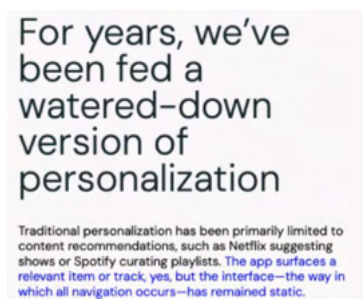
05

Future Visioning

Defining a Future Vision as a north star to guide this projects
and future AI-UX developments from Polestar in the right
way. Based on user values and value tensions.

05.01. Value Mapping Workshop

Value mapping is the initial stage in the design roadmapping process and serves as the bedrock for subsequent visioning and innovation activities. The process starts with uncovering and mapping user values, which are the drivers for future innovation timing and direction. By focusing on user values – wishes, desires, and needs – organizations can ensure that their future visions are both relevant and compelling to their intended audiences. (Simonse, 2024)

"User values are central because innovations succeed only when closely aligned with users' wishes, desires, and needs." (Simonse, 2024)

Value mapping workshop structure
The future vision is the North Star that will guide my roadmap and concept development, and should also be agreed on by the UX for future Ai developments within Polestar. Therefore I invited my interviewees from earlier for a 3 hour value mapping session I conducted. The workshop took place on the 31st of march. My workshop was attended by 8 people, and was structured around 3 activities that would help me to build a future vision with the results from this session. (Find the whole Workshop Presentation in the Appendix)

Participant	Role
01	UX Designer
02	UX Design Project Lead
03	UX Design Manager
04	Product Identity
05	UX Researcher
06	UX Research Lead
07	Concept Lead
08	Innovation lead

First my participants were presented with the two Future Personas I created, and I distributed them among the participants. They were asked to participate in this workshop from the point of view of these personas, to build their Vision on user values.

Next I presented results from my technology scouting, to give an overview about the latest technology developments and the different types of Ai applications in general. This was to bring everyone on the same page and develop a shared vocabulary for this workshop session – since they all had different levels of knowledge about the field of Ai. They were encouraged to already think about these technologies from their personas point of view during my presentation.

Then for activity one I presented five trend clusters to the group one by one. Each trend cluster was followed by a five minute time for everyone to think about: "How might these AI trends change day-to-day life for my user? If this trend impacts my Persona, what do they value most? Is it saving time, building trust, simplifying complexity, feeling safe…? Which of the Values are going to resonate with them?" – then they wrote down as many statements about their personas to take on the trend as possible, following the formula of: "Persona A wants "what AI" so they "feel how", "because of what".

e.G: The resulting statements looked like this: For the cluster "enhanced automation", a statement would look like: "Elena wants an Ai that can schedule and plan services, so that she can focus on things she actually wants to do, giving her more pleasurable experiences". For the next activity participants gathered in groups around their persona and clustered and connected all the statements from the first activity. They were free to do this how they would think would make the most sense, and they were given 30 minutes time to develop vision statements in the following format: "Polestar harnesses AI to create [key value 1, key value 2, …], ensuring [impact on persona]." In the end Group 1 created 6 vision statements, and Group two created 3 vision statements. Then the statements were presented to the other group and questions could be asked and shared.

As the last activity we took the 9 vision statements created and Plotted them between the categories of "user impact" and "brand fit". This was held as an open discussion for 30 minutes, giving them the chance to evaluate and discuss their visions, and noting connections between statements. The workshop resulted in the Graph below-

The workshop was well received and on time. It was a nice moment for me to host a session for the entire group, and invite them to my final presentation to see the results of their work.

Brand Fit

Polestar uses AI to create trustworthy interactions so you feel in control over your data (high impact if it doesn't work, otherwise low impact)

Polestar brings the benefit of AI, while keeping data usage transparent and in users control.

Polestar uses AI to connect experiences and platforms, so they can see all connected services and be in control.

Polestar removes annoying and distracting situations from the driving experience, ensuring a higher joy of time in the car and driving

Polestar uses ai to optimize driving skills, so they can be a better driver, strengthening their competence in the car (both safety & skills)

Polestar removes friction and frustration of complex driving experiences while optimizing travel time (time focussed)

Polestar uses ai to create a frictionless experience across devices in the users ecosystem. Having your personal assistant always with you.

Polestar enables custom UI/UX based on interactions and habits – meaningful, joyful, car adopts you, not the other way, non distracting

Polestar uses ai to create human like interactions so the user feels a personal connection to the car

Polestar uses ai to offer personalized entertainment based on user preferences, so it is more engaging to them

Polestar helps users to optimize their time through task organization

User Impact

05.02. Defining Value Drivers

Value mapping directly informs the future visioning stage of roadmapping. By mapping out user values and understanding their evolution over time, teams can construct future visions that are both compelling and strategically relevant. These visions are not just imaginative projections, but are anchored in the realities of what users will find valuable in the future, making them more actionable and likely to succeed. (Simonse 2024)

"Imagining a desired future through capturing value wishes as a strategic reference point for actionable innovation. " (Simonse 2024)
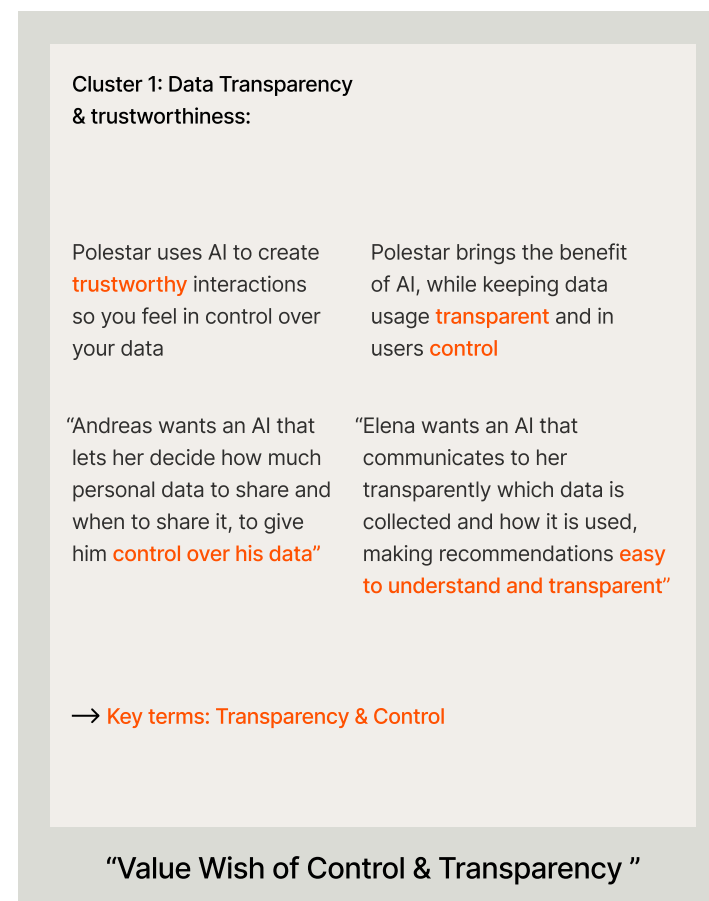
To develop my future Vision I used the vision statements from the workshop, and combined them with the knowledge I had from my brand, technology, user and trend research. The structure for drafting a compelling vision was taken from the design roadmapping course
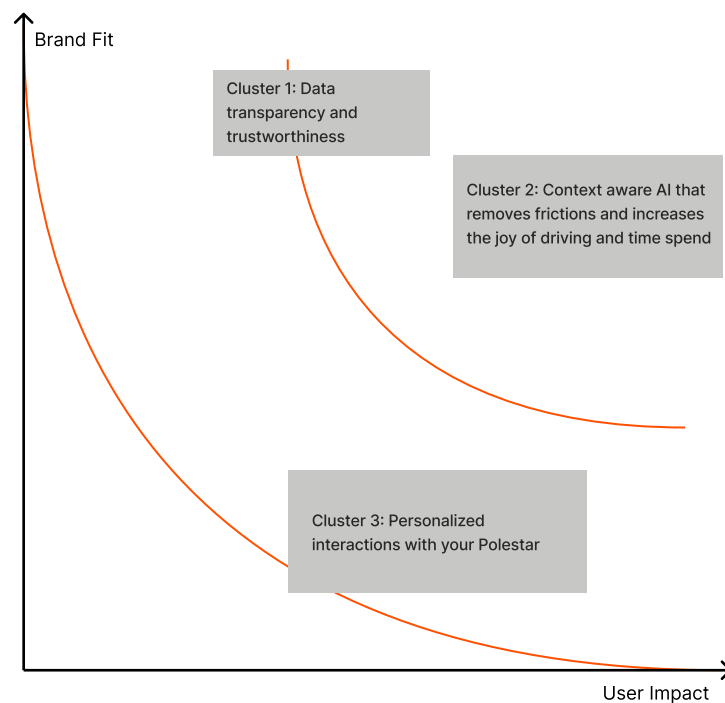
Three clusters resulting from the workshop activity

When plotting the vision statements from the workshop, three clusters emerged, which corresponded to user values in their content. From this the decision was made to focus on the top two cloisters, as they had the highest user impact and brand fit.

Focussing on these two clusters, cluster 2 was split into two key user values, while cluster 1 was all related to one to the same value.

Cluster 1: Data Transparency & trustworthiness:

Polestar uses AI to create **trustworthy** interactions so you feel in control over your data

Polestar brings the benefit of AI, while keeping data usage **transparent** and in users **control**

"Andreas wants an AI that lets her decide how much personal data to share and when to share it, to give him **control over his data**"

"Elena wants an AI that communicates to her transparently which data is collected and how it is used, making recommendations **easy to understand and transparent**"

→ Key terms: Transparency & Control

"Value Wish of Control & Transparency "

The synthesized value wish from the first cluster is a wish of transparency and control in data usage. Second, there was a value wish for content awareness, that results in removed frictions across the user experiences within the car:

Cluster 2.1: Context awareness & optimization

Polestar uses AI to create a **frictionless experience** across devices in the ecosystem at all times, to enhance the **connected experience.**

Polestar uses AI to simplify users life **adapting** the information provided to **the context** of the user, ensuring a better driving experience.

"Andreas wants suggestions from an AI that can **handle all the complex interactions** for him, requiring him to interact as little as possible in each scenario"

"Elena wants a AI that helps her to **optimize** her time and **productivity** on the go by **smartly** scheduling all her stops with the best route possible"

→ Key terms: Context awareness & productivity

"Value Wish of Context Awareness"

Lastly the Joy of driving was identified as one key value driver.

Cluster 2.2: Enhancing the time spend and fun while driving:

Polestar uses AI to **optimize driving skills**, so they can be a better driver, strengthening their competence in the car (safety & skills)

Polestar uses AI to simplify users life adapting the information provided to the context of the user, ensuring a better **driving experience.**

"Andreas wants an AI that lets him **focus only on driving**, maximizing the way to his destination as-well"

"Elena wants a AI that can do **everything a passenger would do**, enhancing both her productivity and **independence**"

→ Key terms: Driving Experience, Competence

"Value Wish of joy of driving"

05.03. Value tensions

The Future vision is built on these user value drivers and future user wishes, and then aligned with the brand identity. From the synthesized Value drivers two value tensions arise, as a result from both workshop and research, and are essential to building and informing this future vision.

01 Trustworthiness vs context-awareness tradeoffs

Users wish for meaningful and contextual Ai experiences, but for that AI assistants need access to user data and context. However, this creates a tension with users' growing concerns around data privacy and control. Balancing intelligent, context-aware services with robust data protection is key to building trust and maintaining Polestar's brand integrity, while also leveraging its technology and innovation Values.

02 Joy of driving vs moments of no joy in driving

Polestar celebrates the joy of driving – but not every moment on the road is enjoyable. Traffic, poor weather, or the need to work while traveling can diminish the experience. The move towards self-driving and stronger ADAS systems further highlights this value tension. The challenge lies in designing solutions that not only preserve, but highlight and celebrate driving pleasure while also supporting users during less engaging or more demanding situations.

From these value drivers and value tensions a Future Vision statement is formed, that acts as the leading direction for Polestars AI Experiences:
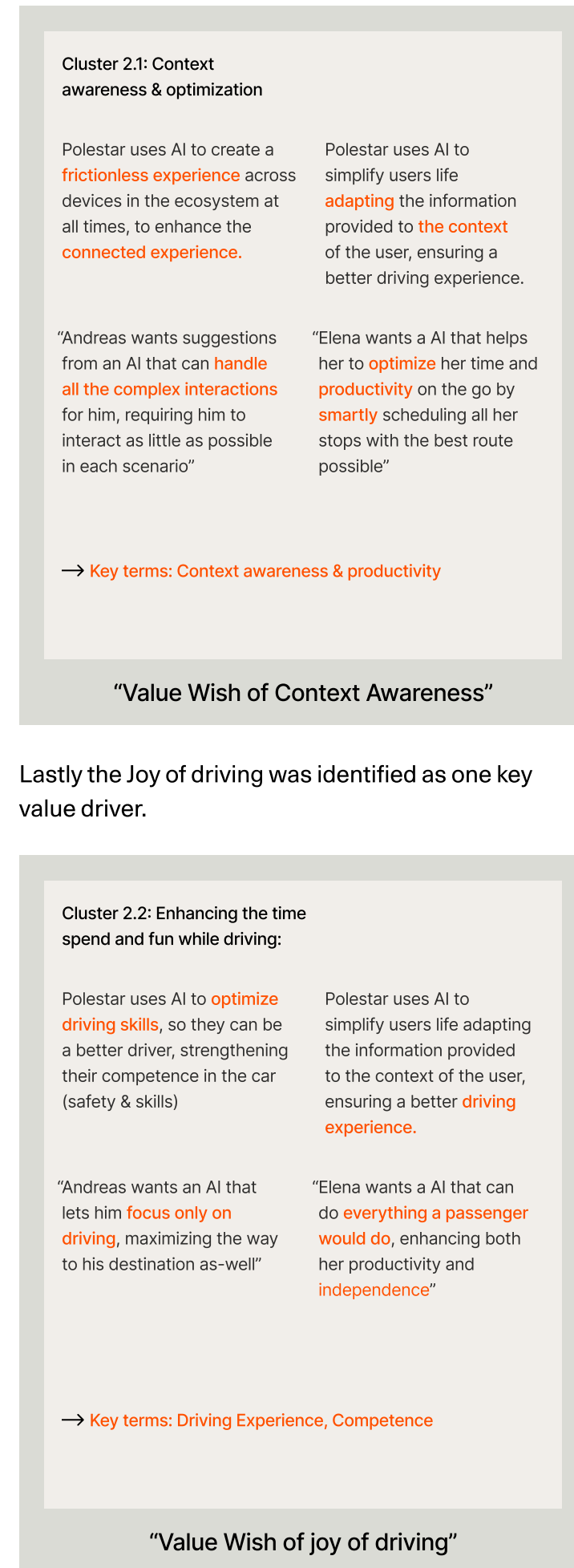
Joy of driving – Polestar cars are great to drive, and should maximize the users performance as a driver.

Time spent – driving is not always fun. The car should facilitate users in making the most out of their time spent.

Polestar enhances the joy of driving and time spent in your Polestar through using context aware and trustworthy AI experiences.

Trustworthy – Polestar stands for honesty and pureness. Users should trust Polestar and trust that they are in control.

Context aware – the key of AI is to make experiences tailored to the users needs, no matter the situation

05.04. Future Vision Statement

Based on these value drivers and tensions a future vision was defined in an iterative process with input from both company supervisor and project mentor. The resulting Vision is short and clear, capturing the essence of what Polestar AI experiences should be.

Polestar enhances the joy of driving and time spent in your polestar through using context aware and trustworthy Ai experiences.

The value driver "Joy of driving" captures the essence of both the brand and user wishes. It's about strengthening the drivers competence, removing distractions, and enabling both the car and driver to perform as good as it can. The value of "The time spent" goes beyond that, acknowledging that not every drive is a fun drive, and that users have the desire to make the most of the car also in terms of productivity or other activities to their liking.

 All resulting experiences should be "context

aware", tailoring the experience to the current need in the situation, removing frictions, simplifying interactions and empowering high tech experiences that resonate with Polestar's brand and user wishes. Lastly, the value wish for "trustworthiness" is the key foundation to facilitating those experiences, acknowledging that, while data needs to be used for context aware experiences and cannot private at all points, Polestar is honest about which data is being used. It will communicate that to users transparently.

06

Card Deck, Tool for Ideation

To follow up on the Value Mapping, this chapter introduces a Card Deck that can be used by Polestars UX team for Ideation and generate AI boosted user experiences in a structured, tangible way.

06.01. Card Deck design
06.02. Ideation Process
06.03. Concept evaluation

06.01. A Tool to develop concepts of AI boosted user experiences.

Throughout my process I have collected Ideas and structured them according to the insight from my technology scouting, sorting them among optimization of existing features, new features and new systems. From this I already selected some early concepts which can be valuable for users.

EVs, being smart and connected devices, with a large array of inputs and outputs for AI to manipulate in different ways, present a huge design space as "AI boosted experiences in a Polestar", where many different interactions of Users and AI are possible. To refine & develop Ideas in this design space in a more structured way, I used a Design Space Card Deck, after Lomas et al. (2021) – structured across 6 categories to help me, and the UX team to develop concepts. Using a Card Deck to Navigate the Design Space of Interactive Play, presents an innovative method for supporting creative ideation, within a given constrained yet rich interactive environment. The method presented by Lomas et al. (2021) involves translating abstract dimensions of game design theory into a tangible card deck to support ideation within a defined design space. Each cardin the generated deck represents a distinct element from a broader design dimension – such as user interactions, game mechanics, or emotional responses – allowing users to explore combinations and constraints by physically manipulating cards. This approach enables both a randomized- and structured sampling of a design space, lowers cognitive load, and supports both individual and collaborative creativity (Lomas et al., 2021). The resulting card deck can be used to define and generate tangible Ideas within a complex design space, enabling designers to

explore and ideate in a structured way, which was used in this project to navigate the huge design space of "Ai boosted user experiences in a Polestar".

The six categories of cards in the "AI boosted experiences in a Polestar" are:

1. What the AI knows/where it can collect data from (Input): Sensors / Contexts
2. What the AI can manipulate (touchpoint / output): Actuators & Interfaces
3. What the AI does (actions): AI behavior / Action
4. What is the users context: Driving Scenarios
5. What is the users goal / UX Goal: Emotional/ Experiential Drivers
6. In which modality does the interaction take place: Interaction Modes

The initial card deck included 27 sensors/inputs, 24 actuators/outputs, 8 Ai actions, 29 driving scenarios, 13 UX goals and 11 interaction modes. Driving Scenarios and UX goals can be expanded upon further, and should be seen as a starting point, as there are many possible user journeys, and levels of specification of those. Inputs and Outputs could be expanded with future car models, but are accurate for current Gen. cars and currently planned developments. in addition hardware limitations have to be considered when developing concepts for current gen. Cars, as these vehicles do not have a central computer, thereby making some interactions impossible. This will change with the next generation of cars, where all actuators can be controlled by a cebtal computer. In this sense exploring Concepts through this card deck will also help the UX and R&D teams see which sensors are the most frequent and important, and need to be accessed by AI systems, enabling them to prioritize from a early stage.

Voice Input Rain Detection Driver Presence Google Maps Driver Eye Gaze Speed of Vehicle Google Calendar Time of Day ...
Card 1   **Input / Sensors**

Enhance competence Enhance Joy Reduce Distraction Personalization Feeling in control Reduce confusion Enhance productivity Multitasking ...
Card 4   **UX Goals**

Speakers DIM Widget CSD Widget Massage function Suspension Trunk and doors Wipers Seat position ...
Card 2   **Actuators / Touchpoint**

Morning commute Stuck in traffic Weekend Roadtrip Grocery Run In a rush Driving abroad New driver Heavy rain ...
Card 5   **Driving Scenarios / Context**

Collect data Monitor Systems Visualize Information Massage function Conversation Generate UI Perform action in Car Perform Action beyond Car ...
Card 3   **AI Action**

Proactive Assistant Reactive Assistant Voice-First Visual-First Touch Interaction Haptic Feedback Multi Modal Emotional Interaction ...
Card 6   **Interaction Mode**

01

"Driving on a wet countryside road"
Driving Scenario

+

"Reduce Stress, increase safety"
UX Goal

What is the Context
and what is the Goal?

02

"Monitor Situation, Perform Action in Car"
AI Action

What can the AI do
to help the user?

03

"Front Camera, Weather data, Google Maps"
Input / Sensors

Which inputs does it
need to do that?

04

"Wipers"
Touchpoint

What touchpoints will
the AI use to do it?

05

"Proactive Assistant"
Interaction Mode

How will that
interaction take place?

Generated Concept

Idea: When a truck approaches the AI uses front camera, weather data and road data to recognize ponds on the way, which a truck could splash onto the car. When this scenario happens, the AI automatically and preemptively activates the wipers, so the user can stay focused on the road.

Cards Used:
Sensor/Input: Front Camera, Weather Data, Google Maps.
Actuator/Touchpoint: Wipers
AI Action: Perform action in Car, Monitor Information
UX Goal: Reduce Stress, Increase Safety
Interaction Mode: Proactive Assistant

"Stress free countryside driving"

Example, Resulting
Concept

When <driving scenario>, AI can use <input/sensor> to <AI Action> with <touchpoint> in a <interation mode> way, in order to <UX Goal>.
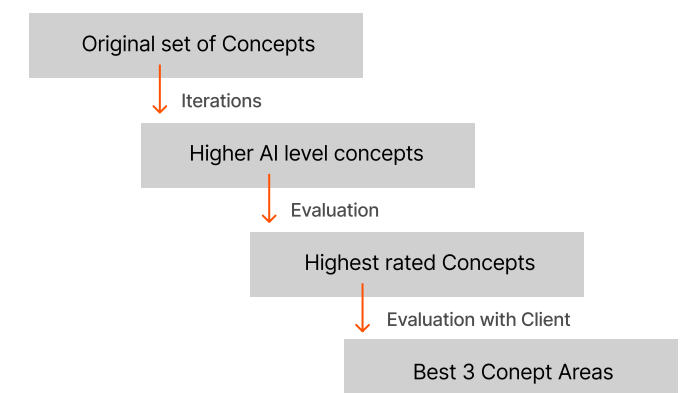
06.02. Ideation Process

With this card deck Ideas can be developed through a combination of these cards. For the initial exploration a driving scenario and ux goal was selected first as a starting point, and then the other cards were used to see how the UX goal can be fulfilled through a combination of Inputs, Outputs and Interaction Modes. This represents a structured and scenario-driven approach to this card deck, starting from a

situation that could be boosted. A random combination of cards is also possible within a workshop or ideation sprint session, where the goal is to brainstorm possible Concepts. Here the team would randomly draw cards from the deck, and transform these cards into a AI boosted user experience. This can also be facilitated by GenAI, where combinations can be generated after inputting the card deck and instructions.

As this card deck can be expanded to contain all possible ways of AI interactions within the given space, Polestar's UX Team can use it as a tool for their own Ideation and concept generation. It also helps them to prioritize which sensor inputs are crucial for chosen concepts, and communicate and plan this early in the development process. For this project around 15 concepts were generated and selected for evaluation (List in Appendix). All concepts also went through iterations, with the intent of, trying

to make them more agentic, more generative or combine them through new sensor inputs.

Original set of Concepts

↓ Iterations

Higher AI level concepts

↓ Evaluation

Highest rated Concepts

↓ Evaluation with Client

Best 3 Conept Areas

06.02. Evaluation of generated Ideas

To make it easier to compare and prioritize concepts generated with the card deck, an evaluation tool was developed, which allows the UX team to quickly compare and evaluate generated concepts. To provide a basis for comparison between concepts it was decided to evaluate generated concepts on the factors of the user values derived from the future vision, as well as their strategic fit and the brand fit for Polestar. For this evaluation a Harris Profile (Zijlstra, 2020), was modified, in order to quickly compare the concepts visually. For each of the criteria values can be assigned from -2 to +2, with 0 representing a neutral impact, and values above that a positive and below a negative impact. Additional weight was given to the User Value criteria, as they set the foundation of the future vision, these concepts should work towards.

The resulting visual illustrates in which areas Concepts have a positive impact and in which ones they have a negative one, making it easy to prioritize Concepts, or in which areas they need iterations to match Brand, Future vision and user values.

The goal of adding this method to the card deck was to provide a visual overview and comparison point for me and Polestar's UX team for all Concepts generated through the card deck. The result makes it easier to quickly estimate how big an concept's impact might be, offering the opportunity to identify weak points early, prioritize developments and see potential impact.
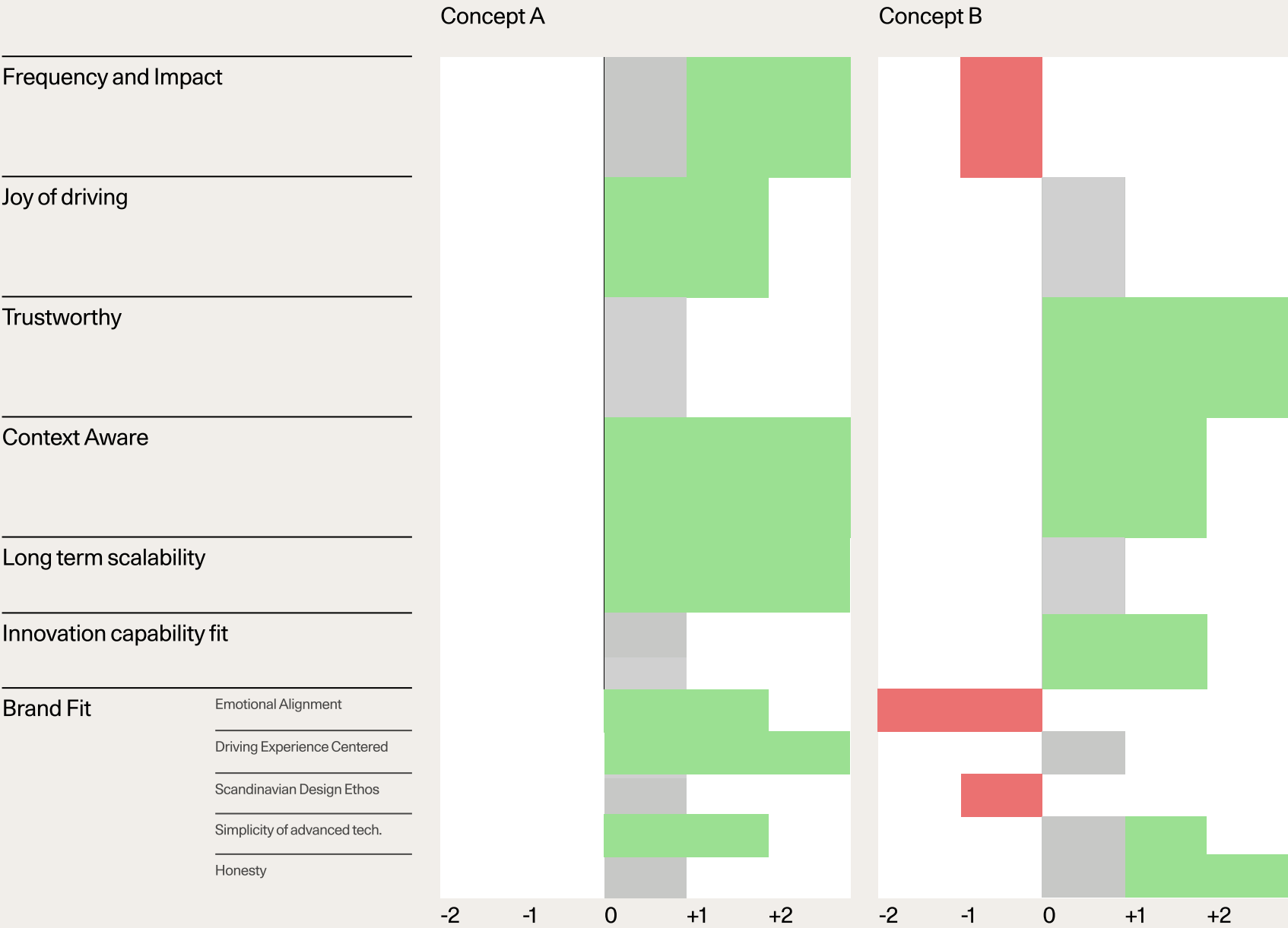
Visual evaluation of 2 generated concepts

07

Design Opportunity Tracks

Three Tracks of opportunity for AI boosted experiences were
identified, that align with the user values and future vision,
which should be prioritized for AI developments in Polestar.

07.01. Opportunity Tracks for AI boosted Experiences in Polestar

From the most promising concepts generated through the Card Deck the ones most suitable for further exploration were selected based on the evaluation – that all had a positive or at least neutral impact across the board. These Concepts were then clustered into three tracks of AI boosted Experiences, which Polestar should focus on:

Track 01: "Get to know each other", a gamified, contextual onboarding experience.

Track 02: "Confusion Remover", mitigating pain points while driving through proactive AI.

Track 03: "Contextual Zone", a dedicated UI layer, which allows for visual interaction with AI.

01 Get to know each other

02 Confusion Remover

03 Contextual Zone
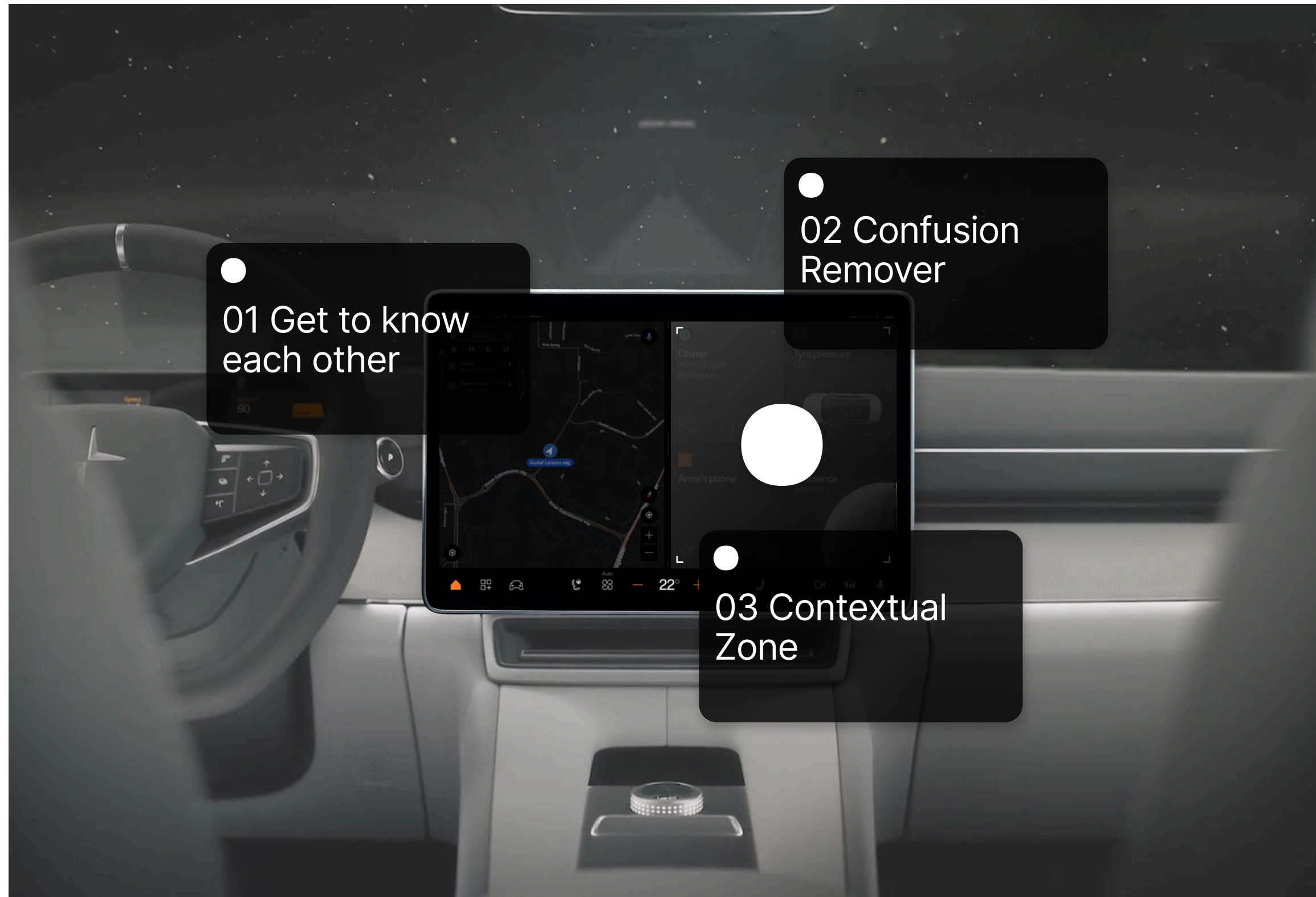
07.02. Opportunity Track 01: "Get to know each other"

What if your relationship with the car starts before even receiving it? What if you and your car can get to know each other naturally and playfully? – enabling your Polestar to be the best companion it can be.

The second concept is a merger of two similar concepts, that were generated through the card deck method: "get to know me" and "get to know you". As the name already suggests these two concepts both utilize Ai to make the onboarding experience of Polestar more immersive and personalized, tackling this topic from both the Cars- and the Drivers side. The concept leans into the trend clusters of immersive experiences, and hyper personalization, aiming to create a more personal connection between car, brand and driver.

Currently many concept cars play with the Idea of a more natural learning about drivers preferences, like asking if the driver wants to be massaged or what music he likes. Some Chinese Evs also offer face recognition, which makes it obsolete to select driver profiles when entering the car. But what you can't do today is to configure the car even before you receive it, so it is ready to go as soon as you receive it. Profiles cannot be configured automatically and also the driver has very little opportunity to learn about his car, apart from driving schools and the original test drives - which at the point of car receival is already months ago. The way AI could help with this is by configuring the drivers profile right after purchase, so your car is ready to go once receiving it. It could also be used to teach the driver about the car, in the moment it might be useful, and it could optimize and configure the profiles even further, by learning about the driver over time. It fits well with Polestar's philosophy of
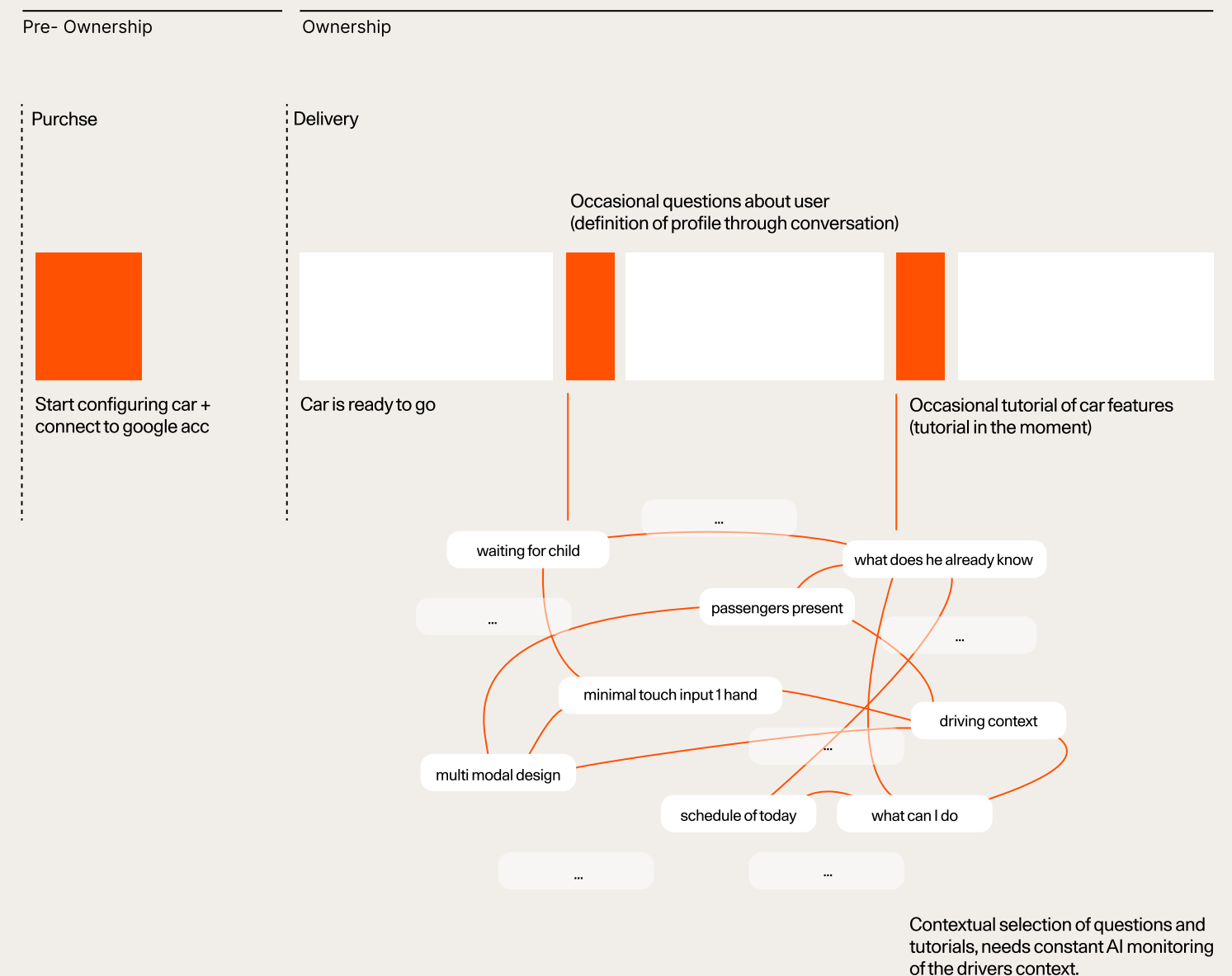
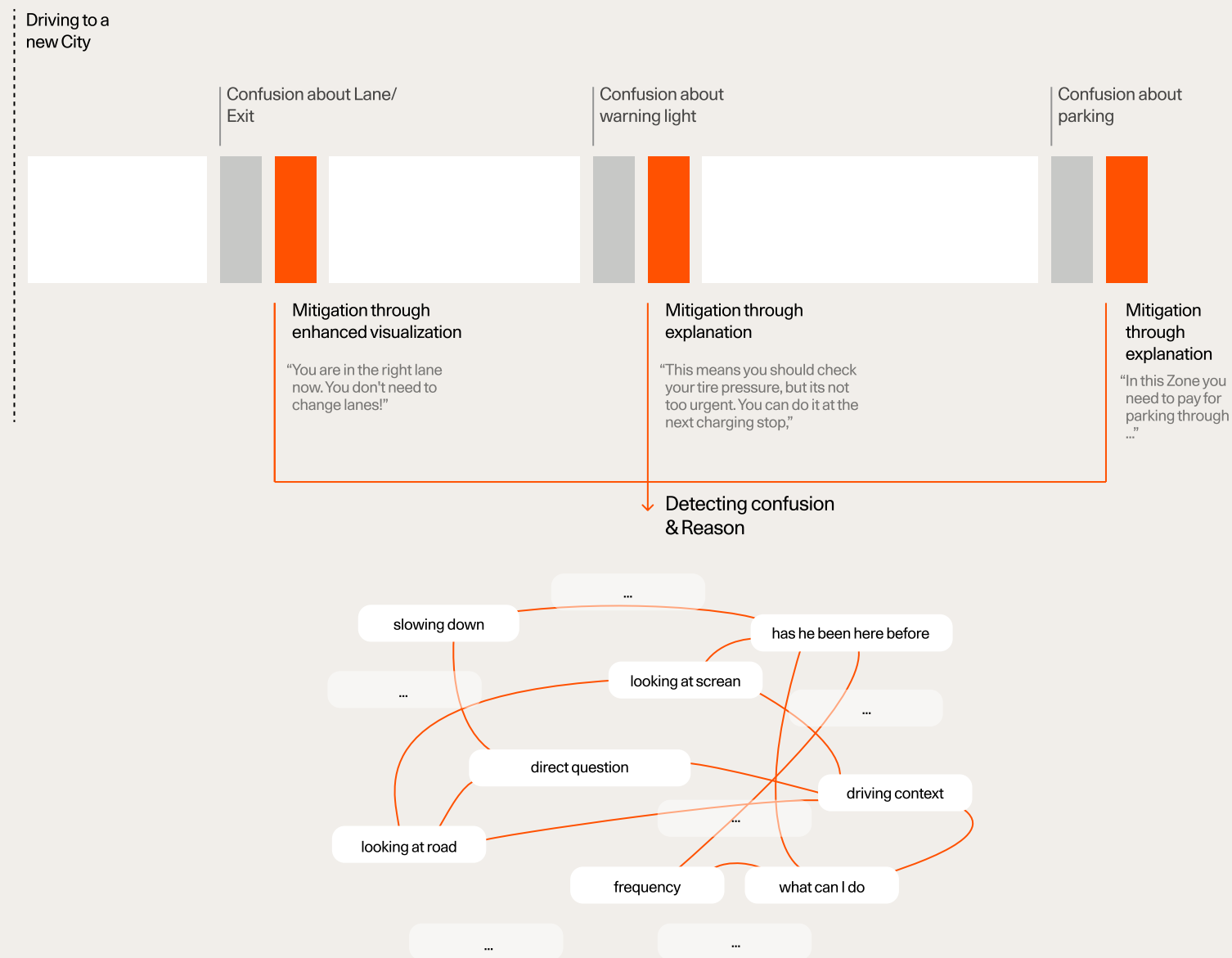having no start button for example. You just get (in) the car, and it is ready to go.

Interactions with the AI spread across both ownership and waiting time

The concept would start with a first phase, where right after purchase user could already start configuring their new car, helping to bridge the up to 6 months of waiting time, that happens when waiting for the new car, connecting customer and user journey seamlessly. Data such as names and faces of drivers, height (for seat position), driving and music habits, frequent routes and favorite colors could all already be put in and used to set up profiles, that provide an early foundation for driver profiles in the moment of delivery.

In the ownership phase the car would enhance and optimize these created profiles by asking well timed questions about the user and remembering settings they change, for example by asking if the users like to be recommended podcasts when stuck in traffic.

On the other hand, the car can also recommend the user to try some new features of the car, and act as a coach, enhancing the drivers capabilities. For example if there is a down time of 5 minutes, the car would recommend the "dynamic" suspension mode the user never tried before, but instead of just recommending it, it would add context to it like "there is a nice road around the corner that would be perfect to try this suspension mode. Would you like to give it a go?" – teaching the driver about the car's functions when they are actually in the situation where a feature might be useful, not just in a tutorial at the beginning in a parking lot. In a way it would be a gamification of the onboarding similar to one found in Video Games, and the concept fits very well with Polestar's Brand Values and the future Vision.

Pre- Ownership

Ownership

Purchse

Delivery

Occasional questions about user
(definition of profile through conversation)

Start configuring car +
connect to google acc

Car is ready to go

Occasional tutorial of car features
(tutorial in the moment)

waiting for child
...
passengers present
...
what does he already know
...
minimal touch input 1 hand
driving context
multi modal design
...
schedule of today
what can I do
...
...

Contextual selection of questions and
tutorials, needs constant AI monitoring
of the drivers context.

Driving to a new City

Confusion about Lane/Exit

Confusion about warning light

Confusion about parking

Mitigation through enhanced visualization

"You are in the right lane now. You don't need to change lanes!"

Mitigation through explanation

"This means you should check your tire pressure, but its not too urgent. You can do it at the next charging stop,"

Mitigation through explanation

"In this Zone you need to pay for parking through …"

Detecting confusion & Reason

…

slowing down

has he been here before

…

looking at screan

direct question

…

driving context

looking at road

…

frequency   what can I do

…   …

07.03. Opportunity Track 02: "Confusion remover"

What if you would never take the wrong exit again? What if you never had to call your friend about what a light on your car means again? What if the car could recognize your confusion, and mitigate it in real time?

This concept is a cluster of concepts generated with the card deck method, like "lane-exit assistant" and "warning light explainer" and combines them in a umbrella of Ideas, which focus on the concept of AI being able to recognize that a driver is confused, identify the cause for that confusion, and mitigate it through a more detailed explanation or clarification. This concept picks up on automotive trends like more advanced voice assistants and the skill erosion through enhanced automation trend clusters. Currently the latest development for new cars is a car manual in the voice assistant, so you can actually ask the car questions about itself, where the manual is the sole source of information for the assistant. In the future the car should use Ai to enhance these capabilities even further, offering support in crucial moments of confusion, removing major pain points from driving the car.

All scenarios of use first require that the AI recognizes confusion in the user, which could be done through a combination of sensor inputs like "car is slowing down" "where the driver is looking" or simply the driver making a confused noise. Then it would identify the cause based on the driver's context (needs to take an exit, parking, the system gave an input...) and proactively try to mitigate it through enhanced visualization or voice assistance. Examples of this could be a warning light that pops up, where AI could offer help in not only explaining what the light means (current day developments), but also telling the driver what it means for him at this moment (is it safe to finish my drive? Do I need to stop now? How urgent is this? Can I do something about that myself?). So a response could be "This is the tire pressure light, indicating you are losing pressure on one tire. You can finish driving to your grandma, and add some air simply the next time you charge me". Other examples would be using the front camera to identify in which lane the car actually is and adjusting visualizations to that in the navigation system, or sharing information about parking zones, when trying to find a parking spot in an area previously unvisited. This concept would have less frequent occurrences for the drivers than the other two, but could be a big help in releasing some of the biggest pain points drivers experience while driving.

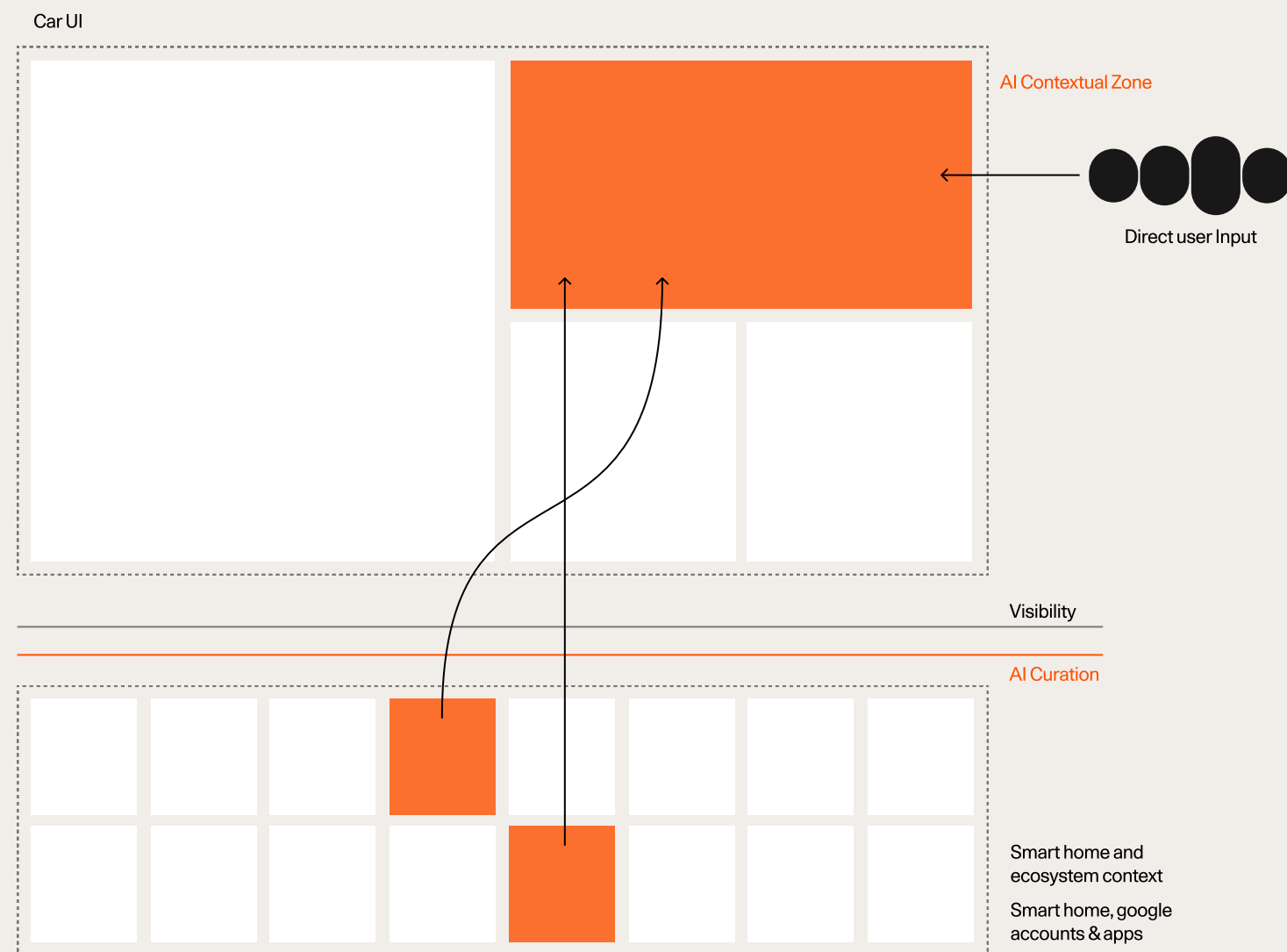## 07.04. Opportunity Track 03: "Contextual Zone"

What if you could do anything you can do on your phone while driving a car? What if you could do things that would usually require a co-passenger to do effectively while on the go?

This concept explores the Idea of having an Area in the Cars UI, that is dedicated to a generative AI, that "lives" in this Area and offers possibilities to interact with the user through voice and UI. The Idea here is what if you could see everything happening in your connected life also while on the go? It is leaning into the trends of hyper personalization, connected life and IoT and enhanced automation, allowing users to always see just what they need in the moment, and use it to perform tasks previously impossible in a Car while driving. In addition Polestar's position as one of a few manufacturers with Google Built In, allows it to leverage its position in one of the strongest Product-Service-Systems in terms of integration, allowing drivers potentially to integrate the car into their work and private lives seamlessly. Currently, cars offer the possibility to control separate functions through simple voice commands like "turn on the lights in my home", to check status on functions like "what's the temperature in the living room?" and to read & (if advanced) summarize incoming notifications. But all of these functions are pretty basic remote commands, that all are voice only interactions, without any visual feedback or complex inquiries. Tools like Google's Ai Studio already show what might be possible in the future through voice first tools, that generate AI on demand, and to use these tools to give drivers more opportunity to use the time in the car to their liking is a logical extension. Especially as we are moving towards more self-driving capabilities, the opportunity to let users use the screen in more ways than currently

possible is also a key consideration in making this feature a long term valuable investment. With Generative AI changing the way we interact with our phones, the way we search information, the way we work, the question in this concept is about how users will want to use this opportunity space and which scenarios can bring value to them?

There can be an active and a passive mode. In the active mode the Ai would respond and interact with the user through a conversation and can co create the UI together with the user depending on the context of the conversation. In the passive mode Ai can use its zone in the screen to curate and highlight information relevant to the user, depending on the context of his drive and other elements like calendar, mail etc.

This concept is the most open, as it is ultimately a tool that allows the driver to divide how they want to use their car. Some might want to use the daily commute as an extension of their work, some might want to be able to search the internet while driving, some might want to see what's happening in their home, and some might simply want to see and control functions from the car. As such it needs to be explored where users see value in this concept, and how this can be best facilitated in symbiosis to the future vision of Polestar.


Car UI

AI Contextual Zone

Direct user Input

Visibility

AI Curation

Smart home and ecosystem context

Smart home, google accounts & apps

07.05. Exploration "Contextual Zone"

Based on feedback sessions with the team and the supervisors it was decided that "Track 3: Contextual Zone" would be explored in more detail, while the other two tracks will be part of the Roadmap in their current state. This decision was made due to the other opportunity tracks being more clear and predictable in their interaction patterns, use-cases and implementation, while the third one offers the biggest space to explore in its implementation. The aim is to explore the questions around "How exactly do users want to use this contextual zone in their car?" "How can it support their current activities within the car? and "What are key aspects that need to be looked into when developing this idea further?"

The goal of this in depth exploration of this concept is to identify use cases where it provides value and uncover users' wishes for the usage of such a contextual zone in their car, so Polestar knows how to navigate this very broad Idea space and knows what to focus on. It has the potential to replace all scenarios where a driver might want to use a phone while driving – so what do people actually do (with AI) while driving?

Since potential implementations are too undefined at this stage to be tested through usability testing or more interaction based testing, it was decided to use co-creation sessions, with the goal of capturing real use case scenarios and gathering feedback from participants. To structure the sessions I used the Path of Expression Method after Sanders and Stappers (2012), which helps non-designer participants to express their needs and future wishes for experiences.

It takes the participant through four activities of the now, the past and finally their future wishes:

The path of expression for structuring a generative session (Sanders & Stappers, 2012)
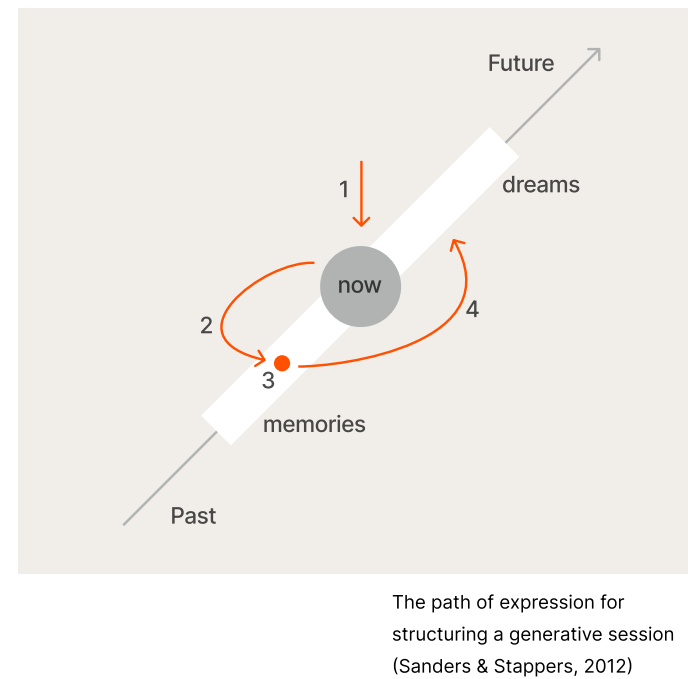
Sampling strategy for the codesign sessions:

Participants for these sessions were recruited from Polestar's internal pool of testers, which the UX Research team has access to. This database already had basic demographic information about these testers, and their engagement/interest for driving and tech related topics. A short survey was send out in order to have a basis for sampling the right participants. From this survey 92 testers replied, 9 potential candidates were identified and 5 were invited to a session. In order to identify early adopters to capture these real use case scenarios, the sampling criteria were:

1. Drivers who have smart home devices,
2. and use digital google services,
3. and do working / planning activities while in the car,
4. and use their phone frequently while driving
5. and use AI for work or privately,
6. and drive a Polestar currently.

Due to the nature of this explorative study sampling focus was set on the technological interests of the participants, with demographic data being secondary. The participant selection looked as follows:

Participant	Role
01	R&D Group Leader Connected Experience
02	Tech Lead Smart Charging
03	CX, Retail Standarts & Systems
04	Digital Competence Manager
05	Web Editor Publishing

A test of the cocreation session was conducted with a coworker from the UX team, in order to ensure a smooth and digestible codesign session for the participants. The 2 hour co-creation sessions took place over a course of two weeks, with at least one day in between sessions and were structured as follows:
First there was an in depth interview conducted with the participants, with the aim of exploring their usage of AI, and (digital-) ecosystem. Questions were asked about their habits of working and controlling smart home functions from on the go, their usage of the phone while driving and working habits while in the car. Through this interview a scenario for the next phase of the session was chosen by me.

Next the participants were invited to share a typical interaction they would have with AI or their work while being in the car. For this we walked downstairs to a showroom with the cars parked (except in one session), and they took place in the driver seat and played through a

recent interaction with work or ai in the car. As this decision was made dependent on the context of the interviewee, examples and results here varied widely, and brought up different interactions that could be replaced by a generative and agentic AI within the cars UI. Examples here include a Journalist who did research while in the car through reading out websites and summarizing highlights from that in notes (all phone based), or a manager, who used his surface as an extension of the cars screen to view Teams meetings comfortably while or after finishing a drive. The goal of this activity was to capture real use case scenarios and to iterate on the probes for the final activity during the codesign session.

An example of my Participants work setup: left while parked, right while being stuck in traffic.

"The car is such a nice place to be, after finishing the drive I stay in the car to finish my meeting on the surface"

– Participant 02

The final activity was a set of UI Probes that were shown to the participants, to capture their reactions and opinion. The aim was to explore if they would see value in having these interactions, to capture their preference on how certain interactions should take place (for example voice or touch inputs etc), and to iterate on key aspects of the UI concept in this way. Probes were build up around use scenarios, which were explained to the participant and their reactions captured. Depending on the use-case three different versions of each Probe were developed, varying in information and interaction depth, one fur current day driving, one or self driving/being stationary with no restrictions at all, and a hybrid which aims to be a middle ground for scenarios like being stuck in traffic and ADAS supported driving. They were told to imagine how they would feel if these features existed in the next car they buy, and if they would see value for them personally in it. clarifying questions were asked, why they think they had certain preferences and if these probes could bring value to them in any way.

"I would want to have [text previews] as an option, not a default. What if you're driving with other people?"

<div align="right">– Participant 05</div>

Probes were strucutred among different usecases and information depth, to see which usecases and implementations the participants resonate. Usecases were adjusted, expended or dropped throughout the sessions, as feedback and inspiration was gained from the participants.

Example of UI Probes

	Probes Usecase A	Probes Usecase B
Option 01: With driving restrictions, Voice input only	"What are nice stops coming up on my way?" **"You can stop at the lighthouse in bokfjørd."**	"What's the latest on the sales report?" **"The sales report was updated yesterday. Revenue is up by 8% compared to last month.""**
Option 02: Hybrid, minimal touch input	"What are nice stops coming up on my way?" **"You can stop at the lighthouse in bokfjørd"** Directions Dismiss	to add any details? "What's the latest on the sales report?" **"The sales report was updated yesterday. Revenue is up by 8% compared to last month.""**
Option 03: Selfdriving / standing, no restrictions	"What are nice stops coming up on my way?" **"You can stop at the lighthouse in bokfjørd. Do you want me to put it into the route?"**	Project Status update 2005.2023 History "Can you draft a quick project status update?" Settings "Sure! Here's a draft: 'The project is on track. All major milestones have been met for this week.' Would you like me to add any details?" "What's the latest on the sales report?" "The sales report was updated yesterday. Revenue is up by 8% compared to last month."" "Remind me to check in with HR after lunch." Continue Back to list
	Exploration of how AI should visualize a ongoing conversation with it.	Exploration of how AI should visualize a ongoing conversation and chat hostory with it.

Complexity →

Findings from concept exploration and codesign session:

Through the codesign sessions real usecase scenarios were identified for phone- and AI interactions within the car, as well as captured wishes for future interaction possibilities.

Current real use scenarios of Participants for AI, that they wish can be incorporated:

1. Note Taking for meetings on the go – meetings and calls during driving were the work activity all participants shared, and it was also one of the top things they responded positively to when exposed to probes in this field. The use case here would be for AI to take meeting notes and ToDos, which otherwise cannot be done during driving. In addition a brief summary on the screen about what currently is being talked about in the meeting was also seen as highly positive, as it would allow drivers to zone out when necessary for driving purposes, but still be able to quickly jump back in and reply to questions asked
2. Web Search and research with quick responses through voice. Minimal visuals would be desirable here
3. Note Taking for Reminders, Brainstormings and Ideas that come while on the go
4. Transformation of Websites, Data and other sources into an audio format. One participant used AI to input websites she was curious about before starting to drive, and have Ai create a podcast for her about this content, so she could listen to it while driving
5. Rehearsing of pitches and presentations through a voice assistant (ChatGPT app)
6. Converse with Ai to entertain and Brainstorm

Probes and Wishes that resonate with Participants for enhancing their time spend in a Polestar:

1. A wish for a widget that generates relevant information to the user based on their connected context, being calendar, todos, upcoming events or relevant information to the drive – presented to participants as a passive mode before requesting any requests
2. Wish to individually control which functions and data sources AI can access, and a easy control over which of these functions are enabled / connected
3. A wish to view and edit spreadsheets and presentations on the car screen while being parked or stuck in traffic, also through voice.
4. AI should not directly edit documents, as users cannot check the changes in detail. Instead it should save the changes to new versions, so users can follow up later, when they can focus fully on it.

General Findings:

1. A physical button to initiate the interaction with the Assistant is preferred over sole voice activation, preferably a button on the steering wheel. Also the option to completely disengage all Ai functions is seen as positive by participants
2. For a conversational AI the possibility of having answer options predefined by the generative Ai was seen positive from all participants, as it could help to streamline interactions and make it possible to verify commands before execution

3. Trust in the car to help in critical scenarios was already expressed as high, so they would not mind to perform even more advanced tasks in the future should more self driving functions be available. "I already feel like the car would react faster than me anyways, so I don't mind having to use my phone sometimes"
4. A difference in UI for being parked and driving is something that was perceived as desirable and also brought up by my participants on their own initiative.
5. All participants mentioned using text messages as one of their main reasons for using a phone while driving and a main wish for Ai to become better at in the future. As this is not the scope of my project I will not address this topic in more detail, and it is being addressed by companies like google and apple, but it is important to note that all participants expressed this wish.

Not related to AI - several participants expressed the wish to use the screen in the car as an extended screen from their Laptop or Phone while being parked, to work on files and see shared screens while being parked.

"Practicing a presentation while driving? I think it's amazing... you're alone in your car, so you can perform, and if it gives feedback, that's really useful." – Participant 01

"If I've zoned out and somebody asks me a thing, then I can kind of get back to it and figure out what I need to say. So I think this [on-screen summary] is a better thing." – Participant 02

"I think it's good that it's leveled and that it kind of pays attention to how fast the car is moving... So it's not, it doesn't invite you to like do stuff on your calendar while you're really focused on driving." – Participant 05

07.04. Vision and Opportunity Tracks artifact Video

To introduce the project, and communicate the value each of the Opportunity Tracks to not only the UX team, but also other internal stakeholders like the design department, a short video was developed, that highlights value each concept can provide to users. For this the goal was to communicate these very early stage concepts, and to illustrate a short user journey with three stages, in which one of the concepts gets triggered.

The video shows a short user journey, showing scenarios where the highlighted opportunity areas can provide values to Polestar users. First a Confusion Remover Scenario, where the AI provides support for a low tire pressure warning. Second for the Contextual Zone a scenario where the user is stuck in traffic, and uses the contextual zone to turn articles from his phone into a podcast, inspired by a real usecase from one of the participants. Lastly the AI asks the user if he wants to try the track mode around the corner, finishing with the Polestar driving off on a country road.

In the spirit of this project AI was used for main parts of the video editing, to generate background music inspired by the Knight-Rider theme, provide a Voice Over that matches Polestars brand and tone and to generate parts of the Video backgrounds. It also was used to provide support in the editing process in terms of step-by-step instructions.
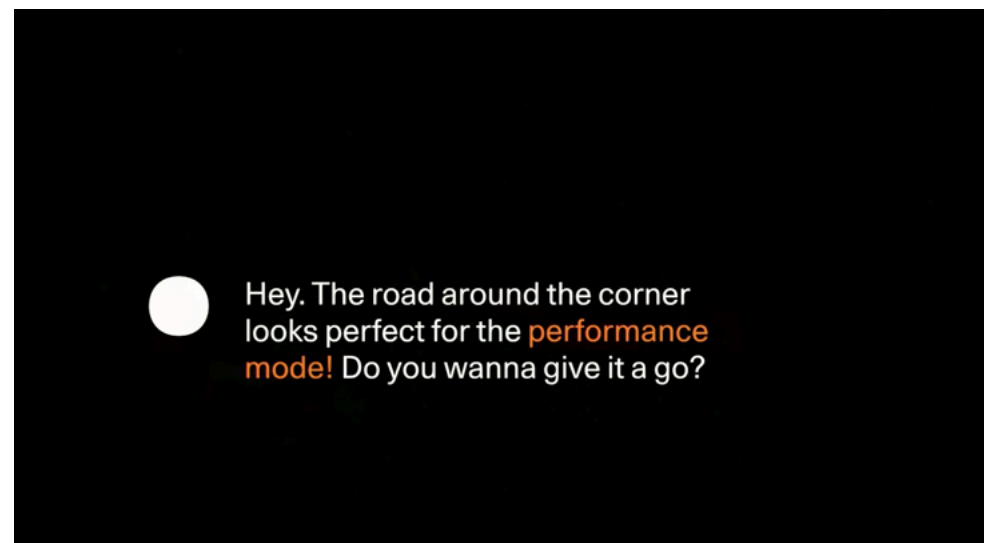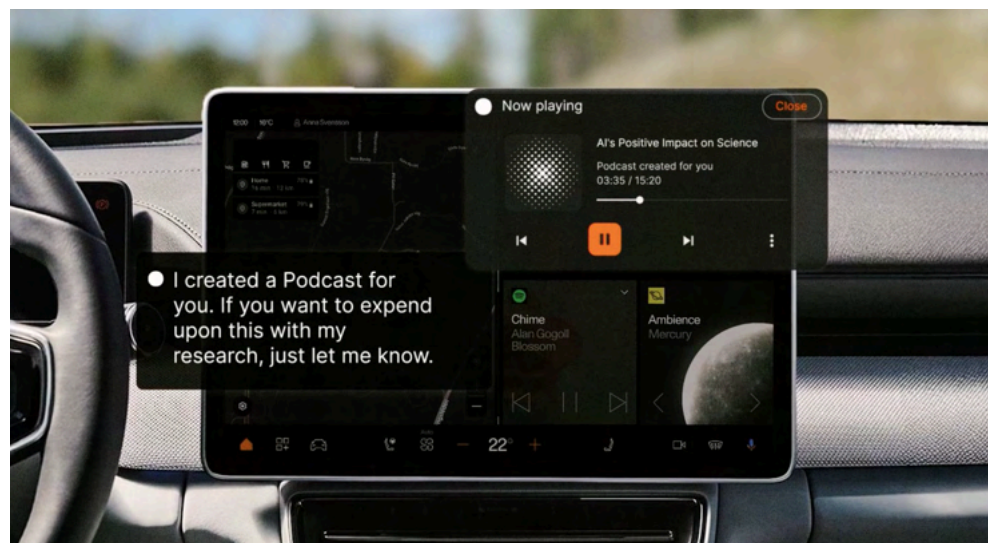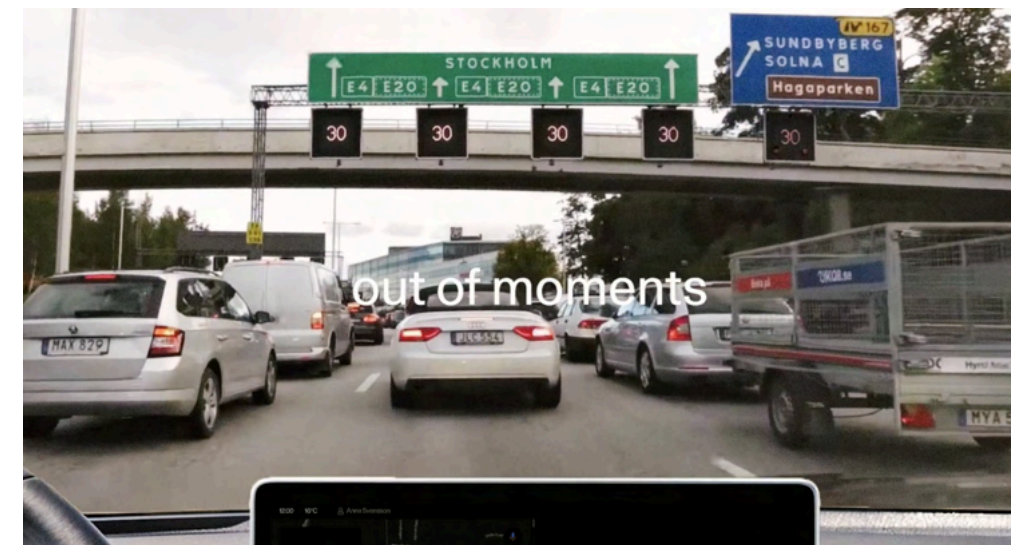
08

Strategic Roadmap

This chapter presents a strategic roadmap for AI boosted experiences in Polestar, mapping design modules along three horizons, in sync with technology, trends and value drivers.

08.01 Roadmap Structure

This strategic roadmap is aimed to be used for internal and external communication with stakeholders, business partners and involved parties. This might be tech suppliers of Polestar like Volvo, Geely and Google, other internal teams like R&D or CX, or the UX team itself. It presents the innovation strategy in an inspired and generic way without going into too much detail. The main idea of the strategic roadmap is to have an agreement on the company's future path, and show where Polestar should set focus and differentiate itself from competitors. Design modules in the three identified Opportunity Tracks were added to the strategic roadmap, with the concepts scaling and gaining more features throughout the horizons.

The strategic roadmap is visualized in on Page 84. It presents the Future Vision, the AI boosted user experiences across three horizons with its value proposition. The value drivers for each concept are also linked in the horizons. It is designed to work in a simple version for external sharing, aswell as a more detailed version, which can be used for internal UX and R&D processes.

Quick overview
The roadmap spans three horizons towards the future vision, covering a timeframe of five years, with concepts scaling throughout the horizons, adding more features adressing different values. The three horizons cover the three main value drivers from the future vision, being transparency, joy of driving and time spent in a Polestar. The three Opportunity Tracks for experiences are conceptualized into building blocks in the roadmap, with the Idea being that the roadmap can be used as a guideline to start projects on these modules.
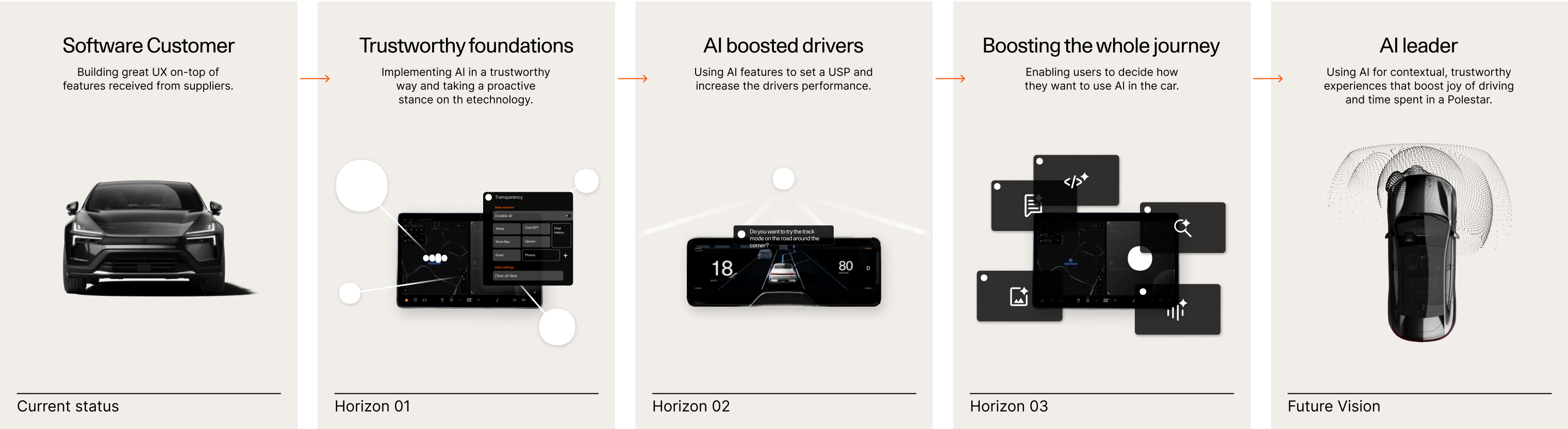
The activities in Horizon 1 focus on building up transparency as a foundation for future Ai implementation, and catching up with latest developments in the field of AI by other OEMs. Focus is here on integrating and using Gemini to reduce confusions in the car and make voice conversations with the car more natural.

In Horizon 2 the activities focus on enhancing the joy of driving in a Polestar through the use of GenAI. Here Polestar uses enhanced customized visualizations and a contextual gamified onboarding experience to create enhanced interactions and experiences. Deeper AI integration is possible in the new cars through central compute architecture, which allows AI to control more actuators.

In Horizon 3 Polestar will not only enhance the joy of driving through AI, but instead enhance the time spend in a Polestar in its whole, allowing users to use the generative and Agentic AI in the car as a tool to facilitate their individual needs and make the most out of the time spend. All of these horizons build on each other, and move Polestar towards the future vision, driven by user values throughout the way.

Through this Roadmap Polestars approach will shift from having a passive stance on AI, towards a proactive approach.

Software Customer
Building great UX on-top of features received from suppliers.

Current status

Trustworthy foundations
Implementing AI in a trustworthy way and taking a proactive stance on th etechnology.

Horizon 01

AI boosted drivers
Using AI features to set a USP and increase the drivers performance.

Horizon 02

Boosting the whole journey
Enabling users to decide how they want to use AI in the car.

Horizon 03

AI leader
Using AI for contextual, trustworthy experiences that boost joy of driving and time spent in a Polestar.

Future Vision

08.02. Horizon 01: Trustworthy Foundations

Horizon 1 represents the near future and focuses on the core user value of transparency in Ai interactions, and the persona of Andreas, the current Polestar customer.

"Enabling Gemini in Polestar cars in a trustworthy way, to reduce confusions in the car and make voice conversations with the car more natural."

Value Driver
The key value in this horizon is that of transparency in AI, which translates to understandable and subtle use of AI in this horizon, that keeps it simple, only controls car functions and gives users the option to control when Ai is being used in their Polestar.
The horizon connects to trends such as Conversational AI, personal data ownership and personalization.

Technology
Main tech-supplier and partner in this Horizon will be Google with Gemini that will come to Google build in cars in the near future, and it will be on Polestar to make these features available. The main new available function will be more natural conversations with the Car, enabled by gemini, that will allow users to interact more naturally with AI, through natural conversations instead of static commands.

Trends
Polestar will directly address the growing trend of Personal data ownership in this horizon, becoming a industry leader in trustworthy experiences. It also enhances user convenience through System Integration, by enabling Gemini also in the users car, moving closer to fully personal assistants.

Design Modules
The Design Modules start in this horizon with parts of the "confusion remover" and "get to know each other" concepts, kicking them off with basic functions like asking questions about the car, (car manual in Gemini) for the confusion remover and the offering of profile configuration through voice, for the "get to know each other" concept. As the key value driver here is transparency, resonating with personas like Andreas, Polestar needs to pay attention in how this AI operates within the car, keeping the existing "press button to talk" mechanism, and restricting it from data collection (which in current Gen. cars is limited already due to hardware limitations). The AI is only used to control car functions in this horizon.

New features in this horizon can be added into existing car models through OTA's and should be present from the beginning in new models. Future Models being planned currently should build on the value of transparency, through hardware integration from the beginning of product development, like a dedicated, physical AI off switch for future cars.

01 Trustworthy Foundations

Enabling Gemini in Polestar cars in a trustworthy way, to reduce confusions in the car and make voice conversations with the car more natural.

2026
Polestar 2, 3, 4 & 5

Value drivers

Transparency

Trends

Personal data ownership + User convenience through System Integration

Technology

Generative AI enhances current user experiences through enhanced conversational capabilities and Ecosystem integration.

Google tech train

Design Modules

Get to know each other

- ● AI privacy setting panel & controls
- ● Gemini x Polestar Avatar

Confusion Remover

- ● Polestar Manual in Gemini
- ● Google Maps Lane assist

Contextual Zone

Other

- ● Enhanced Stats about performance

02

AI boosted drivers

Polestar uses AI to enhance the joy of driving in the car, tailoring visualizations and interactions of driving related features to the users context.
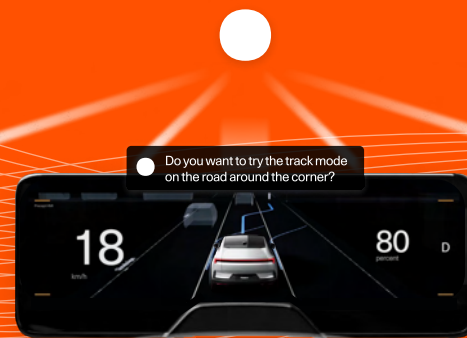
2027
Next Gen.

Value drivers

Joy of driving

Trends

Skill erosion through enhanced automation + Immersive Experiences

Do you want to try the track mode on the road around the corner?

18 km/h   80 percent   D

Technology

Generative AI provides new, contextual features that facilitate the joy of driving and make Polestar stand out from its competitors. Shift towards central compute allows AI to control more actuators.

Google tech train

Polestar tech train

Design Modules

- Physical AI on/off switch in next Gen. Cars

Get to know each other
- Get to know you – AI onboarding experience
- Get to know me – AI onboarding experience

Confusion Remover
- Gen. visual help & confusion reduction
- Confusion recognition

Contextual Zone
- Polestar Generative Art Experiences
- Generative UI Design System
- Conversation Visualizer Widget

Other
- Driving convenience featureset
- AI Suspension mode

08.03. Horizon 02: AI boosted drivers

The second horizon represents the next generation of Polestar Cars, starting with Polestar 7 in 2027, and is centered around the value driver of enhancing the joy of driving, and transitions between current customers and the future customers Polestar is marketing towards.

"Polestar uses AI to enhance the joy of driving in the car, tailoring visualizations and interactions of driving related features to the users context."

Value Driver
Polestar will use AI in this horizon to enhance the joy of driving in the car, connecting enhanced visualizations and interactions with driving related features. This is the most important horizon, as it will allow Polestar to develop a USP through AI functions in their cars, taking a proactive stand towards this new technology.

Technology
In addition to Google's Gemini platform, Polestar will need to develop it's own AI features ontop of that, to get their USP driving features. Central Compute and Higher computing power in the Car will allow the new cars to offer more inputs and outputs to AI.

Trends
Polestar will combat the skill erosion through enhanced automation by enabling drivers to become better drivers, and will provide more immersive user experiences.

Design Modules
Here all three Opportunity Tracks of AI boosted experiences will kick into effect, scaling up from the previous horizon, using generative UI elements, and giving AI more control over inputs and outputs, offering new possibilities.

First, "Get to know each other" will start to offer proactive tutorials for the driver based on his context, enhancing the knowledge drivers have about their car and enhancing their driving skills in a playful and elegant way. This natural, gamified onboarding will help Polestar to set a USP, and position itself and a driving experience centered brand, that allows users to fully experience their car.

Second, the "Confusion Remover" will give AI access to more sensors and input protocols on this new hardware platform, which will allow it to mitigate more confusions and offer clearer instructions to the driver. In addition to explaining car functions when asked, it will offer contextual and visual answers that tell the users what a warning light means to them right now.

Third, the "contextual zone" will be available in the new cars, allowing the AI to have longer conversations with the driver, visualize summaries and answers to questions, and provide predefined answer options on which users can decide. A passive widget will curate information from the user's ecosystem, highlighting what is most useful to the driver, depending on the context from his google and smart home ecosystem like destination, calendar, emails etc.

All these experiences work together to make a Polestar more personal and the driving experience more Joyful. As this horizon is key in defining how these AI experiences will be unique to Polestar, this is where the majority of implementation work for Polestar will be, but it also is an opportunity to use the next generation of cars as a starting point for these more immersive and deeper experiences.

08.04. Horizon 03: Boosting the whole journey

The third horizon is centered around enhancing and maximizing the time spent in a Polestar, keeping the transparency and joy of driving values from the first two horizons, but also offering value to those situations, where driving just isn't a lot of fun. Here Polestar should act as a curator, selecting AI experiences for its drivers that give them the opportunity to use and maximize the time in their polestar in the way they want, enabling more complex interactions, connected experiences and driving scenarios.

"Enhancing the time spend in a Polestar by, allowing users to use AI in the car as a tool to facilitate their individual needs and make the most out of the time spent."

Value Driver
The key value in this horizon is that of time spent in the car. The goal here is to give users a tool, that enables them to use their Polestar as a canvas to facilitate whatever activity they want to pursue while driving.

Technology
In this horizon Polestar will also integrate Group wide technology developments into it's cars, allowing it to benefit from Features developed by Volvo and Geely, enhancing self-driving capabilities and productivity focused features. As a consequence the UI will shift towards being more contextual, being different when driving and standing, giving users more control and possibilities of interacting with the car. This will enable users to perform more complex tasks while driving.

Trends
It connects to powerful trends such as IOT, Self driving, Enhanced automation, incorporating your Polestar into your connected life.

Design Modules
First "Get to know each other" will facilitate an onboarding and configuration experience that starts even before the car is received, allowing the car to be already set up when first getting in, creating a magical and more frictionless first experience. Face recognition will make it obsolete to switch user profiles, as the car will always know who is driving.

Second the confusion remover will become more proactive, and actively recognize and mitigate moments of confusion, before they even happen, making the time in the Polestar even more joyful and frictionless.

Third, the contextual Zone will come to its full scale in this horizon, enabling users to be more productive, and use GenAI in their car, like they would on a phone or computer, making interactions with these devices unnecessary while driving. It will act as a blank canvas that users can use to facilitate their work, tasks and preferences of activities while driving, from searching the web, to creating their own podcasts from websites, to rehearsing presentations, brainstorming or even code applications and prototypes. Users will be able to connect accounts from different ecosystems, allowing them to connect files, digital services and smart homes all to the car, enabling it to be an extension of their connected life.

03 Boosting the whole journey
—
Enhancing the time spend in a Polestar by, allowing users to use AI in the car as a tool to facilitate their individual needs and make the most out of the time spent.

2029
Next Gen.

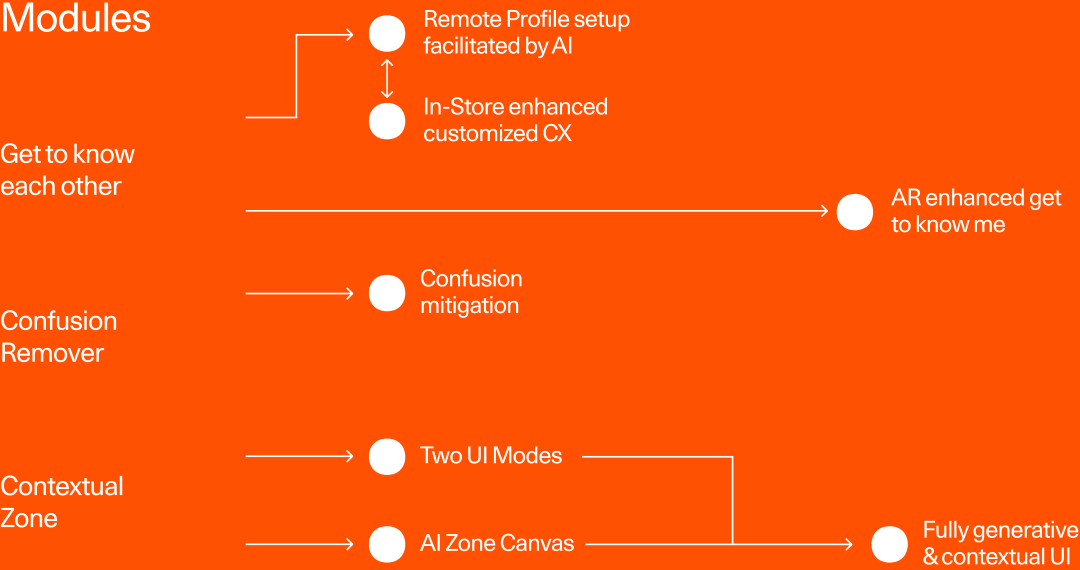| Time spent in a Polestar |

Value drivers

Trends
Hyper personalization + User convenience through System Integration

Technology
GenAI, Agentic AI and personal AI provide a maximum of system integration, automation and new usecase possibilities, moving from defined UI elements towards part- generated UI.

Google tech train

Polestar tech train

Geely Group tech train

Design Modules

Get to know each other
- Remote Profile setup facilitated by AI
- In-Store enhanced customized CX
- AR enhanced get to know me

Confusion Remover
- Confusion mitigation

Contextual Zone
- Two UI Modes
- AI Zone Canvas
- Fully generative & contextual UI

Other

01 Trustworthy Foundations

Enabling Gemini in Polestar cars in a trustworthy way, to reduce confusions in the car and make voice conversations with the car more natural.

2026
Polestar 2, 3, 4 & 5

Transparency

02 AI boosted drivers

Polestar uses AI to enhance the joy of driving in the car, tailoring visualizations and interactions of driving related features to the users context.

2027
Next Gen.

Joy of driving

03 Boosting the whole journey

Enhancing the time spend in a Polestar by, allowing users to use AI in the car as a tool to facilitate their individual needs and make the most out of the time spent.

2029
Next Gen.

Time spent in a Polestar

Future Vision

Polestar enhances the joy of driving and time spent in your Polestar through using context aware and trustworthy AI experiences.

Value drivers

Trends

Personal data ownership + User convenience through System Integration

Skill erosion through enhanced automation + Immersive Experiences

Hyper personalization + User convenience through System Integration

Do you want to try the track mode on the road around the corner?

18   80

</>✦

Technology

Generative AI enhances current user experiences through enhanced conversational capabilities and Ecosystem integration.

Generative AI provides new, contextual features that facilitate the joy of driving and make Polestar stand out from its competitors. Shift towards central compute allows AI to control more actuators.

Generative AI, Agentic AI and personal AI provide a maximum of system integration, automation and new usecase possibilities, moving from defined UI elements towards part- generated UI.

Google tech train

Polestar tech train

Geely Group tech train

Design Modules

Get to know each other

- AI privacy setting panel & controls
- Gemini x Polestar Avatar
- Physical AI on/off switch in next Gen. Cars
- Get to know you – AI onboarding experience
- Get to know me – AI onboarding experience
- Remote Profile setup facilitated by AI
- In-Store enhanced customized CX
- AR enhanced get to know me

Confusion Remover

- Polestar Manual in Gemini
- Google Maps Lane assist
- Gen. visual help & confusion reduction
- Confusion recognition
- Confusion mitigation

Contextual Zone

- Polestar Generative Art Experiences
- Generative UI Design System
- Conversation Visualizer Widget
- Two UI Modes
- AI Zone Canvas
- Fully generative & contextual UI

Other

- Enhanced Stats about performance
- Driving convenience featureset
- AI Suspension mode

09

Discussion

The thesis is concluded and validated and final recommendations for kickoff projects are given. In addition Limitations are discussed and a personal reflection is given.

09.01 Methodological Choices

The selection of methods was guided by the goal of exploring future AI-driven user experiences in a way that would remain relevant over time and provide both strategic insight and concrete design outcomes.

The AI Stages framework after De Ridder et al. (2025a) was central to this approach. It provided a structured lens to think long-term about AI development without being tied to specific technologies. This made it useful not only for shaping the roadmap and organizing idea mapping, but also during ideation itself – where moving concepts through the stages helped refine and scale them. Interestingly, my findings around how design modules scale over time aligned well with the logic of the AI Stages model (De Ridder et al., 2025a), which further validated its use.

To better understand user needs and define a clear vision, I used the value mapping workshop after Simonse (2024). This method proved very effective in surfacing user values and identifying value tensions. These tensions were essential in framing the Future Vision, grounding it in interesting value tensions with good design opportunities. The collaborative format also worked well with the team, and improved the acceptance of this projects results within the UX team, as the Vision was created together (Simonse, 2024).

For structured ideation, I adapted the design space cards method after Lomas et al. (2021) originally meant for game design. I used it to explore the design space of "AI-boosted User Experiences" in a way that was both creative and had boundaries. Unlike open brainstorming, the deck helped keep ideas tangible and

grounded, while still allowing room for iteration. The frequency of card usage can reveal reassuring needs around sensor access, which could inform technical priorities later.

Co-design sessions with a structure after Sanders and Stappers (2012) were used in combination with UI probes to explore early adopters and uncover scenarios not thought of before. While these sessions were valuable for inspiration and understanding initial preferences, they were also quite diverse in flow and output, which made comparison challenging. Nonetheless, they contributed important perspectives to the process, and helped shape what the Design Opportunity Track 03: Contextual Zone can bring to users.

One of the most important choices in the process was to use a strategic roadmap as a central framework. I chose this because a strategic roadmap is not just a planning tool - it is a visual artifact that supports alignment, vision communication, and decision-making across different stakeholder groups (Simonse, 2024). This was particularly valuable because both internal communication within the UX team and external communication with partners were relevant. The design roadmap allowed me to connect future horizons to specific user values and personas, as encouraged in the literature. According to Simonse (2024), this strategic roadmap helps synchronize innovation decisions over time and across teams, while staying grounded in user value drivers. However, due to limited research data, I was not able to define a complete persona for the second roadmap horizon - something that could be addressed in future work, to make designing modules in this horizon even more tangible.

09.02 Results and Alignment with Literature

The results from this project showed a clear alignment between the AI Stages framework (De Ridder et al., 2025a) and the pattern that emerged. The AI Stages framework helped structure the ideation process and understanding for how AI might evolve – from optimizing existing experiences, to enhancing quality, and ultimately enabling entirely new systems. Interestingly, this same progression appeared in my roadmap organically: early-stage concepts focused on enhancing current driving interactions, while later ones introduced more transformative features and systems.

A central theme that emerged from the value mapping workshop was the tension between joy in driving and moments without joy. This tension intersected user needs, technological trends (like automation and self-driving), and Polestar's own brand values around performance. It became the key anchor for the future vision. The exercise validated Simonse, 2024 claim that uncovering value tensions can sharpen strategic direction and reveal innovation opportunities that are otherwise hard to surface.

The design space card deck (Lomas et al., 2021) revealed that many concept ideas relied on contextual data – especially location and destination from services like Google Maps. This pattern suggests that sensor access to location- and road data services is particularly important for developing AI-boosted driving experiences.

Lastly, the co-design sessions with UI probes surfaced several unexpected use scenarios and personal preferences, which were difficult to generalize but valuable for inspiration and uncovering the participants future wishes and dreams. This aligns with the path of expression method's (Sanders & Stappers, 2012) aim that was chosen to structure these sessions.

09.03 Recommendations & Future Directions

This thesis provides a strategic overview of how Polestar can deliver user value through AI-enhanced experiences. While the focus has remained at a strategic level, these ideas serve as a foundation for more detailed design, development, and UX research. The following recommendations outline how these concepts can be extended, implemented, and operationalized through future work.

01 Transitioning from Strategy to Implementation

The three identified Opportunity Tracks present strong starting points for further exploration. A natural next step is for a second master's student or internal UX researcher to continue this work by investigating interaction flows, design principles, and detailed implementation of these concepts. To support this transition, the tracks have been structured into design modules with defined boundaries. This modularity allows Polestar's UX team to initiate R&D projects on each concept independently and systematically integrate them into future vehicle programs.

Proposal: Initiate Dedicated UX R&D Tracks Polestar should launch UX R&D projects dedicated to each of the three identified concept areas, as building blocks of their own AI features on top of Google's Features, which likely will come to all Evs in the future. These should follow a structured process including prototyping, user testing, and collaboration with cross-functional teams. The goal is to validate usability, feasibility, and desirability before integration into production pipelines.

02 Concept Car Integration and Roadmapping

Early iterations of these tracks should be showcased in a Polestar concept car. This serves two strategic functions: (1) guiding internal development direction and (2) positioning Polestar as a design and technology leader in AI-augmented mobility.

A tactical roadmap should be developed to outline implementation timelines, identify required partners, and align efforts within the Geely Group. A clear distinction should be made between features suitable for shared development across the group and those that can become Polestar-specific USPs.

03 Hardware Readiness for AI

To enable multimodal AI interactions (e.g., voice, gesture, ambient sensing), future vehicle platforms must be designed with sufficiently powerful processors and scalable software architectures. Early investment in hardware and middleware is essential to future proof vehicle platforms.

If Polestar intends to utilize contextual AI effectively, early planning for sensor access and data protocol design is critical. This planning should begin with Polestar 7 to ensure hardware readiness and scalable architecture. The concept-generation card deck created as part of this thesis can support this effort by helping prioritize key sensor inputs and contextual data streams.

04 Moving forward with the Google Partnership

Polestar's integration with Google's ecosystem provides substantial user value by embedding the vehicle into users' digital lives. However, Polestar must ensure this partnership aligns with its brand values, especially around user control and transparency.

Recommendation: Implement a physical AI/offline switch in future cars. This small but symbolic feature can reinforce user trust and demonstrate Polestar's commitment to responsible technology design.

As this is a hardware change, this also needs to be researched and developed from the early development stage, and should be discussed in line with giving sensor inputs to AI.

05 UX Design for Conversational AI

Research conducted in this project revealed a strong user preference for AI prompts offering multiple-choice-style answer options, rather than open-ended questions. This could be due to cognitive load reduction and improved usability, especially in driving contexts.

Recommendation: Conduct further UX studies on conversational interaction design, with a focus on adaptive UI/UX for low-cognitive-availability scenarios.

06 Interactive Art as a USP

Several Chinese OEMs are already using generative AI to create reactive digital experiences (e.g., wallpapers, ambient lighting). To make this concept uniquely Polestar, the brand should collaborate with artists to co-create immersive, sensor-driven installations using in-car ambient lighting, screens, and audio systems.

This approach blends Scandinavian design values with emerging digital art and turns a trend into a differentiated USP.

08 AI in the Customer Journey

The "Get to Know Each Other"-Track could be extended to improve the pre-purchase experience. For example, AI could be used during test drives to tailor the experience to a customer's needs. A short onboarding questionnaire could generate a dynamic test drive agenda for the salesperson, making the experience more relevant and memorable. This concept deserves further prototyping and evaluation as a sales tool and brand experience differentiator.

Additional Opportunities (Beyond Scope)

- Secondary Screen Functionality: Participants repeatedly expressed interest in using the car's central screen as a secondary display for their devices while parked. Polestar should explore the feasibility and UX implications of enabling this functionality.
- Sustainable AI Practices: As AI systems become more integral to the vehicle experience, their environmental impact must be considered. Polestar should: Visualize the carbon footprint of AI features, similar to its supply chain tracking. Offer users the ability to opt out or adjust AI features to reduce energy use.

09.04. Limitations

While this project provides valuable strategic insights into AI-enhanced experiences for Polestar, several limitations should be acknowledged in terms of methodology, scope, and generalizability.

01 Low-Resolution Prototyping and Early Adopters

During the second half of the project – particularly in the exploration of the contextual AI zone through co-design sessions – I worked primarily with low-resolution prototypes. These prototypes evolved iteratively, with materials and design fidelity shifting between sessions. While this allowed for a flexible and exploratory design process, it may have limited the clarity and realism of user feedback.

In addition, the participants involved in these sessions were largely early adopters with a high degree of technological curiosity. Their attitudes, needs, and expectations may differ significantly from mainstream or late-adopting user segments. As such, the use cases and insights derived from these sessions should be seen as indicative and inspirational rather than representative or statistically generalizable.

02 Rapidly Evolving AI Landscape

AI technologies and societal attitudes toward them are changing rapidly. User expectations, ethical concerns, regulatory frameworks, and technological capabilities may look significantly different within just a few years. For example, increasing levels of vehicle autonomy, the rise of external AI interfaces, or even shifts in hardware design (such as off-board AI processing or shared multimodal controllers)

could render some of the proposed concepts obsolete or require substantial adaptation. Because of this uncertainty, some of the strategic recommendations and design ideas in this thesis should be considered as time-sensitive and subject to re-evaluation as the field develops.

03 Researcher Bias and Limited Triangulation

Most of the research sessions – including interviews and co-design workshops – were conducted and analyzed by me as the sole researcher. This introduces the potential for researcher bias in both data interpretation and synthesis of findings. Furthermore, the lack of triangulation through multiple researchers or external evaluators limits the robustness and objectivity of the insights.

04 Exploratory Nature of the Research

This project intentionally focused on early-stage concept exploration rather than validation. As such, the findings are not intended to offer definitive answers but to serve as a starting point for further inquiry and development. The concepts, user reactions, and strategic directions proposed here should be treated as hypotheses to be tested, refined, and expanded in future UX and technical research.

Shift in work from the original plan:

The card deck to explore the design space of "AI boosted user experiences" was added to the scope of the project within the course of this project. It was aimed to help me - and Polestar's UX team to navigate this complex design space more structured, without getting lost. The resulting tool can be used in workshops by the design team to facilitate brainstorming.

09.05 Conclusion

This thesis set out to explore opportunities for AI-powered user experience concepts to create strategic value for Polestar's UX team and its customers. The automotive industry, transformed by digitalization, electrification, and AI advancements, is shifting from hardware-oriented manufacturing towards software-defined experiences. Recognizing this shift, this thesis contributes strategically and practically to Polestar's future UX innovation framework.

Four main contributions were developed through this research:

01 Future Vision:

A compelling strategic future vision was crafted, emphasizing enhancing the joy of driving and optimizing time spent in Polestar vehicles. Central to this vision is context-aware, trustworthy AI, balancing user privacy concerns with the potential for deep personalization. This vision acts as a guiding star, aligning future AI-driven innovations with user values and brand integrity.

02 Card Deck:

A structured AI-driven design card deck was created, enabling systematic exploration and ideation within the broad design space of "AI-boosted experiences in Polestar vehicles." This practical tool helps the UX team in generating and prioritizing innovative concepts, mapping AI sensor inputs, interactions, and outputs clearly and effectively.

03 Opportunity Tracks:

Through the strategic use of the card deck and evaluation tools, three key Opportunity Tracks were identified, which Polestar should further research and set as USP"s:

1. Get to Know Each Other: A gamified onboarding and continuous learning experience to foster deeper driver-car relationships.
2. Confusion Remover: Proactive AI interventions to eliminate confusion and enhance driving safety, joy, convenience, and comfort.
3. Contextual Zone: Offering interactive, generative AI-supported functionalities to give users access to use the car in the way that enhances their time spend best.

04 Strategic Roadmap

A detailed strategic roadmap was designed, delineating clear developmental phases towards the envisioned future. This roadmap highlights key value propositions, technological trends, and design modules structured across three horizons– establishing transparency, enhancing driving joy, and ultimately redefining productive, enjoyable interactions within Polestar vehicles. It serves as an internal and external communication tool, ensuring strategic coherence and effective stakeholder alignment.

In conclusion, these contributions collectively empower Polestar to strategically leverage AI, creating distinct user experiences that align seamlessly with evolving user expectations, technological possibilities, and Polestar's distinct brand identity.

09.06 Validation

The thesis outcomes were validated through an internal presentation towards the UX team, and a second presentation to the Design Department and Product Development functions. Follow up feedback was received from my company supervisor, the Head of UX, and a Product Manager, responsible for parts of the Polestar 7 development.

It was concluded that the thesis provided value to the stakeholders through creating awareness for the field of AI within the team, inspire the team, and helping ground Ideas in reality. It also creates awareness for the timing and prerequisites of AI based features, thus giving structure to current planning.

In a small design team like Polestar's it was also mentioned that it is valuable to gain a strategic perspective and future vision for developments, in contrast to the day to day "firefighting"-work that consumes a noticeable part of work.

The Roadmap with it's design modules deriving from the Opportunity Tracks as a outcome can help to shift Polestars approach to software from a reactive-customer based perspective, towards a more proactive communication, with Polestar actively demanding features. As a result it can be a useful tool for external and internal communication, allowing to anticipate products development decisions better and ask for prerequisites before they are frozen. This can increase internal alignment between departments, and smooth out the development process.

09.07. Personal Reflection

My initial motivation for this thesis was driven by a client with a design-driven mindset, immense innovation potential, and a captivating brand. Throughout the project, this initial excitement not only sustained me but also continually deepened my appreciation for working at the intersection of UX and strategic design in Polestar.

A significant challenge I faced was navigating the overwhelming amount of ideas, possibilities, and rapid developments in AI. Each week, new breakthroughs or perspectives emerged, risking distraction or loss of focus. Implementing the card deck method became an invaluable tool –an eye-opener that helped structure my thinking, maintain focus, and provided clarity amidst complexity.

Integrating UX and strategic design was a particularly exciting aspect of the thesis, as it combined both my backgrounds and interests. The interdisciplinary approach enabled me to connect user experience considerations with strategic objectives, resulting in outcomes that were both user-centered and strategically robust.

The roadmap is probably my most meaningful contribution, as it combined all my Project elements and findings into one cohesive strategy. It successfully filled a significant gap, providing guidance to Polestar's UX team where none existed before and sparking discussions. Its utility for both internal alignment and external communication became evident through positive reactions from stakeholders.

Personally, this thesis greatly contributed to my professional confidence, especially in strategically approaching complex, dynamic fields like AI in collaboration with other disciplines. Rather than shifting my career aspirations, the experience confirmed my existing ambitions, establishing a solid foundation and igniting my interest for future projects involving AI.

Ultimately, I hope that the Opportunity Tracks and strategic vision proposed might serve as a starting point, potentially shaping future real-world projects such as a UX in Polestar 7 or upcoming concept cars.

thank you

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