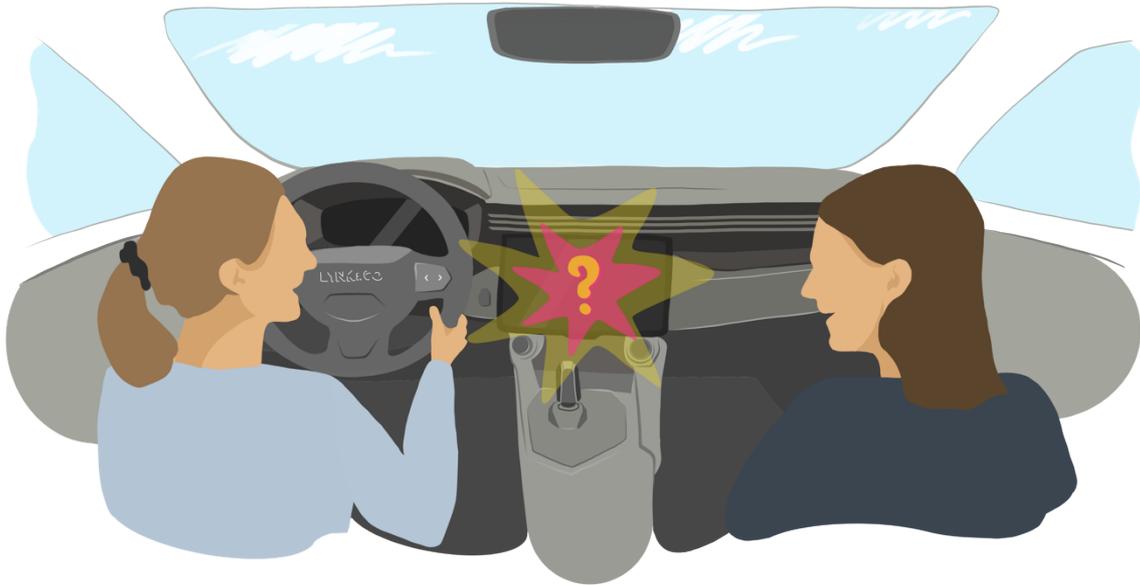




CHALMERS
UNIVERSITY OF TECHNOLOGY



How to Design Easter Eggs for a Car Brand to Enhance User Experience

A Qualitative Research and Case Study

Master's Thesis in Industrial Design Engineering

EMMA SALDNER & OTTILIA LINDE

DEPARTMENT OF INDUSTRIAL AND MATERIALS SCIENCE

CHALMERS UNIVERSITY OF TECHNOLOGY

Gothenburg, Sweden 2020

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Master of Science Thesis 2020

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Cover: A surprising and positive easter egg user experience in a Lynk & Co car

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Abstract

Since the early '80s, digital easter eggs have become a common phenomenon in the digital world. Today, it's appearing even in the automotive industry. The purpose of these easter eggs is to enhance the experience by providing the user with something fun and surprising. Academic research about easter eggs is scarce, even though the concept is intensively used.

This study aims to identify a framework for designing easter eggs for a car brand to enhance user experience.

A qualitative research approach was applied and followed a double diamond design process. Ten semi-structured contextual interviews about the experience of easter eggs in cars were carried out, in order to understand the user and the context. Insights from these interviews were used to identify different opportunities, which formed the basis of ideation. An iterative loop between evaluation and ideation was done to refine the final concepts.

The results show that the easter egg experience is depending on three significant pillars that contribute to the holistic easter egg experience; user, car, and context. Moreover, four stages of the easter egg experience were identified: awareness, trigger, delivery, and longevity, which are all important phases to design for. Furthermore, a list of guidelines for designing easter eggs was established. The four stages and guidelines were then applied in a case study when designing the easter eggs for the Lynk & Co car. Two easter eggs were developed, one is based on the voice assistant function and the other one is based on hidden QR codes.

For the future, it is suggested to continue exploring the use of easter eggs and elaborate on what actual impact such features will have on the brand and long-term user experience.

Keywords: easter egg, user experience, design, human-machine interaction, automotive.

Acknowledgement

This report presents the result of a master's thesis that was completed during the spring semester 2020 as the final graduation project in the master's program Industrial Design Engineering, at Chalmers University of Technology, Gothenburg. The work comprises 30 credits and has been carried out together with the company Lynk & Co Design. The project deals with the areas of design, user experience, and human machine interface.

We would like to thank our supervisor and examiner at Chalmers, Bijan Aryana, for good supervision and support. Thank you for sharing your academic writing skills with us.

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Gothenburg, June 2020



Emma Saldner



Otilia Linde

Abbreviations

ADAS	Advanced Driver-Assistance System
AUX	Anticipated User Experience
CSD	Centre Stack Display
DIM	Driver Information Module
GUI	Graphical User Interface
HMI	Human-Machine Interface
HUD	Heads Up Display
OTA	Over the Air
SWS	Steering Wheel Switches
UI	User Interface
UX	User Experience

Table of content

1 Introduction	1
1.1 Rationale	1
1.2 Lynk & Co Design	1
1.3 Aim	2
1.4 Objectives	2
1.5 Limitations	2
2 Background	3
2.1 Easter eggs	3
2.2 UX and AUX in cars	4
2.3 UI and HMI in cars	4
3 Methods	6
3.1 Emphasize	7
3.1.1 Benchmarking	7
3.1.2 Expert interview	7
3.1.3 Contextual interview	8
3.1.4 Emotion assessment	8
3.1.5 KJ-analysis	9
3.1.6 Persona	10
3.1.7 User journey	10
3.2 Define	10
3.2.1 Opportunities	11
3.2.2 Defining guidelines	11
3.3 Ideate	11
3.3.1 Brainstorming	11
3.3.2 Co-creation workshop	11
3.3.3 Braindrawing	14
3.4 Evaluate	15
3.4.1 PNI	15
3.4.2 Value matrix	15
3.4.3 Final concepts	16
4 Result & Analysis	17
4.1 Emphasize	17
4.1.1 Benchmarking	17
4.1.2 Expert interview	20
4.1.3 Contextual interview	21
4.1.4 Emotion assessment	21
4.1.5 KJ-analysis	24
4.1.6 Persona	27
4.1.7 User journey	29
4.2 Define	30
4.2.1 Opportunities	30

4.2.2 Defined guidelines	32
4.3 <i>Ideate</i>	33
4.3.1 Brainstorming.....	33
4.3.2 Co-creation workshop	36
4.3.3 Braindrawing	38
4.4 <i>Evaluate</i>	40
4.4.1 PNI	40
4.4.2 Value matrix.....	41
4.4.3 Case study result	42
5 Framework for designing easter egg UX in cars	51
5.1 <i>Three pillars of easter egg UX in cars</i>	51
5.2 <i>Design guidelines and easter egg UX stages</i>	52
5.3 <i>Complete framework</i>	53
6 Discussion	55
6.1 <i>Implications</i>	55
6.2 <i>Methods</i>	56
6.3 <i>Limitations</i>	56
6.4 <i>Recommendations</i>	57
7 Conclusion.....	58
Table of references.....	59
Table of figures	61
Appendix.....	62

1

Introduction

A phenomenon within digital products and brands is the concept of easter eggs. An easter egg is defined as “A rewarding surprise embedded in an artwork (such as a film, a painting, or a video game) for discovery by those who hunt for it” (Chandler & Munday, 2016). This includes secret messages, a joke, or a hidden image. It can also be described as “a feature hidden in a program that is displayed only under special circumstances (e.g. when the user presses a particular combination of keys) and can be a list of credits or a short animation” (Butterfield, Ekembe Ngondi, & Kerr, 2016). These types of easter eggs are not to be confused with Easter eggs being painted eggs during the Easter holiday, consequently it was decided to spell easter with lowercase *E* to separate these two.

1.1 Rationale

Although its widespread use, academic research about easter eggs is scarce, hence, no guidance is given to designers about what aspects to consider when creating this type of features. Given the character of easter eggs, they are a part of shaping user experience that people have with products, services, or brands. According to Hassenzahl (2008), users can perceive products along two different criteria: pragmatic and hedonic qualities. The pragmatic qualities refer to the utility and usability of products, with a lot of focus on the product (do-goals). The hedonic qualities on the other hand, focus on the Self (be-goals), and the human needs beyond the instrumental, being emotional values, self-expression, novelty and change. Given this classification, easter eggs are not part of shaping good usability or efficiency, thus easter eggs are a part of shaping the hedonic qualities. Hassenzahl (2008) argues that “What is desired is to fulfil be-goals such as being autonomous, competent, related to others, stimulated, and popular through technology use. [...] Hedonic quality, thus, contributes directly to the core of positive experience.” If easter eggs can help fulfilling be-goals and hedonic quality, this subject is worth continuing exploring. The concept’s rather novel approach can also be appreciated by users as it stands out from traditional ways of enhancing user experience. By exploring the potential of easter eggs and its applicability on other industries, one can eventually understand the possibilities that comes with it.

1.2 Lynk & Co Design

Lynk & Co Design is a design studio developing for the mobility brand Lynk & Co. Lynk & Co cars are sold in China but is yet to be launched in Europe by the time as this study is carried out. They choose to call themselves a mobility brand as they aim to target the lifestyle of the user and not put the car in the centre. The car is just a means for you to live your life hassle-free and to its full potential through their offer

of flexible ownership (Lynk & Co, n.d.). In many ways, Lynk & Co want to act like no other car company on the market and see themselves also as a digital brand as their cars have high connectivity, enables car sharing, and are distributed as a subscription service instead of traditional ownership.

Lynk & Co Design wants to develop easter eggs for the Lynk & Co car, as a means to enhance user experiences and to differentiate from competitors. The easter eggs should be fun and exciting which, in turn, can give the impression of the brand itself as more than just a normal car brand. The easter egg can also fill the purpose of encouraging users to continue exploring the product by hunting for more “treasures” and thereby, bring prolonged value and experience for the product’s life cycle.

1.3 Aim

The aim of this research is to identify a framework for designing easter eggs for a car brand to enhance user experience.

1.4 Objectives

- Collect data about existing easter eggs in order to understand the concept at large.
- Understand the current utilization and users’ experience of easter eggs in cars.
- Define what aspects that contribute to the holistic easter egg UX in cars
- Define a framework for designing easter eggs in cars.
- Apply framework and design easter eggs in a case study for the Lynk & Co car.

1.5 Limitations

The limitations of the study are presented below.

- The time frame for the study is between January 27th and June 9th.
- The easter eggs concepts in the case study is developed for the Lynk & Co car.
- The easter eggs will be limited to the car’s interior and HMI.
- The design of the easter eggs will remain on a concept level.

2

Background

Following chapter describes background information about the origin and history of easter eggs, followed by a section explaining user experience in cars and how digitalisation affects our anticipated user experience, and lastly, it explains the main touchpoints in the HMI that will be discussed in this study and safety considerations.

2.1 Easter eggs

The term easter egg was first coined by Steve Write, a former director of software development at Atari Inc., which in the 70's was one of the biggest producers of video games (Salvador, 2017). At that time, programmers did not get any credit for their work because of the fear that rivals would lure them to their companies. This was noticed by the game developer Joseph Warren Robinett Jr. who, without telling anyone, hid a message in a secret room of the game Adventure, saying "created by Warren Robinett". When the game was released in 1979-1980, Atari eventually found the secret message and Steve Write decided to keep it. First, because it would be very expensive to erase, but primarily because he saw the potential of it creating value by encouraging an easter egg-like hunt. Like that, the term "easter egg" was coined and was to become an obvious part of the gaming industry ever since then.

As for today, the concept of easter eggs has grown into a more extensive term and is used in industries beyond video games. For instance, the car brand Tesla has put a three-minute-long dance performance into their car Model X (Pogue, 2019). The purpose has evolved to amuse both users and programmers, and a way to attract potential employees. Google has a long tradition of easter eggs and it has become a part of their culture to create these delights, with the aim that people will share it with others, which will become beneficial for Google as a search engine in terms of promotional spread.

Another field that has applied and evaluated the concept of easter eggs is within education. This is practiced in the paper "The Easter egg Syllabus" (Stein & Barton, 2019). This article shows that easter eggs enable a more engaging way of learning course material and build interest through creating exciting content. Furthermore, exciting content is something that is considered to become more of a requirement, as the latest generation of school children has higher expectations on content in order for it to get their attention. The reason for this is the growing amount of impressions that the younger generations get, due to extensive use of screens, and the need for constantly wanting to receive new stimuli.

Using references is common in easter eggs, and to target either first, second, or third-partys' works, as for instance, referring to known characters that either oneself, one's own company, or a rival company has created. If a reference is used from a third party, meaning an easter egg that is meant to be a peak to another game developers' characters, this can fall under the legal restrictions of copyright (Chuvaieva, 2019). Therefore, copyright needs to be considered when developing easter eggs with the purpose to refer to other's work.

2.2 UX and AUX in cars

According to Hassenzahl and Tractinsky (2006) the definition of UX is: "A consequence of a user's internal state (predispositions, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.) and the context (or the environment) within which the interaction occurs (e.g. organizational/social setting, meaningfulness of the activity, voluntariness of use, etc.)".

UX in the automotive industry have during recent years been receiving an increasing amount of attention. As technology and digitalisation constantly evolves, this have changed how we interact with the car and our behaviour. Growing focus on infotainment, phones and media in cars have in turn, lead to issues concerning safety and distractions (Schouten, 2018).

As a consequence of our changed behaviour of wanting to stay connected and entertained, a range of different advanced driver-assistance systems (ADAS) features have been developed, with the aim to increase safety and in the long run - to enable you to completely do something else apart from driving. Lane assist, adaptive cruise control, and autopilot are today common features that have been developed as a step towards achieving a higher level of autonomy. Yet, using ADAS feature it is still a matter of trust (Itoh, 2012). Letting go and not trusting the car's function can lead to disuse.

The connectivity in our society has led to certain expectations as well as in the car industry. Anticipated user experience (AUX) is the primary stage before the actual usage of the product, which is called momentary UX, followed by episodic UX and cumulative UX (Lindgren, Fors, Pink, Bergquist, & Berg, 2018).

Today, we expect the car to be digitalised and connected, such as being able to turn the heat on through your phone, or unlocking the car for someone else.

Today, Tesla is known for their cars as being more of a computer than a car, where the software is at the centre, enabling services and updates to happen over the air (OTA). In a case study by Lindgren et al. (2018) they investigate how anticipated UX (AUX) emerges through participation in web-based discussion forums. The case study was carried out with Tesla enthusiasts and the research suggest to deepen the understanding of how AUX is formed, as the digital world becomes a part of shaping our AUX and can have an impact on the actual use (momentary UX).

UX in cars depend on a lot of different aspects. By using the potential of easter egg in a car environment, it might demonstrate other ways to improve the experience, being something that is discussed on social media or forums, thus becoming a part of shaping and influencing the AUX.

2.3 UI and HMI in cars

Cars become more and more connected, enabling accessing to Internet, communication with smart devices, and collecting real-time data from multiple sources (Coppola & Morisio, 2016). This is done through the dashboard as main device and has gone from being a feature in luxury cars, to something expected in the next generation of cars. The connection to Internet enables updates OTA, which opens up for many

possibilities, e.g. for having easter eggs embedded and updated in the product. Therefore, this chapter address different matters regarding HMI and UI in cars and what is important to consider when you design for it.

When designing graphical user interfaces (GUI) for cars, there are aspects that comes to play, such as the human's limited attention, which can affect the car safety (Budiu, 2019). Interacting with a touchscreen in a car requires the user to look at where they press, which is not the case with physical buttons. Attention is therefore directed towards the screen, instead of the road, which is very crucial while driving. Fitt's Law (Kane, n.d.) says that the time it takes for a user to reach a target is the function of the distance to the target and the size of the target, meaning that it is easier to find a large button placed near the user's hands. When designing user interfaces for cars it is therefore important to take this into consideration, and not to demand the user to do complex tasks or distract them while driving.

The human machine interface (HMI) system of a car is the main means of communication between the vehicle and the driver (Carsten & Martens, 2019). This communication should be clear in order to enable safe and comfortable driving. The HMI involves the car's visual and auditory displays, as well as physical vehicle controls that the user interacts with, all to give information to the vehicle and for the vehicle to provide the driver with feedback. During recent years, the research of automotive HMI has switched its focus from technology-focused to user-centred (Gao, Li, & Han, 2020). Ensuring user's safety and accuracy in operations are of high importance when designing HMI in cars. Factors that has come to influence automotive HMI design are for instance, characteristics of driving behaviours, different user groups and driving environments (Gao, et al., 2020).

Following section explains some of the most central parts in the HMI that will be discussed in this study. They are: Centre Stack Display (CSD), Driver Information Module (DIM), and Head-Up Display (HUD), as well as two Steering Wheel Switches (SWS), see figure 1. The HUD is a projection on the front window, for the driver to get data without needing to lose focus of the road. The DIM includes information that are essential while driving: speed, fuel level, and tachometer among others. The SWS are used for common commands while driving, adjusting volume, activating the autopilot, or using the voice assistant. The CSD contains a larger number of information, including GPS, media, settings, infotainment and contacts.



Figure 1. HMI displays of the car.

3

Methods

The research approach assessed suitable for this study was a bottom-up qualitative research approach. The objectives in a qualitative research is to find out the underlying motivators and reasons behind decisions and opinions of users. By collecting qualitative data about meanings, concepts, characteristics, and emotions instead of counts or measures, it answers questions such as *why* and *how* (Newbery & Farnham, 2013). In the end, when the qualitative data was analysed, its result was communicated as findings and, furthermore, the findings were discussed.

Throughout the whole process, a qualitative data analysis was made to continuously reduce the data collected during the research, and to extract what was relevant from it. A qualitative data reduction is made to sharpen, organise, and focus the data so that it would go from broad to narrow and, eventually, enable to answer the research question (Tashakkori & Teddlie, 2003). The data reduction was based on clustering of information that was considered as the most valuable and essential for the study. The extracted data were in the end displayed and summarized in chapter 5.

Design was used as the instrument for the research and a design project was performed, which can be seen as a case study. The design project had a human-centred approach. This means that the starting point is the human and its behaviours and experiences (Wikberg Nilsson, Ericson, & Törlind, 2015). This also regards to embrace the differences of humans. The design process used is described in figure 2 and is similar to the double diamond model (Design council, 2020).

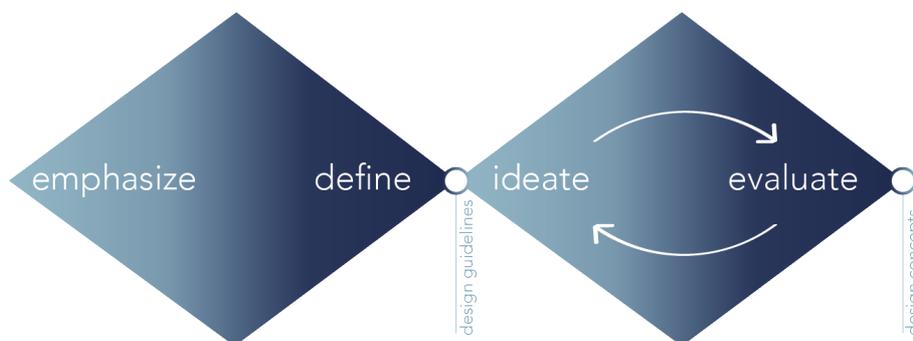


Figure 2. The double diamond design process.

The first step of the research was to *emphasize* with the market, brand, the car, and user. It started with a benchmarking to explore the concept of easter eggs at large. Furthermore, expert interviews and contextual interviews was carried out, collecting information about the brand and the desires and needs of the user. The data from this divergent phase was then *defined* into guidelines and opportunities for design, before stepping into the *ideation* phase where the case study was applied. Generative methods, such as brainstorming, co-creation workshops, and mindmapping, were used to explore ideas and concepts, which continuously were *evaluated* to ensure its relevance to the case and initial research findings. In the end, the final concepts were refined and prototyped. The methods used in each phase are further described below.

3.1 Emphasize

The first phase of the project was about investigating prior knowledge of the research areas, and emphasizing with users and experts, with the aim to collect data for the remaining design process.

3.1.1 Benchmarking

A benchmarking is performed with the purpose of finding a need or identifying a need, through exploration of the existing market (Zuiderveen, n.d.) Exploring the market is crucial in order to know and understand the current environment that you are designing for.

The benchmarking involved researching existing easter eggs in different industries, not only what exists in automotive. The purpose was to understand what an easter egg is, and how and why they are delivered on the market, today and historically.

The benchmarking was carried out using the web as main source of information. The results were structured in a collaboration platform called *Airtable* (*Airtable.com*). A library was created with a description of the easter egg, how to find it, link to a video or webpage explaining and showing the easter egg, and lastly it was analysed and sorted under different categories. Furthermore, an analysis of how the easter egg concept have changed and evolved over time was done.

3.1.2 Expert interview

Expert interviews are held to get qualitative data of important project areas (IDEO, n.d.). Two interviews were held that concerned what previously had been done about easter eggs in the company, and the other one was about getting knowledgeable about the brand. They were carried out through open-ended questions and probing to enhance a nuanced discussion about the topics and to not steer or prevent any upcoming subjects by the expert. Probing is a method used in order to get a deeper knowledge about the interviewee's desires, goals and needs (Wikberg Nilsson, et al., 2015).

To get data on the applicability of easter egg, an expert interview was held with an employee at *Lynk & Co Collaboration Lab*, who had previously worked with and is experienced within the topic of easter eggs. This was done in order to gain insights about the subject and to learn from their findings.

In order to get qualitative data about the brand and its product, the brand manager of *Lynk & Co* was interviewed. This was necessary early in the process in order to understand the brand values and goals, and to make sure the process and end product correspond with the brand identity. *Lynk & Co's* market vision, personas, and customer journey were also necessary to explore in order to understand their market position and users. Gaining this kind of information would help to understand how the easter egg concepts corresponds to the brand, product offer and the needs of the target group.

Both interviews were held in person and was recorded to be able to transcribe them later. The interview guide is found in Appendix A.

3.1.3 Contextual interview

Contextual interviews were carried out to get qualitative data of the contextual use of easter eggs in cars and users' experience of the concept. The method enabled understanding of users' natural interaction as it took place in the environment of their own car. Information collected in such way tend to be detailed and especially accurate (IDF, 2019). Initially, questions were asked at a holistic level, about transportation and car ownership, to later zoom in and discuss the easter eggs, their perceived purpose of it, their impressions, and the use of it. The users' interaction and unspoken behaviours could also be observed as they occasionally interacted with the HMI system of the car and, throughout the whole interview, was the person who navigated in it.

Ten contextual semi-structured interviews were carried out with five male, and five female users of cars with easter eggs. The brand of the cars was Tesla with the different models: S, 3, and X. The model itself didn't matter in the study. The interviews took approximately 45 minutes each. The interview setting was structured in the way that one acted as the interviewer, posing the questions sitting in the front passenger seat, see figure 3. The other was annotator and was sitting in the rear seat during the whole interview. The interviewee was sitting behind the steering wheel and the car was parked for the whole interview, to prevent potential distractions and hazardous situations. Initially, the interviewer introduced the subject and purpose of the interview. The structure of the interview was then divided into four parts, transportation, car owning and driving, product UX, and the use and perception of easter eggs. See appendix B for full interview guide.



Figure 3. Contextual interview setting. Interviewer to the right and participant to the left.

Before the interviews started, each participant gave their consent to the researchers to record and store the data from the interview, within the project's timeframe. This was made by signing a GDPR form that was brought to the interview. All participants gave their consent.

3.1.4 Emotion assessment

In conjunction with the contextual interviews, Tesla's easter eggs were evaluated with an adapted version of the emotion assessment method PrEmo. PrEmo is used to measure positive and negative emotions without the user having to express their emotions with own words, in that sense the method is non-verbal

as images are used to create recognition for the user's experienced emotions (Desmet, 2003). The method is also suitable to measure mixed emotions, as the participant can choose several emotions if they like.

The purpose of the method was to understand how users experience the easter eggs and what emotional impact they have. When the emotions were selected by the participant, probing questions like "can you describe why you chose that emotion" were asked to get more in-depth information about the experience. Additionally, the result formed the base for further discussion on what aspects the user thought contributed to their reactions. Consequently, the results were analysed, and conclusions were made on which concepts had the most negative and positive emotional impact, as well as what aspects of the easter eggs affected the experience of the easter egg itself and the car UX.

PrEmo was modified by using smileys as the visualisation of the emotion, instead of the figures proposed by the method, so that the participants could easily relate to the experienced feeling. These were presented together with a descriptive text, see figure 4. The test was carried out in the participant's car where they got to test one easter egg at the time and, afterwards, they choose one or more emotions that they associated with the experience. There were fifteen emotions to choose from and one of them was a blank option, if the participant did not feel that any of the suggested smileys corresponded to their feeling. Comments that the participants had regarding the easter eggs were written down and later analysed to determine potential patterns among different interviewees.

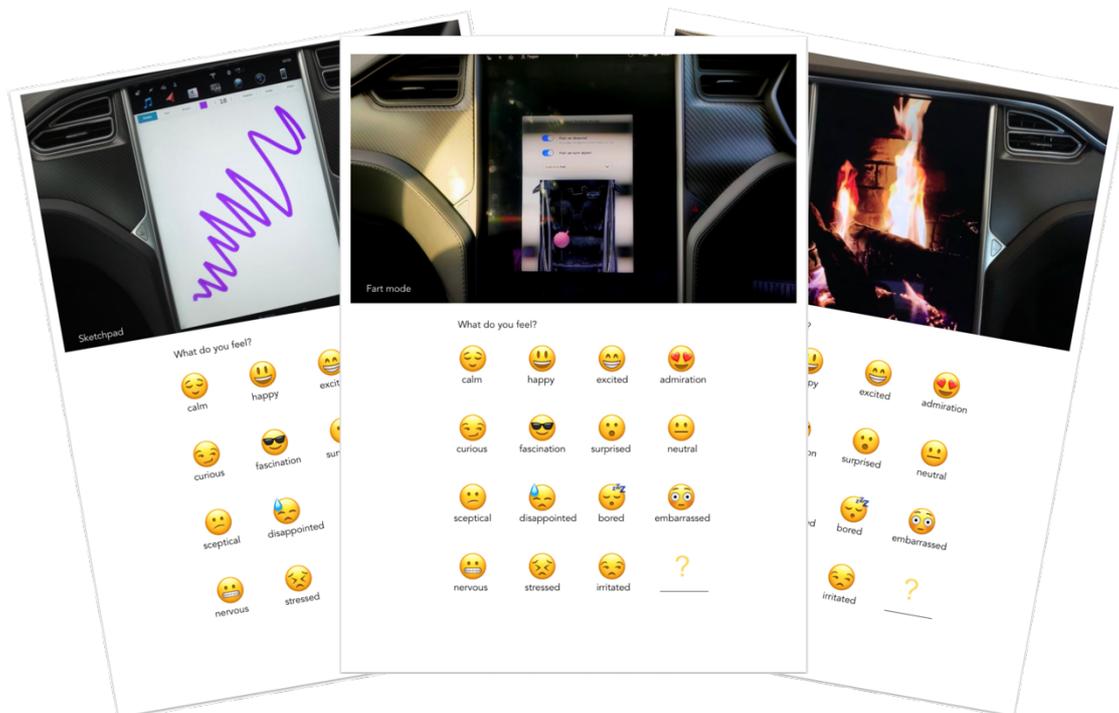


Figure 4. Smileys used in the emotion assessment test.

The test was carried out on a tablet on which the participant could point at the associated emotion and the interviewer could highlight it. For each easter egg, a new, clean slide of smileys was presented, and the process was repeated until all the easter eggs had been tested.

3.1.5 KJ-analysis

To analyse the information gained from the contextual interviews, a KJ-analysis was made. By taking out citations and categorize them according to similarities in the collected data, patterns and guidelines can be determined (Karlsson, 2007).

The ten interviews were recorded and transcribed. Further, 519 citations were picked out, printed, and grouped. The mapping of the groups was broad in terms of different subjects, as the interviews touched upon several themes which often led to interesting side-tracks regarding product, car, and brand experiences. Initially, all citations were grouped roughly into categories based on similarities among the citations. The categories were then named and colour coded. Further, the analysis became more detailed and every category was gone through again to determine subcategories within them. Explanations were made of each category and subcategory, and representative citations were picked out to symbolise them.

Findings from the KJ-analysis were further used when creating guidelines and opportunities for design.

3.1.6 Persona

Based on the research data, personas can be created to communicate what users to design for, what their needs are, previous experiences and behaviours in the car (Nielsen, n.d.). Personas are important in order to make sure the end concept will improve the experience for the user, also, to be used as a common reference point to the designers as a reminder to maintain consistent in the process.

Defining and describing different types of personas which correspond to the future users of the Lynk & Co car and their approach to easter eggs. The personas are useful during the ideation phase to make sure the concepts are in line with the target group and their needs. The personas represent hypothetical users and were based on the previously collected data of brand, users, and users' interaction with the car HMI.

The personas were described briefly about their occupation, civil status, personality, and interests and a picture was used to create empathy with the personas. Alongside, their behaviours and needs about easter eggs were presented on scales, showing what they would appreciate about easter eggs and how they would behave towards them.

3.1.7 User journey

By analysing the user and what steps and situations they might go through in a decided scenario, it is possible to map out a user journey (Gibbons, 2018).

The purpose was to understand when the experience of driving is positive respectively negative and what touch points are involved in each. The situations included were based on frequency so that highly uncommon situations were excluded, in order for the user journey to be relevant to an average driving experience. Further, the situations were ranked against each other to understand what experience is better and worse than the other. Finally, everything was then mapped out to visualise the sequence of the scenario.

The pain points in the user journey could then be transformed into opportunities, where easter eggs can be used to turn negative experiences into positive ones instead.

Data for the user journey arose from both contextual interviews, expert interviews and KJ-analysis. Different situations were assigned to a suitable persona based on their needs and the mapping shows how they would experience it.

3.2 Define

The define-phase was about combining and converging all collected data and findings from the emphasize-phase, and translate it into qualitative opportunities and guidelines for design.

3.2.1 Opportunities

The method used to frame opportunities for design were How Might We (HMW). HMW questions can be formulated from findings of research, to be used as a challenge to be answered when designing (IDEO.org, n.d.). The challenges are built upon the insights gained from the contextual interviews and emotion assessment with users. The insights were rephrased in a way that they instead become an opportunity that is not restricted to a specific solution, but open enough to enable an innovative exploration. It was also important to not create too broad questions, as they might become too difficult to answer.

3.2.2 Defining guidelines

Findings from the whole emphasize-phase were transformed into a summarised list of guidelines. The purpose of it was to be used as a helping guide for designing easter eggs in cars. The guidelines are qualitative suggestions based on research and not requirements that inevitably needs to be fulfilled. They can also be used to evaluate concept ideas against, making sure they are relevant, feasible, and aligned with insights from the study.

The guidelines were summarised in a table, which shows where each guideline derive from, as well as gives a descriptive comment to further explain it.

3.3 Ideate

From this step, the case study to design easter eggs for Lynk & Co started. The guidelines and stages of easter eggs defined in the previous phase were applied when designing.

The ideation phase was a generative phase with the purpose to generate a large number of ideas and design concepts. Different methods were used to, initially, generate as many ideas as possible. Thereafter, evaluative methods, described in chapter 3.4, were used to reduce the number of concepts. Eventually, after iterating between ideation and evaluation, this resulted in a few refined concepts.

3.3.1 Brainstorming

Brainstorming is used with the purpose to spark as many ideas as possible, by letting all members say or write down whatever comes to their mind (IDEO, n.d.). Brainstorming was, firstly, carried out broadly within the subject of easter eggs in the car. It had been defined in the previous phase that the easter egg user experience involves four stages. These were separately managed by brainstorming and investigating all possibilities around one stage at a time.

Secondly, brainstorming sessions were targeted, for instance, to specific themes of easter eggs, different context of use, and ways of encouraging the hunt of easter eggs. This was made to investigate a broad variety of easter egg concepts in the initial step of the ideate phase.

3.3.2 Co-creation workshop

To involve additional creative people in the ideation phase and thereby ensure a broader result of concepts and perspectives on the topic, two co-creation workshops were carried out. This kind of collective creativity also allow potential end-users of the car and the easter eggs to contribute to the design process and the idea generation (Sanders & Stappers, 2008). The method is built on the belief that all people are experts of their own experiences and able to be creative and therefore, considered to be great contributors to the design process. The participants are usually given mediating tools to express creativity, which in this case were

different brainstorming topics. After the workshop, the designers took on the role to evaluate, process and give form to the ideas that came up.

Participants

One of the two workshops involved people who all work at Lynk & Co or Lynk & Co Design but within different expertise areas. It was desired to get people from different departments, as it enabled a broader perspective on the topic and its possibilities. Also, it gave a clear view of what easter eggs would be suitable in terms of the brand perspective. The people involved worked within fields from UX design and HMI, to product planning and brand and marketing. The second workshop was held with external people outside the company, to get a perspective that was not biased from working with the brand, hence, a more novel view on the topic was gained which gave other insights from potential end-users.

As all participants had different prior knowledge about the subject, a background document was handed out before the workshop describing the concept of easter eggs and what findings were identified during the research, including the easter egg library, interview findings, personas, and user journey. The purpose was to make sure the participants would be somewhat equally informed about the subject beforehand.

Format

The workshop's structure and design were made up by the designers, to ensure a suitable and efficient procedure. Due to COVID-19, the workshop was made fully digital and it was designed to fit that format. The communication between participants and hosts was run through Zoom, an online platform which provides a remote conferencing service that combines video conference, online meetings, chat, and mobile collaboration (Zoom.us). The tool in which the workshop was carried out was called Miro, a creative online space enabling remote collaboration (Miro.com). The workshop duration was 1,5 hours which included an introduction, warm-up exercise, brainstorming session, group discussion, and presentation. See figure 5 for workshop structure and appendix C for detailed workshop program.

In order to test and get feedback on the workshop, a pilot workshop was carried out with two external participants before the original workshop was scheduled. The digital format was tested as well as the structure. Based on the feedback, some clarifications were made in the descriptions of the themes and more knowledge was gained in how to use the digital format in best possible way. For instance, what was easiest to show when sharing screen and how it worked when dividing participants into discussion rooms.

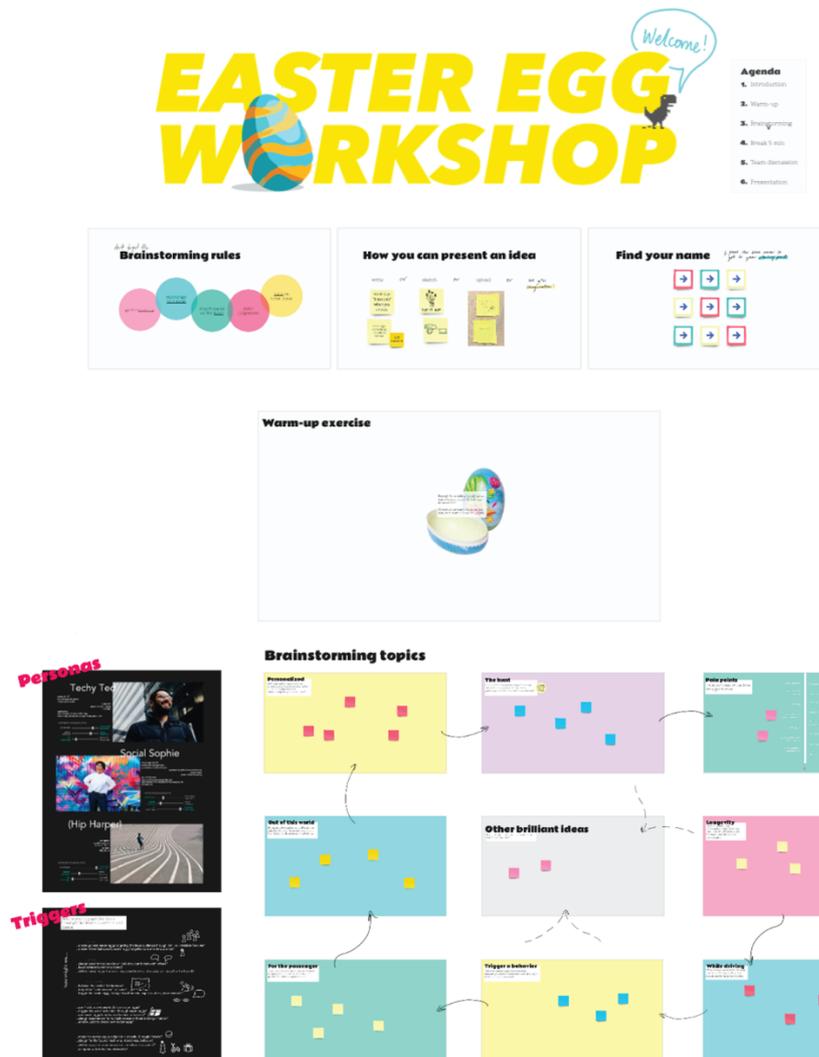


Figure 5. The workshop structure in Miro.

The introduction covered general information about the project and its purpose, agenda of the workshop and a clarification of the brainstorming rules. According to IDEO (n.d.), the brainstorming rules are: defer judgement, encourage wild ideas, build on the ideas of others, stay focused on the topic, go for quantity. This was made in order to inform everyone involved about what they had ahead of them and the purpose of their involvement. The warm-up exercise was held in order to get the participants familiar with Miro, as well as get the creative thinking going. The exercise was called 'Alternate use' (Elisia, 2018), which is about coming up with other, creative usages of an already existing product. The product that was presented was a physical paper Easter egg you usually use for storing and hiding candy during Easter holiday. After the warm-up, the individual brainstorming session was held for 30 minutes, with five minutes of ideation on six topics. In total there were nine topics, so everyone did not ideate on each of them due to the total time limit. However, all participants were given different topics as a starting point meaning that all topics were in the end covered with ideas. The topics came from the opportunities defined in the previous phase. The topics were phrased to be as descriptive as possible for someone not informed in the subject yet made to inspire and guide them to keep within the subject. Eleven people participated in the first workshop.

The nine brainstorming topics were:

- **Personalized** - How can easter eggs become personalized, in order to improve the relationship between car-user?

- **The hunt** - How to find the easter eggs? Through which touch points? Think of the personas. How to maintain the interest? (The personas were available during the whole time).
- **Pain points** - Let's turn bad situations into good ones (list of pain points was given).
- **Longevity** - How to create long-lived easter eggs? Not one-time use. Mind the balance between usefulness and fun/delight.
- **While driving** - What do you want while driving and when? In what situations should easter eggs be avoided?
- **Trigger a behaviour** - Think of easter eggs that can help encourage a better behaviour: eco-driving or safe driving for example.
- **Typical Lynk & Co** - What is 'the' most brand-typical easter egg? Get into that dark, cool, urban Lynk & Co mindset.
- **Out of this world** - Be as creative and imaginative as you can. Maybe your ideas are possible in the future, or in a parallel universe...
- **For the passenger** - Take into consideration the passenger target group; parents, friends, kids, grand-mother being in the car.

One or two participants brainstormed on the same topic, individually, for five minutes before moving on to the next in a given direction, communicated through arrows. Ideas were put up on "sticky notes" with the ability to add reaction-smileys on other's ideas that they found interesting or fun. It was communicated in the introduction that it was encouraged to read through already posted ideas to get inspiration and build on each other's ideas.

A break of five minutes was given before moving on with the discussions. The discussions were held in Zoom in what is called *Breakout rooms*. The participants were grouped into pairs and the discussions run for eight minutes. Information was given before entering the room, explaining that the purpose of the pair discussions was to look at one specific topic, reflect and think about it while browsing the ideas. After the discussion time was up, they were supposed to share their thoughts and findings with the rest of the group as well as highlighting some interesting ideas. The workshop ended with open feedback about the workshop and its structure. An email was also sent out after the workshop to thank all the participants and welcoming feedback.

Workshop no. 2

A second workshop was carried out a few days later with people outside the company. The participants in this case were instead university students studying a master within *Industrial design engineering* at Chalmers University of Technology. Given the feedback from the first workshop some changes were made in order to improve the structure. The time was extended to 2 hours instead of the previous 1,5 hours, which made it possible for each person to go through all eight topics (the "Typical Lynk & Co" category was removed due to participants' lack of knowledge about the brand). Discussions were held in pairs, and they were given two topics instead of one per group, to cover and get their reflections on all topics instead of just a few selected as in the first workshop. Nine people participated in the second workshop.

Workshop analysis

After the workshop, the results from both workshops were browsed and ideas that were considered interesting were marked and further explored in the upcoming ideation method. Furthermore, the prominent and most common discussion subjects from the workshops were used and discussed when shaping the guidelines and future design.

3.3.3 Braindrawing

Braindrawing is a generative tool that utilize sketching instead of writing ideas, to further boost creativity and can also help stimulate new perspectives. Different ideas are discussed and developed together which

make everyone feel involved in the final design. Braindrawing also helps defer judgement (Wikberg Nilsson, et al., 2015). The method lets participants, provided with pen and paper, sketch during a set amount of time. The ideas are either passed on to the next participants or placed in the middle where participants can choose what idea to continue on. Participants can then correct and modify each other's ideas or come up with new ones based on someone else's idea. Before starting the sketching session, it is important to define the theme to be explored (Wikberg Nilsson, et al., 2015).

This method was used in the ideation phase of the case study in order to get a more visual understanding of what the easter egg could look like, as the other methods generally had resulted in written ideas. Different themes that had emerged during the previous ideation methods were written down as ideation topics, alongside the opportunities formulated in the define-phase. Among them were voice assistant, seasonal and multisensory experience, the app, QR code, music, and physical easter eggs. The participants were provided with A3 papers each and a bunch of colourful pens. Each sketching session lasted for ten minutes and afterwards they were discussed. The discussion made it possible for the team members to get inspiration from each other and to build upon and improve the other's ideas.

3.4 Evaluate

The outcome of the ideation was continuously evaluated with different evaluation methods. It was an iterative loop between the methods for ideation and evaluation until the final concepts were chosen and further developed. The methods for evaluation were theoretical and based on the qualitative findings from the process.

3.4.1 PNI

A way to evaluate and screen ideas is to use the method PNI, which is about identifying concepts' positive, negative, and interesting aspects in a table (Österlin, 2011). In that way, it is possible to compare ideas against each other and evaluate which concepts that were theoretically better than others. Furthermore, a trade-off can be made on which concepts should be kept, and which should be discarded. If a concept have mainly negative aspects, it is motivated to either discard that concept, or try to modify or combine it to get predominantly positive and interesting aspects instead.

PNI was made when the ideation had resulted in a number of concepts that were thorough enough to define these aspects. When evaluating the positive, negative, and interesting aspects, they considered the idea itself, its probability of being discovered, correspondence with brand, limitations, need of maintenance, potential risks, surprise factor, or ambivalences.

3.4.2 Value matrix

To evaluate concepts as a foundation for concept decision, a value matrix can be used. The method can also be used to identify weak points about concepts, hence, where potential improvements can be made (Wikberg Nilsson, et al., 2015). The concepts are compared against criteria that are identified to be the most important factors for evaluation. Subsequently, each concept was evaluated based on how well they fulfil the criteria, with a range from 1-6, where 6 is the highest fulfilment, and 1 is the lowest, see figure 6.

To visualise the result, the grades were mapped out in a radar chart, to be able to compare the different concepts and their values in one matrix.

The identification of criteria was made together with the company and were based on what is considered most important. The chosen criteria were feasibility, user value, and brand value. The underlying variables were defined for each one, to clarify how the criteria is measured. *Feasibility* is based on cost, number of

stakeholders that needs to be involved to complete the concept, and implementation possibilities based on existing technology. *User value* is measured in high surprise in combination with positive delight, number of users involved (if it is designed for one kind of user or targets multiple), and frequency of use which affect the longevity of the easter egg. Lastly, *brand value* is measured in increased promotional spread, how well it communicates the brand identity, and if it strengthens the customer relationship with the product and brand, which in the long run might increase customer loyalty.

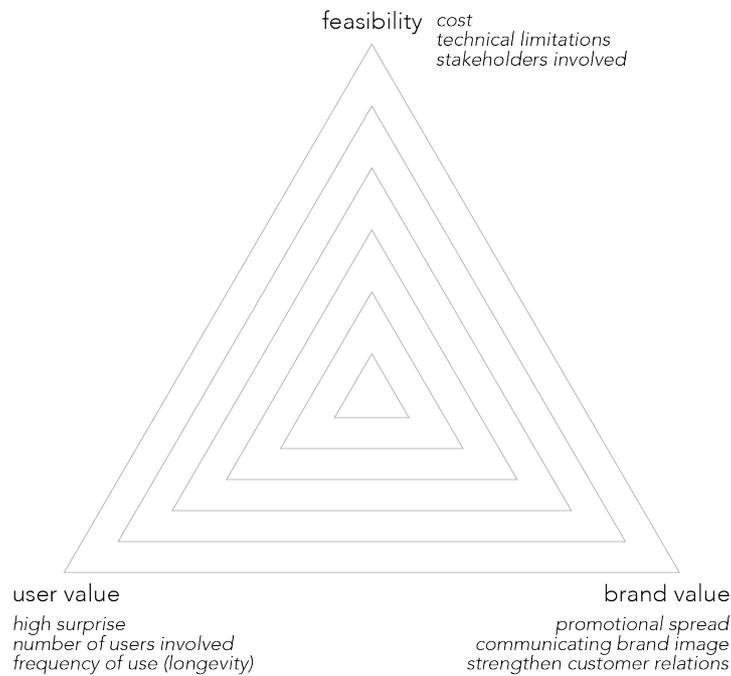


Figure 6. Image of value matrix.

Although, a concept with lower grade on feasibility could still be kept if it was considered to create high value for users and brand. Further, a concept like that could be useful as a reference to strive for in the future, when the desired technology has been developed.

3.4.3 Final concepts

Ideas that made it through the ideation and evaluation loop were further developed and refined. These were prototyped visually with the aim to communicate the final ideas as clearly as possible. To communicate the context of use, the easter egg was further explained in a descriptive storyboard. The easter egg was also explained how it creates value for the user and the brand.

4

Result & Analysis

Results and analysis from each method are hereafter presented individually. In the end, the case study result is presented and how the developed easter eggs enhance the user experience.

4.1 Emphasize

The result of the phase emphasize is further presented.

4.1.1 Benchmarking

The market research, which was done through web research, revealed a large amount of existing easter eggs. A broad field of application of easter eggs was discovered as it appeared in video games, music, webpages, search engines, source codes, marketing campaigns, cars, tv-series and movies, social media, apps, computers, smartphones, and services. The majority of the easter eggs were digital, although, physical easter eggs were also discovered. It is hard to say how many easter eggs there are out there, but it is evident that there is probably more than one can imagine.

The benchmarking also investigated the history of easter eggs and previously existing ones. That highlighted the transformation of easter eggs and what trends has influenced the shaping of the easter eggs over time, see figure 7. The most significant difference could be seen in the shift from being well hidden in games, targeting only the game enthusiasts wanting to explore the game to its fullest potential, towards less hidden easter eggs for everyday people in more widespread industries. It was also clear that companies today communicate that they have easter eggs, use it in marketing, with the purpose to enhance the brand image. As for the potential future characteristics of easter eggs, it was identified, alongside generic societal trends, that the desire for customized experiences increases. Further, it was found that there is a potential for easter eggs to be connected to culture or enhancing lifestyle through education or learning, something we can see slightly today and might become more common in the future.



Figure 7. Timeline of the development of easter eggs and potential future purpose.

There are two existing companies today that use easter eggs in their products to a greater extent. Google is one of them, having more than 80 easter eggs planted in their search engine (Cozmiuc, n.d.). By typing specific words or phrases like, *askew, tic tac toe, do a barrel roll, I'm feeling curious*, etc., the easter egg will appear. In the automotive industry, companies like Jeep, Chrysler, Hyundai, Jaguar have easter eggs as well, but not to the same extent as Tesla. Tesla is so far the only car company that has put a lot of resources into this and developed a so called “Toybox” which includes between 6-10 easter eggs depending on the model, see all ten easter eggs in Table 1. Although the easter eggs are easy to find, as they are placed in the infotainment menu, the characteristic of them falls under the easter egg definition.

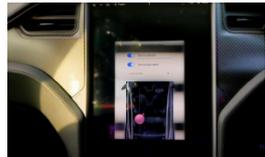
<p>More Cowbell</p> 	<p>A rainbow road from Mario Kart appears in the DIM, along with a song which refers to a sketch (More Cowbell) from Saturday Night Live.</p>	<p>Trax</p> 	<p>Trax enables you to compose your own music, similar to a DJ-tool.</p>
<p>Mars</p> 	<p>Mars-mode change the GPS environment into looking like you're driving on Mars. This refers to Elon Musk's other company Space X.</p>	<p>Holiday show</p> 	<p>This easter egg result in the car performing a dance show with synchronized lights and music. (Only for Model X)</p>
<p>Fart Mode</p> 	<p>The fart mode allows you to place a fart-sound onto any of the four seats. Different fart- sounds are available.</p>	<p>Fireplace</p> 	<p>A fireplace appears on the CSD along with romantic music and seat heating.</p>
<p>Sketchpad</p> 	<p>The sketchpad enables you to draw a picture. It is also possible to submit your work to Tesla.</p>	<p>James Bond submarine</p> 	<p>In the control menu, the usual image of the Tesla is replaced by the submarine used in a James Bond movie.</p>
<p>Ludicrous +</p> 	<p>This easter egg is increasing the performance of the normal Ludicrous mode.(Only for Model S & X)</p>	<p>Santa mode</p> 	<p>By using the voice command “Ho ho ho” Christmas music will play and Santa will appear in the DIM.</p>

Table 1. Overview of Tesla's easter eggs.

All the easter eggs that were found in the research were put together into a digital easter egg library in Airtable (Airtable.com), see figure 8. The finalised library highlights that the easter egg concept is very broad. However, it is prominent that different brands have different take on easter eggs and how they are presented. One significant difference is how hidden or visible they are, which reflect how hard or easy they are to find. Another is the easter egg's magnitude and if they are just small details that easily gets forgotten, or that they are very spectacular and creative, hence something that becomes memorable. References is commonly used in easter eggs, here it varies from being very narrow and specific references to for instance, old arcade games, to more broad and general ones regarding very famous movies or pop-culture. It could also be general in the sense that they can be understood by anyone, like a joke or fun message that does not require any prior notice. Some easter eggs are more novel and modern, whilst other build on old, nostalgic references. The last significant difference was the balance between being useful or not, which mean that they provide the user with some kind of function or tool, instead of the contradictory, of being just a small visual design element. See appendix D for link to the digital Airtable library.

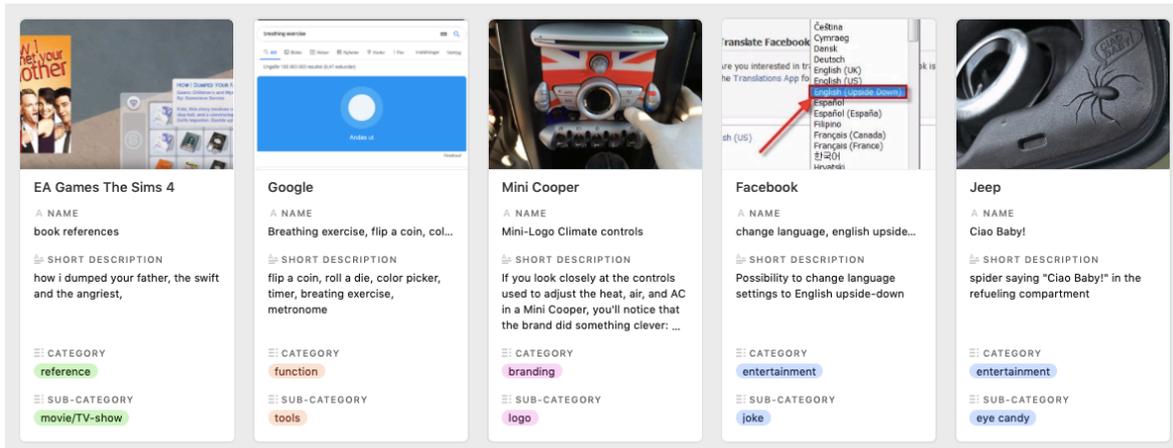


Figure 8. Draft of the easter egg library from Airtable.

Further, patterns among the discovered easter eggs were found and made into categories and subcategories. The categories of easter eggs that were developed is presented in figure 9. The subcategories that are underlined in the figure are either uncommon or non-existing within the easter egg offer on the market. Although, these could be further investigated whether they have potential to become interesting or desired easter eggs. Safety, calming and learning all concern behavioural matters and it was further investigated whether easter egg could be an opportunity of contributing to behavioural change. Personalization were also brought forward as a potential easter egg area to investigate.



Figure 9. Categorisation of easter eggs.

Description and examples of each easter egg category are presented and shown in figure 10.

Entertainment – This is the broadest category in which most easter eggs fall under. These easter eggs have no useful purpose except that it’s just for fun. *Example: On Facebook you have the possibility to change language setting to “English upside-down”.*

Reference – This is the second largest category in which the easter egg is referring to a person, movie, sketch, or internal things within the brand. *Example: In the video game Generation Zero you can enter a hidden room in which you find the iconic car from the movie Back to the future.*

Brand – The easter egg is used in order to market the brand and is often used in campaigns or when releasing a new product. Easter eggs in this category also includes when the brand’s logo is placed in unusual contexts. *Example: A new car sharing service (Lyft) put Pink large moustaches on their cars before launching the brand. This evoke curiosity and made people look it up.*

Function – This easter egg provides you with some sort of equipment in order to achieve something. *Example: Search for “colour picker” on Google and the tool will appear so you can get the CMYK-code.*

Reward – The easter egg is a cheat or sequence of actions that gives you extra lives, extra features or resources, something that is commonly embedded in games. *Example: The cheat code from the game Konami, known as the Konami code, where the code, see the sequence in figure 10, provide you with more lives. Today, the Konami code has evolved and become present in other contexts as well. On some websites, you can insert the code to get an unexpected surprise.*

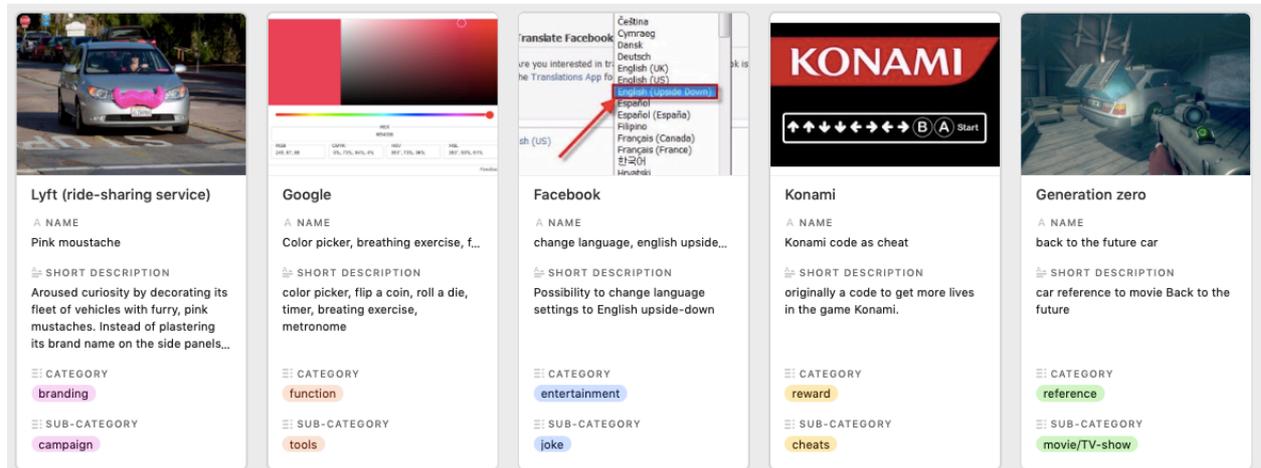


Figure 10. Draft from the easter egg library to exemplify each category.

Exploring the broad field of easter eggs, analysing and categorising it, gave essential knowledge and inspiration of the possibilities coming with easter eggs. It became clear how widespread the potential application fields are, the various ways it can be delivered, how brands embed it into their products today, what trends exist, and further what it can evolve into in the future.

4.1.2 Expert interview

The interview with the Lynk & Co-employee who had previously been working with easter eggs mostly covered the underlying purpose of having this kind of features, alongside some concept suggestions. As for the product, it was found that a car with easter eggs is something yet unexpected and, with the right design, it can create a “wow”-experience, something the user will remember and share with their friends. This would be the desired outcome, to create a positive effect on the product’s user experience. As for the brand, being a company who put time and effort to implement easter eggs in their product, will hopefully result in an exciting and fun appearance towards customers or future employees. This communicates that the company thinks differently, as they act in an untraditional way by following digital trends and focusing on fun user experiences. It was also discussed during the interview that easter eggs could potentially create a mystery around the brand. Easter eggs with mysterious secrets that only customers can hunt for, can create a conversation topic that will encourage users to explore the product throughout its life.

Interviewing the brand manager of Lynk & Co gave in-depth information about the brand, their product, and market strategy. Additionally, their main target group were described, which also would be the indirect target group of the easter eggs. This knowledge was further analysed and implemented in the personas (chapter 4.1.6) in order to ensure the brand relevance. In summary, based on the expert interviews it was possible to outline what purpose the easter eggs would have in relation to the product, and the brand experience. The interview also gave knowledge regarding the customer journey and their experience with the brand and product. Furthermore, that information gave inspiration on when and through which touch points easter eggs could be implemented in order to improve the experience for their users. The information given in this interview cannot further be presented due to confidential reasons.

4.1.3 Contextual interview

The contextual interviews with Tesla users gave valuable insights on their experience with Tesla's easter eggs as well as other, overall user experience within cars. Since the interviews were carried out inside the car, it was easy to get them to talk about the different functions that they liked or disliked, as they were accessible in that setting. In some cases, users got carried away and started talking about things that were irrelevant for the project, although, it gave insights about the users' life and their values which later could be connected to their behaviour towards easter eggs.

The findings from the explicit interview answers were analysed in a KJ-analysis (see chapter 4.1.5). Beyond those, a lot of other conclusions could be made given the observations that were made, which indicates on implicit behaviours and needs. Having the interviews in the car, an informal environment, seemed to make them feel more relaxed and they could talk naturally and openly. The majority of the users were eager to discuss their car, which they seemed to be very proud of. When discussing the car experience with the users, majority of the interviewees shared the same tone of voice, which was a sort of selling manner. Words such as "*outstanding, best, leading, winning, awesome*" were frequently used. Negative aspects were not paid as much attention as the positive ones.

The level of expertise regarding the car varied but many were aware of the car's specific characteristics such as torque, range, and software specifications, which was something they gladly shared and explained. This on one hand was irrelevant in the answers to the questions posed, but on the other hand, it told something about the user group and their interests. Generally, they had a great tech-interest, revealed by either their occupation or their hobbies. They were interested in cars and some even explicitly explained that they bought their Tesla long time ago, identifying them as early adopters.

When observing the interaction with the CSD, the participants pointed and tapped in a confident way. However, when trying to navigate in the Toybox and testing the different easter eggs, people had a hard time turning them off. This was due to the lack of "exit"-sign or "back"-button, resulting in that people restarted the car to turn them off. The inconsistent way of turning off the different easter eggs depended on how the easter egg was presented. If it was a CSD-based feature, meaning it was only displayed visually (Fireplace), it was turned off by swiping the screen down. If it was audio-based (Santa mode), it was turned off by using the turn signal. The difficulty could also depend on that the easter eggs were used infrequently.

Occasionally, the interviewees started discussing their opinions regarding the voice assistant. When trying to demonstrate what the voice assistance could do, it didn't always respond as planned, which evoked disappointed feelings. It also appeared that most of the users didn't use the voice assistance although many knew it existed and that they found it useful in some situations.

Another common discovery was the misconception of the Toybox, containing the easter eggs, and the entertainment system, which include the *Arcade* (games) and *Theatre* (on demand TV/film) for instance. The possible reason for this is that they are placed next to each other in the menu and both fall under the category of "entertainment". In the easter egg offer there are for example a sketchpad and "Trax", a music recording studio, which just as well could have been placed in the game category, which makes the confusion even more understandable.

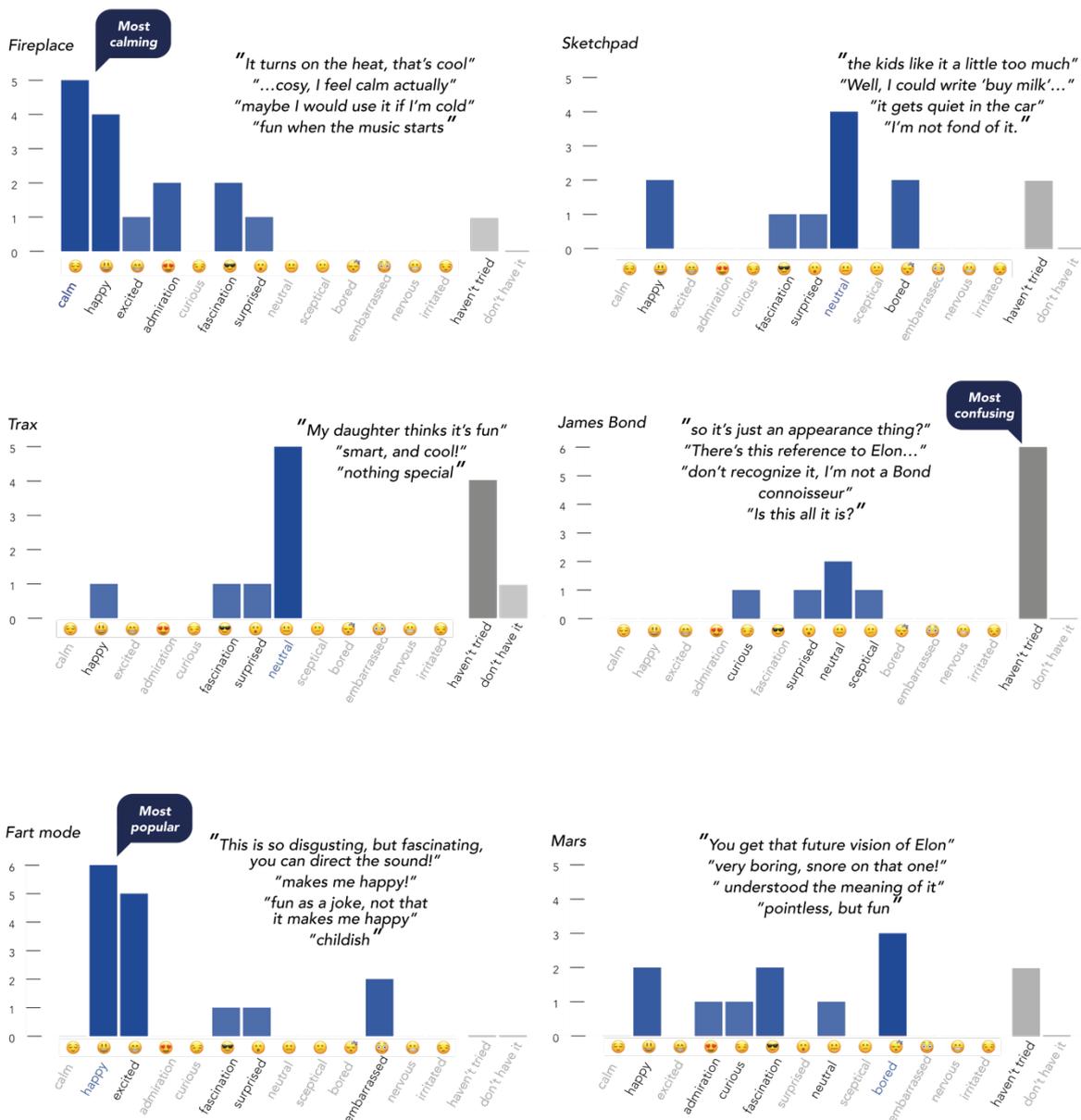
4.1.4 Emotion assessment

Ten people participated in the emotion assessment and nine different easter eggs that exist in the Tesla cars were evaluated. The result was presented in charts with citations to describe the users' experience of the easter eggs and what emotions they evoked, see figure 12. The charts also represent the response frequency of emotions on each easter egg, as well as the amount of people who didn't have a particular easter eggs, or hadn't tried it before the test. Two of the emotions from the test were never picked, *disappointed* and *stressed*, and they were therefore excluded from the charts. The evaluated emotions are presented in figure 11.



Figure 11. Emotions evaluated in the emotion assessment.

When analysing the data, it was possible to draw conclusions on the experience of easter eggs in cars. The response frequency and amount of different emotions picked revealed how clear or uncertain some easter egg experiences were. This resulted in guidelines as you want to make conscious design choices that surely will result in a positive experience, and not leave it to chance how it will be perceived. The citations that came from probing questions like “why did you pick that emotion?”, revealed why the specific emotions were picked. This in terms of both direct opinions, as “I’m not fond of it”, and implicit ones, like “the kids like it a little *too* much”, indicated a doubt between appreciating it and understanding that it has other, less positive, consequences.



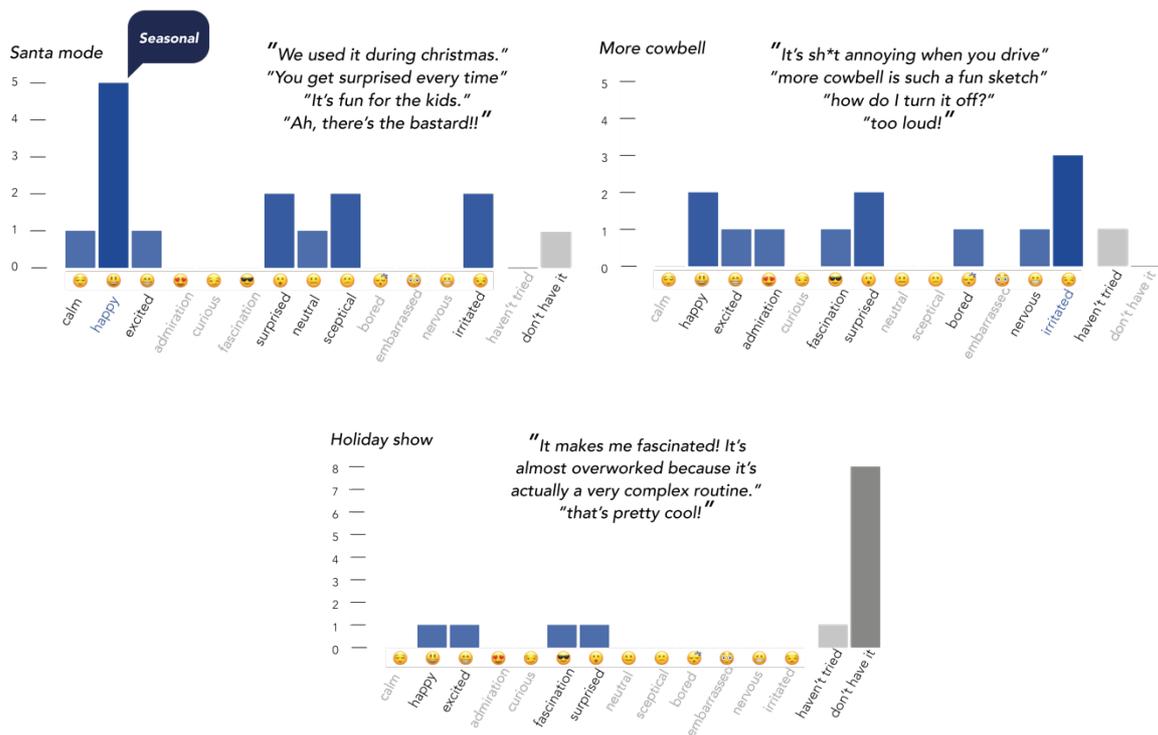


Figure 12. Results from emotion assessment presented in charts.

Some results were clearly influenced by the easter eggs' context of use. Many persons expressed that it might be unsafe or disturbing to use easter eggs while driving. Only a few are possible to activate during drive-mode, and these got comments on being *annoying*, *irritating*, and evoking *nervousness*. These reactions were either due to high, unexpected sounds, or changing graphics on the DIM screen. This is, therefore, an aspect which must be considered if designing easter eggs for drive-mode, in order to ensure safe use. In addition, the car is primarily used for driving and many participants mentioned that there are few occasions where you sit in your car standing still. Furthermore, in order to have easter eggs that will be used, it is reasonable to have some intended for driving, as long as they do not distract or disturb the driver.

It was found that when general and familiar references are involved in the easter eggs, e.g. fart sounds or video of a fireplace, it tends to result in a clear set of positive emotions. However, when specific, narrow references were used, e.g. an image from a specific James Bond movie, the result tended to be much more shattered, evoking both positive and negative emotions. It was then expressed by some people that they did not understand it at all. Consequently, it seemed that using references in an easter egg might create a solely fun experience for the user, but only as long as the user gets the reference.

Another finding indicated a connection between not understanding the easter egg and neutrality. An easter egg that you experienced for the first time, which you didn't understand directly had high impact on the emotions evoked. This led to the insight that when introducing new easter eggs, they have to catch the user's interest immediately, and be self-explanatory in order to evolve into a good first impression and experience. This correlation was especially prominent in the easter eggs "Trax" and "James Bond submarine".

Overall, it became clear from analysing the results that *Fart mode* was the most popular easter egg, making both kids and adults laugh of excitement. The *Fireplace* was the most calming easter egg and it did solely evoke positive emotions. Most confusing easter egg was the *James Bond* submarine reference, where many participants actually could not express any emotion as they did not understand it at all. Santa mode evoke mostly happiness and the appreciation for the seasonal aspect of the easter egg were highlighted. Although, a doubt was raised of its existence even "off-season". The findings from the emotion assessment was further translated into opportunities for design, presented in chapter 4.2.1.

4.1.5 KJ-analysis

The interview quotes analysed in the KJ-analysis resulted in four main categories, each with several sub-categories. The main categories were *users*, *easter eggs*, *brand*, and *UX* regarding products, cars and shared mobility. The findings from the topics with greatest relevance to the project will further be highlighted. The full mapping is shown in Figure 13, and underlying description and quotes for each sub-category are found in Appendix E.



Figure 13. Categorization of result from KJ-analysis.

Users

Found patterns regarding the users mostly concerned their varied interest in technology and cars and, further, towards easter eggs. These findings were mainly used in the development of personas, chapter 4.1.6, as they concern different behaviours and needs regarding products and easter eggs. However, it was clear that the interviewees covered a wide range of users with different ages, family situations, and interests, as well as their varied experience of owning a car and particularly a Tesla with its extra functions like easter eggs.

Easter eggs

It became clear from the KJ-analysis that the easter egg UX has different stages; being awareness, usage (including context, how it is triggered, and delivered), and longevity. These include how the user gets to know that easter eggs exist in their car, the frequency and context of use, understanding and reflecting upon them, and how long-lived they are, for instance if the experience fades with time.

It was found that all participants already were aware that easter eggs existed in their cars before the interview. Some found out about it on internet forums or social media or being told by their kids who found it on internet. Others were told by the salesman when purchasing the car and others through friends who had heard rumours about it. Additionally, Tesla users get notifications whenever an update is made. In those updates, you can occasionally read about the new easter eggs which spreads the awareness. Even though most finds out through social media, relatives, or the salesman before purchasing the car, some find out through exploring the product. Quote:

*"one time I accidently started the cowbell
when trying to put on the autopilot"*

Hence, the awareness that easter eggs exist in Tesla cars is inevitable if you own one. The stage about easter egg awareness was applied in the ideation phase to explore its potential and potential effect on the brand.

The context of use for easter eggs was told to mainly be when the car is standing still, e.g. when waiting for another passenger or charging the car. This might also be due to most of the easter eggs in Tesla cars only work while standing still. However, many told that they seldom spend time in the car while standing still. Instead, they mainly use the car for the purpose of transportation, which affect the usage of easter eggs. Another factor that affects the frequency of use is that when users spend time in the car and not driving, the natural thing to do is to browse your phone or use other infotainment in the car, as on-demand services or games. This becomes a competing media against the hunt of easter eggs which, in Tesla's case, need to be discovered when exploring the car HMI. The fact that easter eggs exist do however create a conversation topic of its own and owners gladly share it with friends, colleagues, or family. This was found to be another main context of use, showing them to people who ride with you for the first time. Quote:

*"others often know about it
and wonder if it's true"*

The owner can show off by demonstrating what unexpected and unusual things the car can do, e.g. place a fart pillow on any seat or make the car perform a complex dancing routine. In summary, as people seldom spend time just sitting in their cars, and most of the easter eggs only work under those circumstances, one should investigate what easter eggs are available to have during drive-mode, without jeopardizing the security.

Triggering the easter eggs in Tesla is mainly made through the infotainment menu where it has its own icon "toybox" that leads to the main easter eggs. It was sometimes questioned whether the features really are easter eggs as they are so accessible and do not require any hunt. Quote:

*"don't know if you can call it easter eggs any more
since you only press a button"*

However, one user expressed that there are still hidden easter eggs in the Tesla, which more falls under the real definition, and that no one really knows how many exist. Although, the known easter eggs are found in the "toybox" which done really encourage the hunt for more. Further, its accessibility might result in that many people find them and try them initially, but it was often indicated that you rarely re-visit the "toybox". How easter eggs can be triggered and its effect on the user and how probable they are to find, was taken into consideration in further work.

As mentioned in the result of the emotion assessment, the experience of different easter eggs varies a lot. Some thought it was solely fun, quote:

*"I have to admit,
they brighten up your day!"*

and some were more sceptical or experienced contradictory feelings, like amusement and scepticism at the same time. It also occurred that the reference of the easter egg was not understood, quote:

*"it's very boring,
I don't get it"*

As mentioned in the emotion assessment result, not understanding the purpose or reference of an easter eggs creates indifference. This is further an aspect that must be considered when designing the delivery of the easter eggs. What kind of reference can be understood and what would be too narrow?

When they reflected upon the easter eggs' purpose it was said that they probably exist to amuse the driver, making the car into something else beyond the conventional. Meanwhile, some thought they are made for the programmers of the brand to be able to have fun at work, explained by its many internal references

related to Tesla and especially its owner, Elon Musk. Alongside the purpose, some reflected upon the target group of the easter egg range, meaning that they are ‘masculine’ and quite ‘childish’, and criticising that less effort is put on addressing other user groups. Summarising, the actual delivery of easter eggs are highly important for the experience of it. Furthermore, it affects how the user perceive the brand and if they feel that they belong to the user group the brand has designed for, or if they feel excluded.

Finally, the interest and use of easter eggs were found to clearly fade over time. They were fun the first time you found them and when you showed them to your friends, but after that, the interest faded. Quote:

*“it's like a joke, it's only fun
the first time you hear it”*

Many users expressed that they had almost forgot about them when the interviewer introduced the subject. Other comments were for instance that it is irrelevant with a Christmas easter egg in the middle of the summer, and that the offer has always stayed the same. This gave opportunities to explore how easter eggs can become long-lived and remain relevant and interesting over the test of time. Also, how contextual easter eggs can avoid becoming irrelevant.

Brand

The analysis evoked aspects regarding brand perception in relation to easter eggs as a feature of the product. Mainly, it affected the perceived brand image in positive manners. This was shown as the users expressed admiration that the feature even existed, which itself was new and unexpected in the context of a car, and that it directly resulted in admiration for the brand. Quote:

*“that they at all bothered to make such a feature,
it somehow means that they have humour”*

This indicate that everything a brand does reflects its image and users’ perception. On the other side, having easter eggs sometimes made users question the brand’s resource investment. Prioritizing features with a solely purpose of being fun, which easter eggs are, had a negative impact when there clearly was other functions in the car that required improvements. Quote:

*“why do they invest time on this when
they could focus on improving the navigation
or other functions instead?”*

This indicates that the basis of having easter eggs can also affect users’ perception in a negative way as they might lose the trust in the brand’s way of prioritizing.

UX

When it came to user experiences in the car and with other products, influencing factors were shown. For instance, it was found that products that users appreciate above other products usually have an impact of adding direct value to the user. The value could be through making life easier in a situation or that it makes the user happy when they use it. This could also be referred to as wow-factors, being products that create a “wow”-reaction when the user discovers it for the first time, or when they use the product. Adding direct value to the user is a desirable factor for products which could also be a result of creating a new need that the user was not aware of before they discovered the product. It was given as an example that electrical kick-bikes had created a wow-factor in terms of a need and desire of micro-mobility that the user did not know they wanted before they discovered the electrical kick-bike for the first time.

Positive and negative user experiences from car experiences became another large finding from the analysis. These regarded both internal factors like interacting with the HMI of the car and its functions, but also external factors like other motorists’ behaviour, good and bad, and circumstances affecting the car ride and

hence the traveling experience. The list of all positive and negative car experiences mentioned were further analysed to create a user journey, see chapter 4.1.7, and which experiences could be improved by using easter eggs.

4.1.6 Persona

Personas were made by combining the data originated from, expert interviews, contextual interviews, and KJ analysis. Hence, the personas involve aspects of both brand and different easter egg users in terms of behaviours and needs.

Two main personas were distinguished when it came to behaviour and attitude towards easter eggs. These were called ‘Techy Ted’ and ‘Social Sophie’ to highlight their main characteristics. Furthermore, a grade of their easter egg behaviour was weighted on the scale from ‘non-hunter’ to ‘true easter egg hunter’, their tendency to appreciate either general or narrow references, and needs of either fun or functional easter eggs. These scales were used as they were found to be the most distinguishing dimensions regarding easter egg behaviours, deriving from the contextual interviews.

The third persona was developed to represent a younger passenger. This was made according to the finding that car owners often hear about easter eggs from their kids or others’ kids who are active on social media, which is a common platform where discovered easter eggs are uploaded and shared. It is of importance that some easter eggs are designed to target the passenger as they might be the true hunters and therefore will inform the owner and others about its existence.

Techy Ted, presented in figure 14, is a person who naturally is explorative with new products and likes to learn detailed knowledge about them. He appreciates nostalgic and narrow pop-cultural references and almost solely would like fun, humorous easter eggs, as he is of no need to be provided with functional easter eggs.

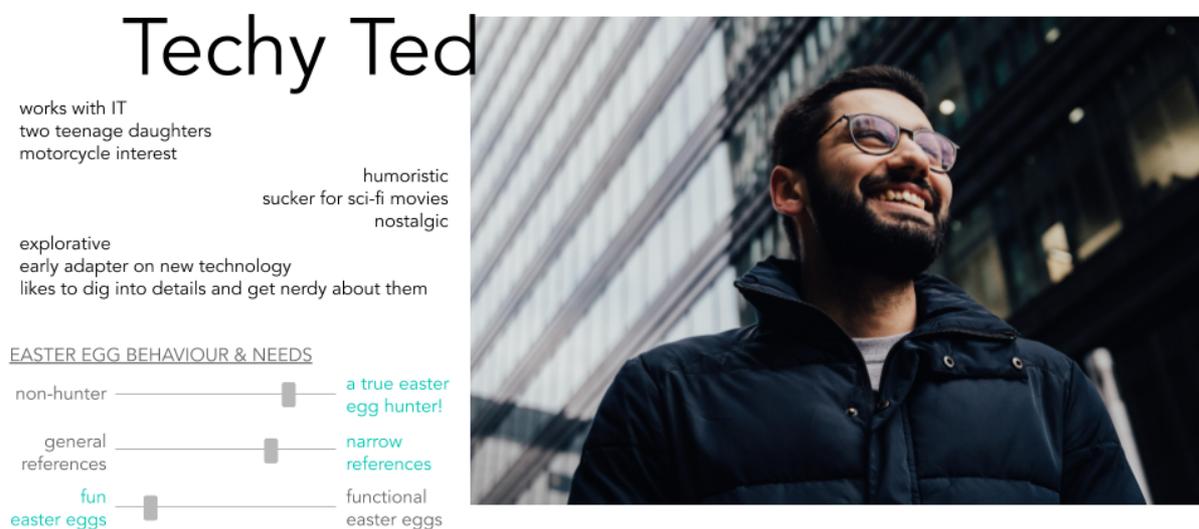


Figure 14. Persona: Techy Ted.

Social Sophie, figure 15, is an up to date, working mom who appreciates when things run smoothly. She is not that interested in technology and would appreciate functional easter eggs that can make her car experience hassle-free. She is not the person who would search for easter eggs but would surely appreciate if they would appear and be an uplifting delight in her everyday life. Generally, jokes based on topical references would be the kind of humour she would appreciate the most. She does not want an easter egg

in her car that she would not understand the purpose of, but will gladly share her experiences with friends if she finds them interesting.

Social Sophie



one 3 year old kid
works with management
healthy lifestyle

updated on global news & events
social media
prefer online shopping

stressful life
functionality above extra features
appreciates small delights in the everyday life

EASTER EGG BEHAVIOUR & NEEDS

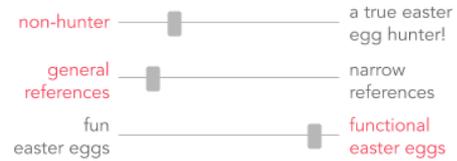


Figure 15. Persona: Social Sophie.

The last persona is called Hip Harper and represents a usual passenger, see figure 16. He is equally likely to use easter eggs as the main personas, even though he does not drive the car himself. Harper is outgoing, curious, and eager to try new things, especially when it comes to digital or viral stuff like new apps, games, or challenges. Despite his outgoing and curious personality, he becomes bored easily.

Hip Harper (passenger)

youngster
outgoing and curious
gets bored easily

watches youtube
active on tiktok
kick biking

EASTER EGG BEHAVIOUR & NEEDS

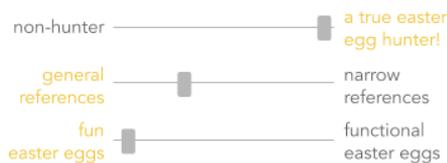


Figure 16. Persona: Hip Harper.

The three personas highlighted what different needs to be addressed when designing the easter egg UX in cars in order to make them relevant and appreciated for different kinds of users, see figure 17. Further, to make sure that easter eggs are a car feature that will be discovered by whomever is present in the car, and that they will enhance the experience despite humour or interests.

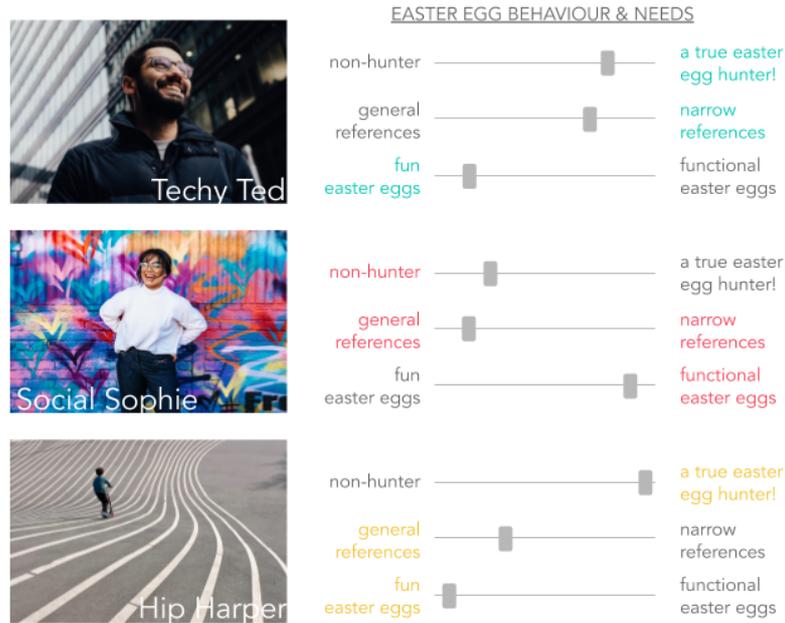


Figure 17. Summary of the personas' easter egg behaviours and needs

Furthermore, to address the personas, the easter egg offer needs to be varied, triggered through various touch points and require different effort when searching for them.

4.1.7 User journey

The scenario addressed in the user journey is when a person is driving from A to B, and what potential steps they can experience along the way. The steps that were used were based on experiences mentioned during interviews, and its general relevance to the project. For instance, some situations were eliminated as they were too specific to a certain car or person. The steps were then mapped out with relevance to a certain persona and in relation to how negative, or positive the experience would be for that persona. The steps above the neutral line are called pleasure points, and the steps below are pain points. The current user journey was presented with bright colours and a potential user journey with lighter colours, shown in figure 18.

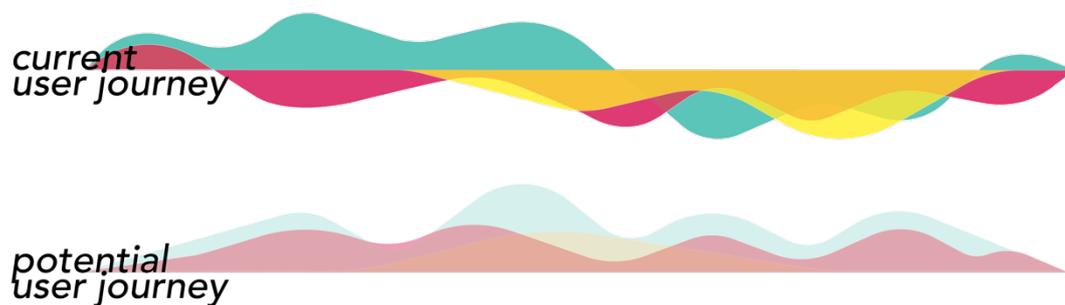


Figure 18. The colours of the old and the potential user journey.

The user journey is presented in figure 19, showing the current experience and a potential and improved user experience, through the use of easter eggs. The improved curve, represented here in a faded and light colour, was developed to visualise how a pain points can be improved by using situation-targeted easter eggs.

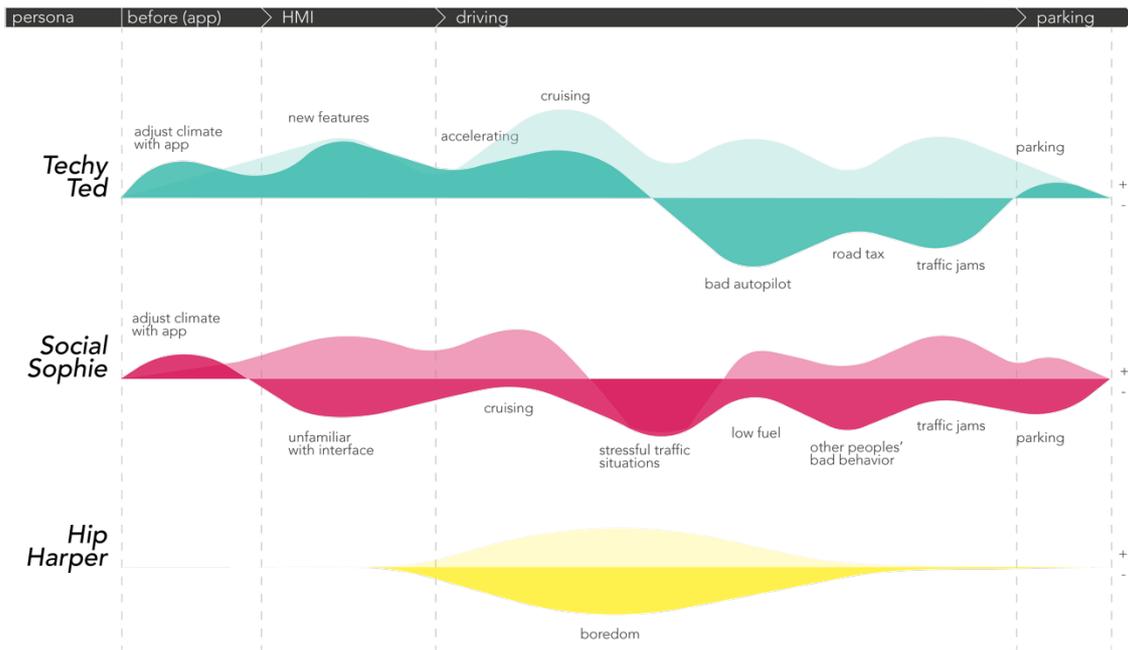


Figure 19. User journey of driving experiences and potential experiences with easter eggs.

For some pain points, as ‘unfamiliar with interface’, ‘boredom’, or ‘traffic jams’, it was considered a great potential for easter eggs to be triggered and turn the pain points into more pleasurable experiences. On the other hand, it can be questioned to target certain pain points, as when a person is experiencing negative emotions, e.g. stress or anger. In those cases, it might be inappropriate to have an easter egg as the person might not be receptive by then, which might result in an even worse experience instead. For instance, you do not want your car to prank you when you are to change lane in a stressful traffic situation that requires attention solely on the road and surrounding traffic. From this, a finding that easter eggs should be avoided in any potentially hazardous situation was identified. Although, the potential of having situation-targeted, or contextual, easter eggs was further formulated as an opportunity and investigated in the ideation phase as an interesting way to improve negative experiences.

4.2 Define

Findings from the *emphasize* methods were transformed into opportunities and guidelines.

4.2.1 Opportunities

The opportunities, framed as *how might we*-questions (HMW), derive from the insights gained from the emphasize-phase. What insights were considered relevant were based on its frequency and relevance to the project and its aim. The insights mostly regarded the concept of easter eggs, how examples of existing easter eggs were experienced by users, and their context of use. How insights were rephrased into opportunities for design are presented below, see table 2.

Insight

The easter egg user experience can be divided into four stages: awareness, trigger, delivery, and longevity.

A referential easter egg leave people who do not understand them indifferent and sceptical, but people who understand the reference appreciates them highly and it creates a bond between the user and the product/brand

Most of the easter eggs of Tesla are only available when standing still, which the user seldom does when they use the car

The interest and use of easter eggs fade over time. They were fun the first time you used it, and when you got to show it for others, but after that the interest cooled.

Several sensory elements are perceived with fascination. Although, audio was sometimes perceived as irritating and distracting if not familiar or too loud

The interest to hunt for easter eggs varies but the majority appreciates them when they once they are exposed to them.

For some pain points in the user journey of driving, it was considered a great potential for easter eggs to trigger those and turn them into more pleasurable experiences instead.

Products that users appreciate above other products, creating a “wow”-factor, usually have an impact of adding direct value to the user, through making life easier or funnier.

Users expressed admiration for that easter eggs even exists, and that it directly results in admiration for the brand. Everything a brand does affects its brand image.

There is a clear absence of easter eggs for behaviour change on the market today, which could be a potential application.

Increased desire for customized experiences

Opportunity

> HMW design for the four stages?

> HMW create referential easter eggs targeted only to those who will understand them, creating a strong bond to the "chosen one"?

> HMW design safe easter eggs suitable for driving?

> HMW create long-lived easter eggs that stay relevant over the test of time?

> HMW design multi-sensory experiences without evoking irritation?

> HMW encourage the hunt for easter eggs, considering the different personas and easter egg behaviours (driver and passengers)?

> HMW turn negative UX into positive ones, using situation-targeted easter eggs?

> HMW make the easter eggs a delight in the everyday life?

> How might the easter egg experience keep coherency with the brand?

> HMW design easter eggs for positive behaviour change, e.g. eco-driving or safe driving?

> HMW design personal easter eggs that relates to your interest, preferences or personality?

Table 2. Insights turned into opportunities through HMW-questions.

4.2.2 Defined guidelines

In order to create an enhanced user experience in cars using easter eggs, a list of guidelines has been developed. The guidelines are based on the findings from market research, the contextual interviews with Tesla users, emotion assessment and the KJ analysis and are listed in below, see table 3. The guidelines aim at helping a design team when creating easter egg experiences for a car and will further be applied in the ideation-phase.

The list presents the guidelines, their origin, along with a clarifying comment. In this case study, different concepts were also evaluated against the guidelines.

The guidelines presented below can be used to create easter eggs for a car environment, applicable to any car brand. Consider that when creating easter eggs, it can include various types of easter eggs that adds up to the total offer. Each easter egg can individually have different characteristics and only fulfil some of the guidelines. The important thing is that if creating a range of easter eggs, the total offer should follow the guidelines.

Each guideline has also been identified with which easter egg UX stage it is concerning. *A* stands for Awareness, *T* for Trigger, *D* for Delivery, and *L* for Longevity.

Easter eggs should...	Stage	Origin	Comment
1. ...target the personas; both driver and passenger	T, D	expert & contextual interview	consider the users, easter eggs can target both driver and passenger
2. ...evoke positive emotions in order to increase the user experience	T, D	theory	evaluate what emotions will be evoked by the easter egg
3. ...use generally recognized references	D	contextual interview	to create recognition and understanding for most users
4. ...be narrow <u>if</u> targeted towards an exclusive group of users	D	emotion assessment	carefully consider the experience of the users who will not understand it
5. ...create a customised feeling	D	benchmark	increases the UX and strengthen the relationship for user and brand
6. ...offer a variety of sensory experiences	D	contextual interview	as it is shown to result in fascination
7. ...be self-explanatory, not to confuse the user	D	emotion assessment	if the easter egg includes a function or needs explanation
8. ...not use audio that is too loud or annoying	D	KJ-analysis	unfamiliar, high sounds might be perceived as annoying
9. ...be relevant according to occasion	T, D	KJ-analysis	consider topical, seasonal, contextual or holiday easter eggs

10. ...be short and concise	D	KJ-analysis	effortless to interact with
11. ...be updated or inconstant to create longevity	D, L	contextual interview	constant, irrelevant easter eggs tend to become boring over time
12. ...be separated from infotainment in order to not compete with it	T	KJ-analysis	embed it creatively into the product
13. ...add value to the usual driving experience by being fun and enjoyable	D, L	theory	to differentiate from the traditional experience
14. ...evoke an interest for the user to further explore the product	T, D, L	theory	discovering the first easter egg can trigger the hunt for more
15. ...be easy to turn off if necessary	D	contextual interview	enable the driver to be in control
16. ...never cause any hazardous situations	T, D	workshop	consider the risks of the easter egg and inappropriate situations
17. ...reflect the brand and its values	A, T, D	expert interview	easter eggs can be used to communicate the brand
18. ...create a buzz, to promote the product and brand	A, T, D	contextual interview	explore how the delivery will result in wow-experiences
19. ...be distinct enough to ensure that users understand that they have found an easter egg	D	contextual interview	not to be confused of being a bug or error in the system
20. ...be able to trigger on demand	T	KJ-analysis	to be able to show others

Table 3. Guidelines to design easter egg UX for cars.

4.3 Ideate

This section is applied on the case study to create easter eggs for the Lynk & Co car, which is based on the collected data from the study. To clarify, the case can be seen as an example to address the topic of easter egg UX in cars, yet the perspective remains broad and might thereby be applied to any other car brand.

The basis for ideation was the opportunities identified in the define-phase.

4.3.1 Brainstorming

The initial brainstorming was made on the topic of easter egg user experiences at large and more specifically, the four stages identified during the emphasize-phase, figure 20, considering how awareness is created, how easter eggs could be triggered and delivered, and how to address longevity. The result of the brainstorming included what possibilities there are under each of the different stages. Investigating each step made it possible to structure the ideas and to later use as a tool to combine ideas under each category to create the full concept. The possibilities were in the end listed, presented below.



Figure 20. Easter egg stages.

The easter egg user experience contains the following four steps and corresponding possibilities, which are described below.

Awareness - How do users know that easter eggs exist at all?

This step is crucial since the user must somehow either get information that easter eggs exist in order to start hunting for them, or it is something that the user accidentally stumbles across. The awareness should therefore be decided for the easter egg offer and what approach the brand wants to have towards it. Regardless which one, a list of different ways was presented after brainstorming and researching ways of discovering easter eggs for other brands and in other contexts, from the benchmarking.

- First encounter – when the user becomes aware through the first encounter of an easter egg, e.g. through a trigger that is being perceived as a “pop-up” easter egg.
- Clues – intentionally hide clues in the HMI or interior of how users can trigger easter eggs.
- Exploring the product – that awareness can come from accidentally stumbling upon an easter egg when exploring the product, probably when the car is still very new to the user.
- Brand PR – the brand effectively promotes that their products have easter eggs, e.g. through social media, the brand’s website or by addressing it in release notes (which is something Tesla does).
- External – the user becomes aware through word of mouth, social media or internet forums. These factors can, more or less not be controlled by the brand but is a credible way for users to get aware about easter eggs.

Trigger - What action triggers the easter eggs?

The potential triggers for an easter egg are mainly restricted to the limitations of the car. All potential trigger points, when it comes to the cars’ hardware and software were explored, to find both obvious and unexpected ones. This was made as the trigger itself could be a potential surprise-moment, if the trigger is unexpected to the user. Therefore, it was also considered that the offer of triggers should vary in order to create an experience evoking surprise repeatedly. All potential triggers were listed, and combinations of triggers were considered.

One factor that needs to be taken into consideration is the probability of users to pursue the trigger, if it requires an active action. That means, the user must either come aware of the trigger, or it should be probable they stumble upon the trigger without knowing about it. This is another reason to have varied triggers, if one wants to target different easter egg behaviours. It has been shown that personas tend to have varied interests in hunting for easter eggs, which is important to consider when choosing the trigger. How hidden or visual the easter egg trigger is, reflects its probability to be discovered, and by whom. Different triggers that were discovered is listed below.

- Sensors – triggers coming from data of sensors. Could be eye tracking, GPS, gestures, personal data, date and time, rain sensors or surrounding objects like traffic lights or other motorists. This

does not require an active action of the user and easter eggs triggered through sensor will therefore appear as a pop-up and be unexpected to the user.

- Touch – a trigger based on the characteristics of touch on an HMI display, e.g. long-press, multi-finger-press, stroking the interface, pressing something in the app or HMI, or pressing a specific icon.
- Buttons – triggers hidden in physical buttons when used in a specific way or sequence, e.g. through the SWS, side levers, seat adjustment, climate knob, window buttons, or honk. The trigger could also be made by pressing two buttons at the same time.
- Voice – using the voice recognition as a trigger, through e.g. saying a key phrase to the voice assistant, raise a question, singing, whistle or sneezing. This trigger is limited to regulations regarding voice recognition; hence the user must actively allow the system to listen in order for it to work as a trigger.
- Physical – easter eggs that are physical element in interior or exterior or triggered by physical element beyond the car's HMI. This could be through the car key, or hidden easter eggs in QR codes, user manual, hood, trunk, compartments, sun shield, lights, seat belt, gas cap, etc. Example, the etched spider hidden in the gas cap of Jeep cars, see figure 8.

Delivery - How are the easter eggs delivered?

The delivery concerns the specific easter egg concept and how it is designed and delivered. It could be visually, appear in the HMI or physical elements, messages, audio playing, changing climate (heat/cold), lighting or others. There are almost infinite possibilities of what it could be, the limitation is what is possible to deliver through the car's HMI, interior and exterior.

This was the most explored topic during the ideation methods, because of its broad coverage and infinite possibilities (almost). The identified opportunities were used as source of inspiration for this step and ideas were evaluated during an iterative process through data analysis. The aim of the brainstorming was to come up with a wide range of deliveries, concerning different touchpoints in the car and targeted to different senses, to enable a varied but spot-on offer that will evoke surprise and delight for the user.

The delivery is the stage that will matter most for the user of all stages, as it is the main one that the user directly will experience. Because of that, this is where brand identity should be considered the most as it will be the direct channel to the user and be impacted of how the easter egg is delivered and what emotions it evokes.

Another factor of importance in the delivery stage is the understanding of the easter egg. Concepts that refer to a specific reference must be carefully considered as this was found to be a big influencing factor for negative easter egg experiences.

Longevity - How is the interest for easter eggs maintained?

Maintaining the interest to hunt for easter eggs and the interest to revisit explored easter eggs is a crucial step to solve in order to create a feature that is appreciated over time and creates an enhanced user experience. Alongside creating the delivery, evaluation of each ideas' longevity should be made to ensure its resistance of getting irrelevant over time.

Some ideas to create longevity was to have an easter egg offer that vary and is constantly updated. It could also be based on active user or position data, so that it will not seem outdated or irrelevant. That the easter egg adds direct value to the user or fulfils a need, explored in the KJ analysis, could be another way of creating longevity and desire to revisit the easter egg.

Creating longevity could also be obtained by build a narrative around the easter eggs. A storytelling that engages and continues throughout multiple easter eggs, encouraging the user to keep on looking, so that the story lives on.

4.3.2 Co-creation workshop

The workshops generated a great amount of creative and fun ideas, shown in figure 21, and a lot of interesting thoughts about the different themes were shared with the group in discussion. Interesting ideas and the topics that were discussed is presented below.

Brainstorming topics



Figure 21. Result of workshop 1.

An interesting thought when discussing personalisation was the matter of how much you can personalize and target the user with different easter eggs, without becoming too “creepy” and intrude on user’s privacy. Using data about the present, e.g. the car’s location or driving habits rather than using historic data, might be a solution to overcome this issue. Another idea was that the user gives active input to an object, a Tamagotchi was given as example, thus the user is a part of shaping it and it becomes personalized in that way.

Another important insight from the discussion on personalization was that many of the ideas under this category were questioned of not being an easter egg, but more or less “too good” for being an easter egg. Therefore, they were rather considered as smart functions utilizing the connectivity between your smart phone and the car and collecting personal data from the phone and presenting it in a smart and personalized way. *Learns the usual route at a given time and gives information about ETA and traffic or learn about your music taste and e.g. play the last playlist you listened to recently* were examples of ideas that were seen as functions instead of easter eggs. The easter eggs should be more unexpected in comparison to that. Further, it was taken forward that good functions or features should be present all the time, and not through easter eggs.

The discussion concerning the hunt of easter eggs and to maintain the interest highlighted the difference between the two personas, the hunter vs. the non-hunter. For the hunter, easter eggs should be something that is hard to find, triggered by the feeling that they have accomplished the task of finding it. One way of encouraging the hunt is to have some kind of secret community which is hard to access. For the non-hunter, easter eggs should be something that appears unexpectedly. It becomes more effectful if it is contextual, based on actions that the user does but might be unaware of, for example using a function or trying to find a function. Like this, the easter egg becomes relevant and not out-of-place despite user. It is

also important that it is clear that you have found an easter egg to not confuse the user who might think something is wrong, if it is not presented clearly as an intended easter egg.

Different pain points were already written down on this board in order to give some inspiration. The ideas under this category gave suggestions on how to turn negative experiences into positive ones. The following discussion under this topic highlighted the importance of being fun yet having a clear purpose or function. Example, the car might say: "I'm hungry" meaning it needs fuel or battery, but the information is presented in a fun way. It is also important to have in mind that people are different and can react differently to negative situations. While some might think an easter egg is uplifting and fun in that situation, other can become annoyed and angry. For instance, if having an easter egg while getting a flat tire or driving detours due to construction work. This discussion proved the previous findings and guideline that one should be careful when placing unexpected easter eggs when driving.

To increase the longevity of easter eggs, one way to do that is to connect gamification with real life rewards such as reduced maintenance or insurance costs. Like this, the easter eggs will become something that have direct positive impact on the user's life which will trigger the user to use them. Another fundamental aspect to keep the easter eggs interesting in the long run is how they are providing the user with something extra beyond just "fun in the moment". The user might learn something, or the easter eggs can make something easier or funnier. To maintain the interest, it is also necessary that the easter egg offer keeps up to date and adds new easter eggs occasionally: "like a joke, it is only fun in the beginning". This discussion contributed to the ideas identified in the brainstorming regarding longevity and how to maintain interest and highlighted new possibilities.

When discussing what easter eggs to have while driving and what easter eggs to avoid gave ideas on both. One general agreement was that easter eggs while driving should not require too much visual attention from the driver as it can be distracting and dangerous. Instead, easter eggs are more appropriate if standing still, driving on the highway for a longer period of time, or when passengers or the driver is bored. In a more complex driving situation, easter eggs should be absent, or that they make the passengers calm and silent, or make the driver more relaxed.

A lot of fun ideas were presented when discussing how to trigger a behaviour. Eco-driving and safe driving were the two behaviours that were discussed the most. An idea on how to make the driver slow down near a risk area is to have animals pop up in the DIM. Another way is to have a famous person telling you to slow down, e.g. Greta Thunberg saying, "everyone who loves the nature, raise your right foot". Another idea was to have easter eggs that make it fun and encourage you to drive eco-friendly. If not knowing how, the easter egg can show you how to do it. Games and scoreboards with rewards were often given as suggestions on how to make the driver drive safe and eco-friendly.

The result from the topic "for the passenger" showed that games are the most popular way to entertain passengers, especially younger ones. One way to do it is to use the smartphones as console controls and hide small games in the Lynk & Co app. Games can be played by all family members to include all passengers in social activity and interaction. It was noted that participating in a game should be effortless and also optional.

A lot of radical and futuristic ideas were put under the category "out of this world". Even though they might not be feasible today, they gave inspiration on novel features with great potential. The ideas can be used as a source of inspiration and they can be modified or simplified in order to become realised with current technologies. For instance, the idea "holograms of other people appear" can instead become an animated hologram of a person in the CSD.

After both workshops were done, all the ideas on the boards were gone through. Interesting ideas were picked out and placed on a separate board.

4.3.3 Braindrawing

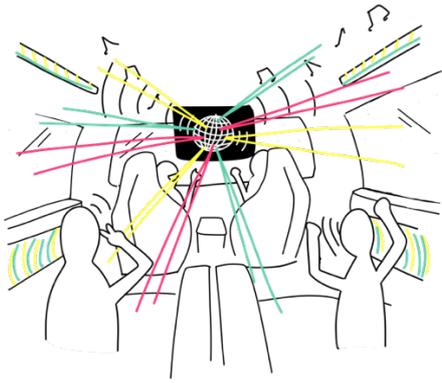
As many topics from the opportunities already were covered in the co-creation workshop, the braindrawing session mainly addressed the challenges and ideas that were yet unexplored such, as voice assistant, seasonal and multi-sensory experience, the app, QR code, music, and physical easter eggs. Ideas from the workshops were also used as inspiration when drawing ideas.

Ideas that came through this braindrawing session concerned the visual language and shapes that the easter eggs might have. The ideas that were elaborated helped define a common visual language in terms of colours and style, see figure 22. *Trigger* and *Delivery* from the easter egg stages were mainly considered in this brainwriting.

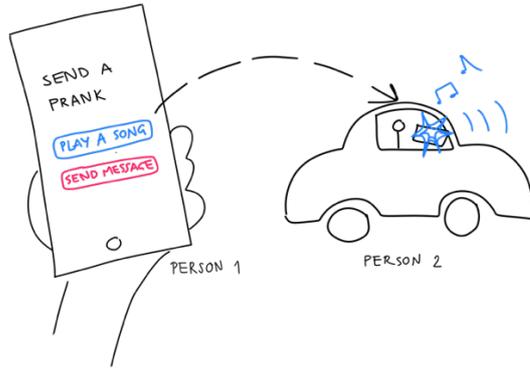


Figure 22. Snapshots from the ideation.

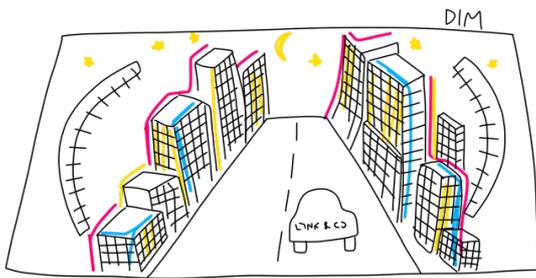
Some interesting ideas that emerged from the braindrawing were refined and visualized more clearly. These are presented below.



A. Light show



B. Prank



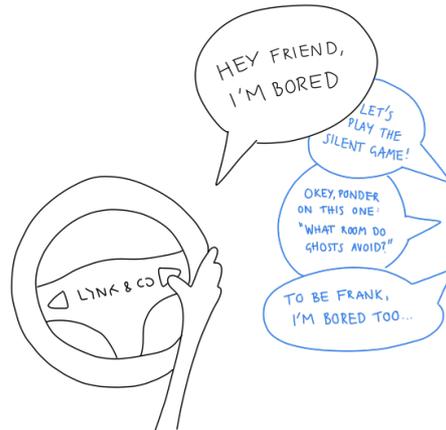
C. Urban night mode



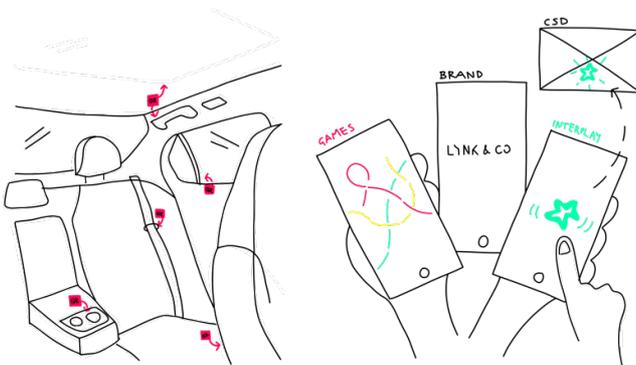
D. Brand greeting



E. Anniversary



F. Friend



G. QR code



H. Seasonal themes

4.4 Evaluate

After iteration between ideation and evaluation through data analysis, concepts described in previous chapter were picked out to be evaluated with PNI and then value matrix. The concept reduction was made together with the company.

4.4.1 PNI

The PNI was presented in a table and showcase the possible positive, negative, and interesting aspects of each concept. This made it possible to discuss the ideas and how to eliminate or improve the negative aspects, presented in table 4.

Concept	Positive	Negative	Interesting
A) Light show	<ul style="list-style-type: none"> - Wow-factor - Music is generally appreciated - Creates a buzz around the brand - Not too "show-off"/bragging - Once you've found it, you know how to trigger it again and can show it to friends 	<ul style="list-style-type: none"> - Need to be a song/sound most people appreciate - Narrowed context as it only works during night and when standing still - Might be lighting limitations depending on car & trim level 	<ul style="list-style-type: none"> - Having an ultimate easter egg - Multi-sensory experience
B) Prank	<ul style="list-style-type: none"> - The driver gets random surprises - A bit personal, the user can be part of creating the content" - Strengthens community for car sharers 	<ul style="list-style-type: none"> - Will adults use it? - Requires car sharing (min 2 persons) - Can occur during wrong circumstances (hazardous) - Not fun for the "pranker" since s/he cannot experience it 	<ul style="list-style-type: none"> - Targeted for car sharing - Will the sender receive a confirmation that the prank has been delivered?
C) Urban night mode	<ul style="list-style-type: none"> - In line with brand identity - Nice visual effect - Unexpected 	<ul style="list-style-type: none"> - Might be disturbing - Many legal restrictions regarding the DIM - Hard to implement 	<ul style="list-style-type: none"> - Triggered at night-time
D) Brand greeting	<ul style="list-style-type: none"> - Strengthens the connection between Lynk & Co customers and feeling of being a part of a "community" 	<ul style="list-style-type: none"> - Technology required do not exist in the cars today 	<ul style="list-style-type: none"> - Few Lynk& Co cars on the streets in the beginning will make it a unique experience as it will not happen too often
E) Anniversary	<ul style="list-style-type: none"> - Creates feeling of appreciation for user - Strengthens the connection between user and car/brand - New surprise every month (longevity) - Effortless and short - Easy to implement and update (OTA updates) 	<ul style="list-style-type: none"> - Limited to car subscription - Could get boring with time (make sure the content stays interesting) 	<ul style="list-style-type: none"> - Unexpected and high delight - "Humanizing" the car by a nice gesture coming from it

F) Friend	<ul style="list-style-type: none"> - To use voice is coherent with Lynk & Co - Will find through exploring the product - Correspond with brand personality - Longevity through updated content - One-way-communication is easy to implement 	<ul style="list-style-type: none"> - Can only "listen" while activating the voice control - Hard to know the probability of the user finding the trigger phrase 	<ul style="list-style-type: none"> - Surprise every time - Can be contextual and seasonal (OTA updates)
G) QR code	<ul style="list-style-type: none"> - Can easily be updated - Can have various types of content and clues - Easy access through smartphones - Passengers is able to play while driving, compared to infotainment which is not available during driving 	<ul style="list-style-type: none"> - Need to be updated often enough to be fun more than once - It is static, cannot be moved while placed - Need to be placed to not disturb the interior - If a user finds one, will they search for more? - Sticker can get wear 	<ul style="list-style-type: none"> - For Harper (the passenger) - Placement can be the "wow"-factor
H) Seasonal themes	<ul style="list-style-type: none"> - Effortless and concise - Easy to implement (OTA updates) - Small seasonal delight 	<ul style="list-style-type: none"> - Only occasional so you cannot show it to your friends 	<ul style="list-style-type: none"> - Create holiday spirit (in the accurate season) in a clever yet subtle way

Table 4. PNI with concept A-H.

Based on the amount and the weight of the negative notes the concepts Prank and Urban night mode were discarded. The rest was taken forward to be evaluated in the value matrix.

4.4.2 Value matrix

The value matrix, presented in a radar chart, were used to evaluate the ideas against user value, brand value, and feasibility. The value for each concept were presented in one chart, so that it was clear how the evaluate the concepts against each other, see figure 23. This became a base for discussion and clarification in what concepts brought more value than others. The criteria of feasibility mainly showed what ideas are more or less easy to implement at the given time of the project. However, one should be aware that that criteria will change over time. In the future, other, new technologies will be available, which will affect that value over time.

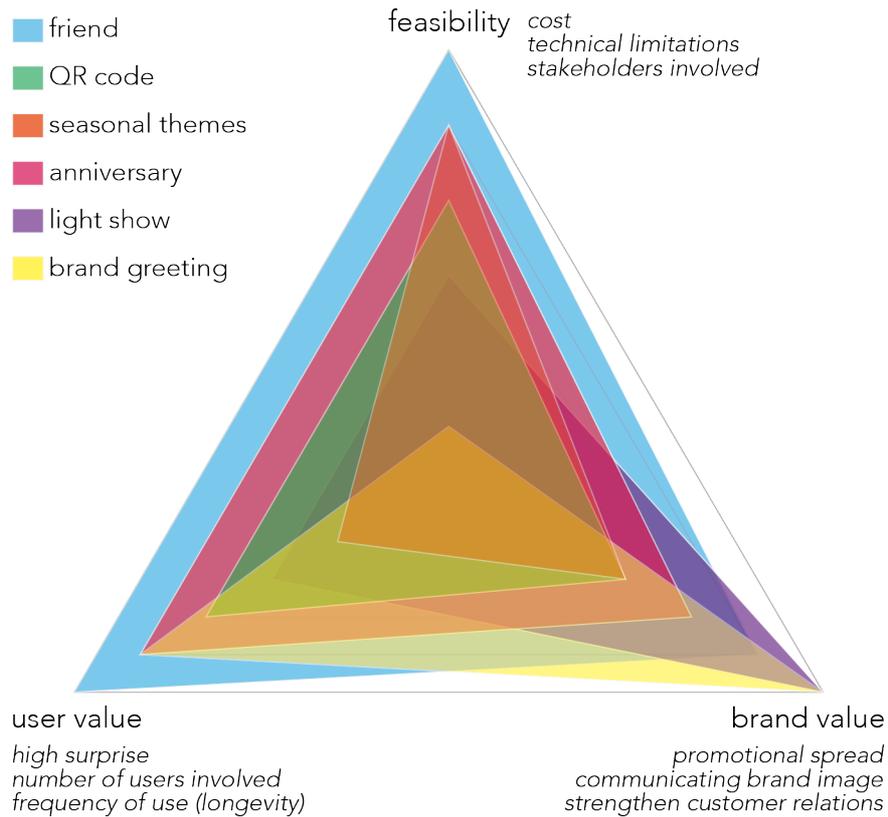


Figure 23. Comparison of concepts in a value matrix.

After having presented the value matrix, it was clear what concepts were most motivated for concept selection and to present as the final concepts. These were then refined and are presented in chapter 5 where they are used as examples of how to address the framework of designing easter eggs UX for cars.

4.4.3 Case study result

An iteration between ideation and evaluation ended up in two refined final concepts for the case study. In the following two sections, each concept is explained in a storyboard format (figure 24 and 26), followed by a descriptive text. Moreover, the two concepts are described with the four stages of easter egg UX, to explain how each stage is managed when creating the concept (figure 25 and 28). Finally, the improved user journeys with the easter eggs implemented are presented.

Concept 1 – Friend



Techy Ted is cruising in his Lynk & Co car. Explorative as he is, he tries out the voice assistant function, playing around what it can do. He tries "Hey Friend, I'm bored".



The voice assistant answers him with an unexpected saying. Ted keeps on saying the same phrase and realizes that he gets a new fun answer every time.



After a while, the voice assistant answers him with a mysterious phrase "Ok, let's turn things around". He wonders what that means.



Ted continues to drive. At the next turn he indicates left, the Beyoncé song starts playing from the speakers "to the left, to the left". Ted laughs and smiles over the fun prank.

Figure 24. Storyboard of the easter egg concept 'Friend'.

The *Friend* easter egg is triggered by using the voice assistant function. Friend is the alias name for the intended voice assistant of Lynk & Co and its personality will be reflected in the easter eggs that it will provide you with. The aim is to strengthen the tone of voice that the brand wants to communicate with help from Friend. An easter egg from Friend is triggered by certain trigger words, such as "Hey Friend, I'm bored" or "...let's play". The response will be new every time, either a riddle, a clever saying, or a prank. Friend should be clever, confident and a bit mischievous.

The different content that Friend will provide you will keep you interested hence the easter egg will not become something you only use once. Getting to know Friend will create a bond between you and the voice assistant Friend, but also the brand.

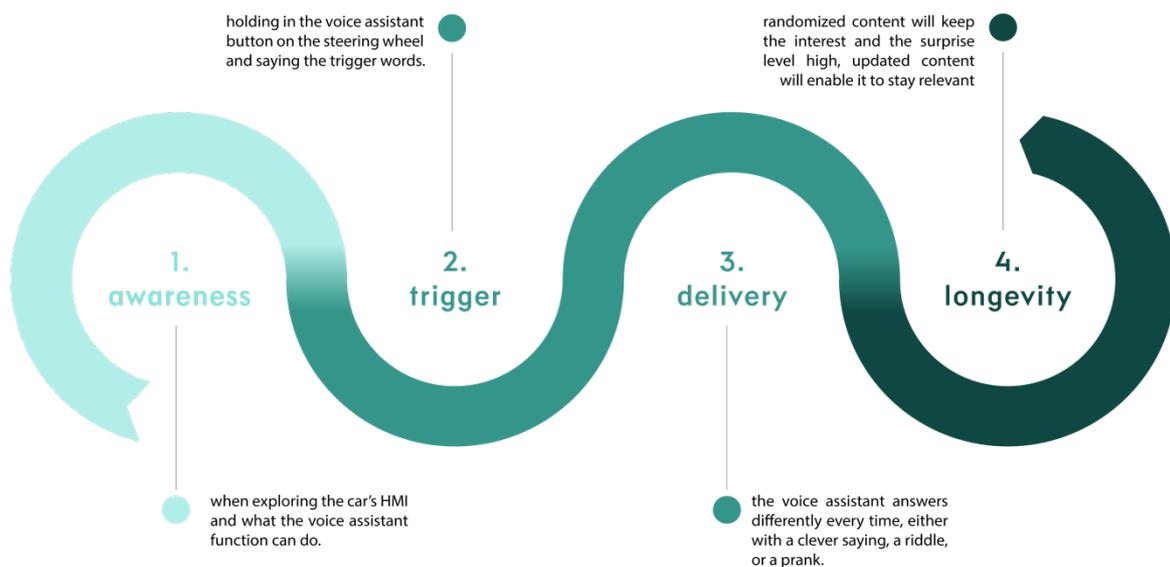


Figure 25. Easter egg concept 'Friend' described in the four stages of easter egg UX.

Concept 2 – QR code



Hip Harper is traveling in the backseat of a Lynk & Co car. He is bored.



*Curious as he is, he starts looking around in the car. "Oh, what is this?".
He sees something unexpected in the window frit.*



He realises it's a QR code in the window frit and scans it.



Wow, it leads to a hidden Lynk & Co page with a cool game. Harper is no longer bored.



"I wonder if there are more things hidden in here". And the hunt continues...

Figure 26. Storyboard of the easter egg concept 'QR code'.

This concept is about having QR codes placed at random and obviously weird locations in the car such as under the rug, behind the head rest, on the roof handle, on the seat belt buckle. The unexpected placement will make the discovery of the QR code itself surprising and make you curious about what it might hide. The QR code should be well hidden in order to not disturb the impression of the interior. When finding one of the QR codes in the car and scanning it with your phone, one of the following contents can appear, see figure 27:

- games (bowling, achtung die kurve, bingo, sinking ships, hangman, quiz)
- Lynk & Co mystery, fun fact, playlist or a local guide or a story
- mysterious message encouraging a continued hunt, "keep on looking..."

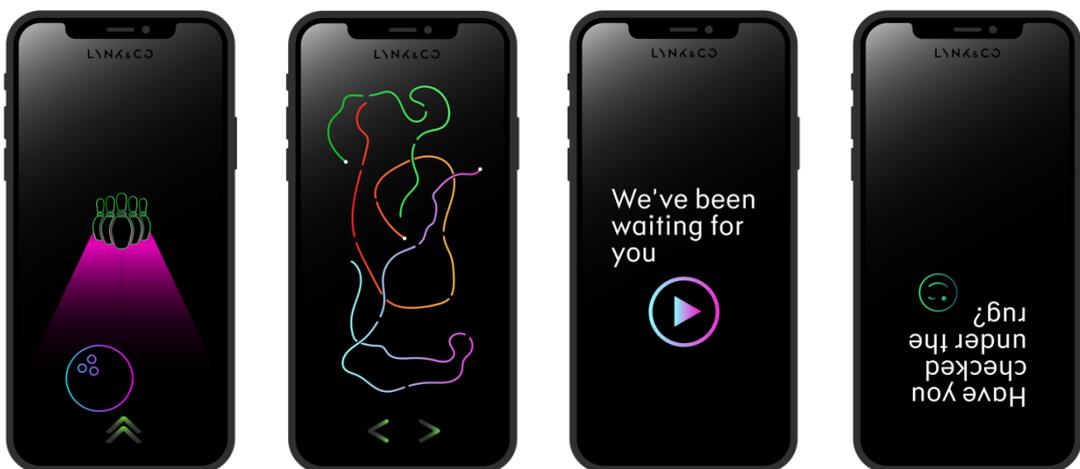


Figure 27. Suggestions of QR content.

Finding the QR code can create a high surprise and delight when, for instance, the owner is cleaning the interior of the car, or when a passenger is bored when traveling. The content can thereafter keep the passenger entertained during the ride. The upside of using QR codes is the ability to continuously change and update the content. This will in turn make the easter egg long lived.

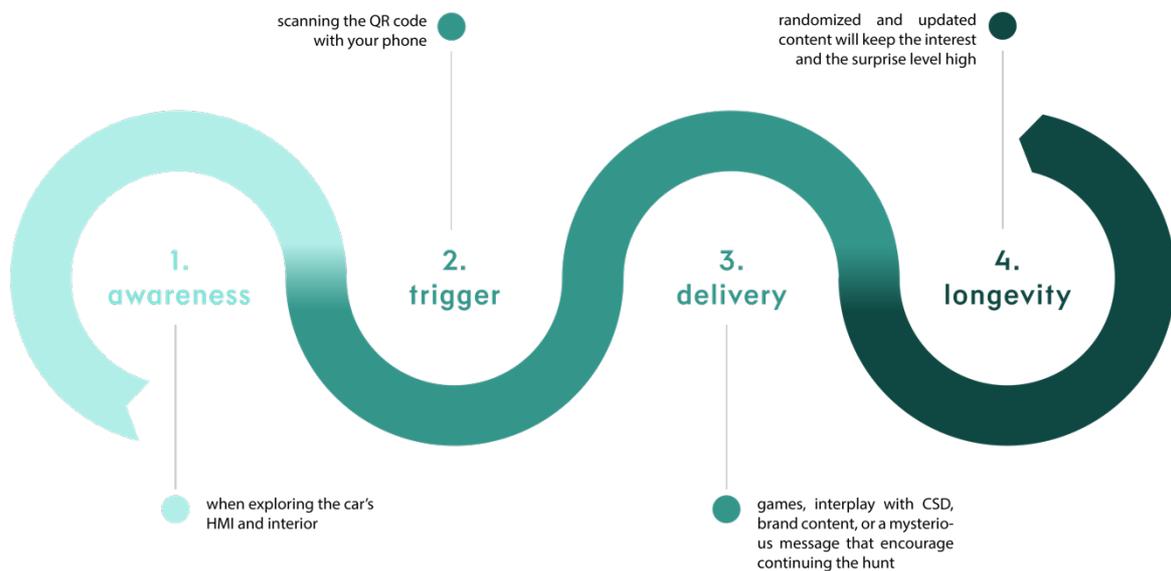


Figure 28. Easter egg concept 'QR code' described in the four stages of easter egg UX.

Easter egg user journey

Integrating the final concepts into the user journeys shows how the easter eggs are likely to enhance the UX for the personas. The new user journey for each persona is shown in figure 29, where the improved curve has a bright colour, the previous user journey has a faded colour and the pain and pleasure points are presented.

The *Friend* easter egg is likely to enhance the experience for all personas but at different levels. It is used in the micro step of cruising, which previously was a more neutral experience for Social Sophie, and a slight pleasure for Techy Ted. Hip Harper was previously bored in this step. Now it has improved the curve to a pleasurable, delightful experience for Sophie and an even higher pleasure point for Ted. Harper appreciates the clever sayings from Friend and he is now entertained also. Traffic jams is another micro step to revisit the *Friend* easter egg and that increases the experience for both Sophie and Ted. Harper discovered the *QR code* easter egg in the backseat and is entertained, playing or hunting, for the rest of the journey.

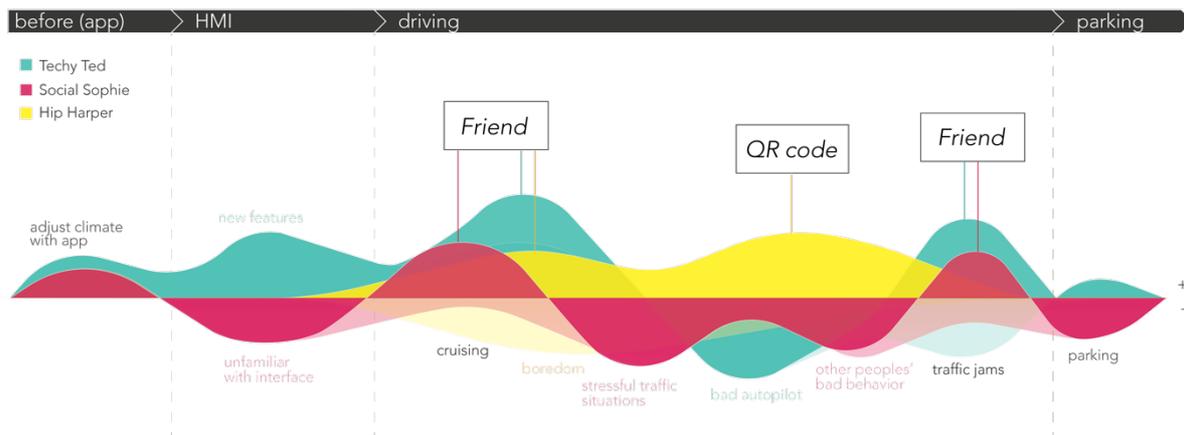


Figure 29. The easter egg user journey and how it has improved the previous user journey.

The easter eggs has enabled a user journey that is more above the neutral line now than before. Small peaks of pleasure points enhance the overall experience of driving and becomes a delight that makes you smile. For some it last for just a short moment, and for others it makes a bigger impact that lasts longer. Although, they create pleasure in both cases and has created a peak in the overall journey that was not there before.

An unexpected delight also has the potential to last and influence future experiences. If you experience a joyful moment once, that might also have an impact on potential upcoming bad experiences, such as other people's bad behavior in traffic, and make them less bad.

5

Framework for designing easter egg UX in cars

This chapter summarises the main findings and practical implications from this study about how to design easter egg user experiences in cars. The result is a framework for design, which is further explained by its components followed by the complete framework.

5.1 Three pillars of easter egg UX in cars

The data collected in this research has been broad and many topics have been discussed. The data can be summarized as visualised in figure 30, to show the relationship between different pillars. The collected research has shown that the easter egg experience is depending on three significant pillars that contribute to the holistic easter egg experience framework. The pillars are: car brand, user, and context and the interrelation between them shows how they are connected to each other.

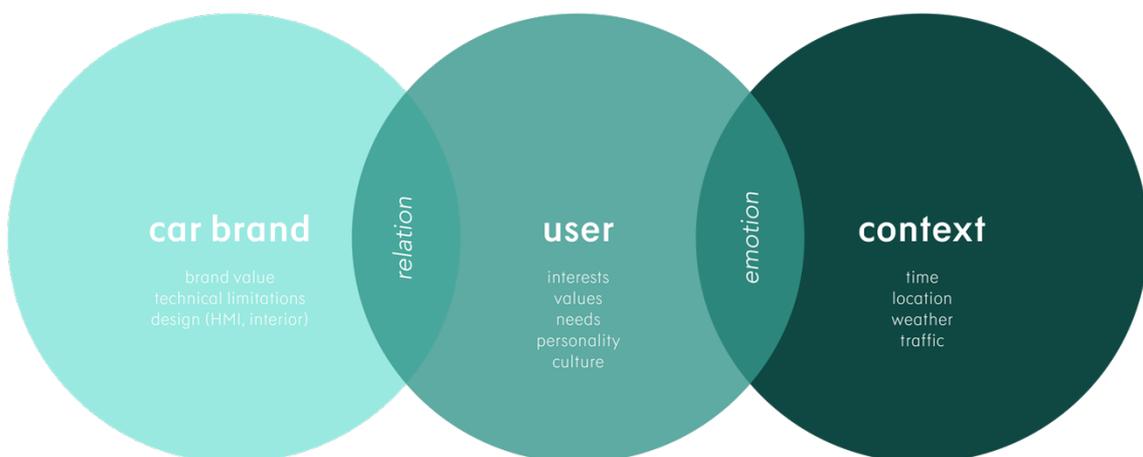


Figure 30. The three pillars of easter egg UX in cars.

The user is the most important pillar, which is why it is placed in the centre. The connection between car brand and user emerge into a relation with the product and its brand after experiencing the easter egg. The relation can be positive or negative depending on the experience. Where the user and context overlap result in a set of emotions, and they can also vary based on what kind of easter egg that is presented, or how the context affects the user.

Car brand

The product, in this case the car, is in this context always deriving from a specific brand, which the easter eggs should be coherent with, reflecting the brand value and brand image. Easter eggs can then be used as a means to communicate and strengthen these. Understanding the brand is therefore of great importance. It is also crucial to understand the product itself to be able to create easter egg suitable for its users, and adaptable according technical limitations and design of HMI and interior.

User

How the easter egg UX will be perceived by a user is much depending on that user's personal characteristics, such as humour, interests, and needs. An appreciated easter egg for someone can be equally unappreciated by another. However, it is impossible to please everyone, which is why it is important to consider the typical easter egg behaviours and whom the brand wants to target. The easter egg behaviours can later be used during the development to evaluate ideas. To emphasize with the users, it is suggested to perform various types of interviews and observations to gain user insights. By doing this, it is possible to form an opinion of how they might experience easter eggs, what they would like, and what kind of behaviour they would have towards it.

Context

It has been confirmed in many ways that the context is of great importance when designing easter eggs. As important it is to understand the user, equally important it is to become familiar with the situations the users will encounter. Being aware of the current situation that the user is in, external factors such as weather or traffic, is an essential factor whether the easter egg will be appreciated or not. Placing an easter egg in the right time and place demonstrates cleverness, creativity and can be used to turn a negative experience into a good one. By using different contexts as opportunities to have easter eggs can create a diverse content, which can create longevity. One way to understand the context of users is to carry out observations and create user journeys to visualise pain points. External factors, like surrounding traffic or other motorists, are hard to influence, but they are equally important to get an understanding of, as they highly affect the context.

5.2 Design guidelines and easter egg UX stages

Breaking down what stages that add up to the easter eggs UX also enables a clear framework for what parts that need to be considered when designing the easter egg UX for cars. These stages were found to be: awareness, trigger, delivery, and longevity, see figure 31. None of them should be undermined nor forgotten as they are equally contributing to the holistic experience and considers a durable easter egg experience over time. The easter egg UX stages can be used as a strategic framework for how a brand wants to shape their easter egg experience, from (1) how you create awareness among customers, to (2) how easy or hard it is to trigger and which behaviours it targets, to (3) how it is delivered, understood and to which sense, and (4) how to obtain longevity and something that lasts over time.

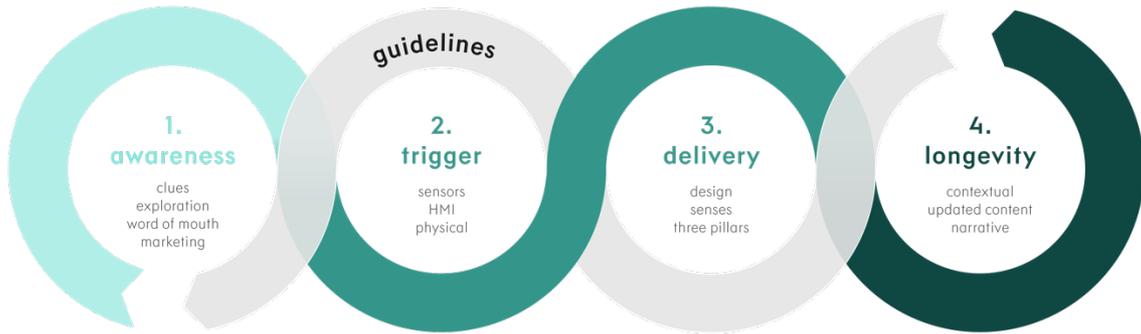


Figure 31. Four stages of easter egg UX combined with the guidelines.

The figure summarized the main findings for each step to regard. Awareness of the easter egg's existence could be created through either giving clues, or through the user's exploration of the product where they might stumble upon an easter egg. It was also found that a usual way to gain awareness is word of mouth, or that it is communicated through brand marketing. The awareness of easter eggs might be uncertain initially, especially if the brand has not had easter egg features before and if the brand chooses to have a discrete approach towards it. In that case, it is important to consider the probability for users to discover the trigger of the easter egg, in order to experience them.

Triggers are, together with delivery, restricted to the limitations of the car. They can be presented either in the HMI system, meaning all interaction points the user can access in the car, or be physical elements of the car. Delivery has endless of possibilities and what needs to be considered is the easter egg's design, what senses it targets, along with the three pillars, concerning the users' preferences, brand coherence, and context and timing of the delivery. Longevity also has broad possibilities and should be evaluated based on the delivery of an easter egg. Potential ways to creative longevity was identified to be using contextual data, hence create topical and personalised references, updated content, and by creating a narrative around the easter egg offer.

Possibilities and more examples for each stage was explored in the case study and is presented in chapter 4.3.1 about brainstorming results.

Design guidelines were developed as a complement to the stages. The guidelines overlap all four stages and communicate what needs to be considered when designing the easter egg experience. Even though many aspects of designing easter eggs are open to how the brand wants to portray themselves and what experience they want to create, the guidelines are recommended to be followed as they are a result of the market analysis and user study findings. The guidelines treat important factors which aim to create a positive holistic user experience and to avoid hazardous or negative consequences. Therefore, the guidelines should preferably be used as a check list when developing easter eggs concepts to make sure that the majority is fulfilled and, otherwise, adapt the concepts to do so.

Full list of the guidelines can be seen in chapter 4.2.2.

5.3 Complete framework

The complete framework for designing easter egg experiences for cars is presented in figure 32. The upper components, the three pillars, communicate what needs to be explored and understood before entering the design phase, which is shown in the lower part of the figure. These components, the four stages and the design guidelines, are used when designing the easter egg UX. Consequently, this is likely to contribute to a successful and delightful easter egg experience that brings value to the *brand* by creating a strong and personal relationship with the *user*, and evoking positive emotions for the user in the right *context*. Thus, be

an experience that is mysterious, yet can be discovered by whomever that would appreciate that kind of hidden surprises; an experience that is pleasant to all senses and give a feeling of personalisation and extra thought; an experience that last over the lifecycle of the product and continues to surprise and enhance the user experience and relationship between user, product and brand; and an experience that creates that extra sparkle to the product that takes the experience from fulfilling expectations, to one that overrides them and bring delight to the everyday life.

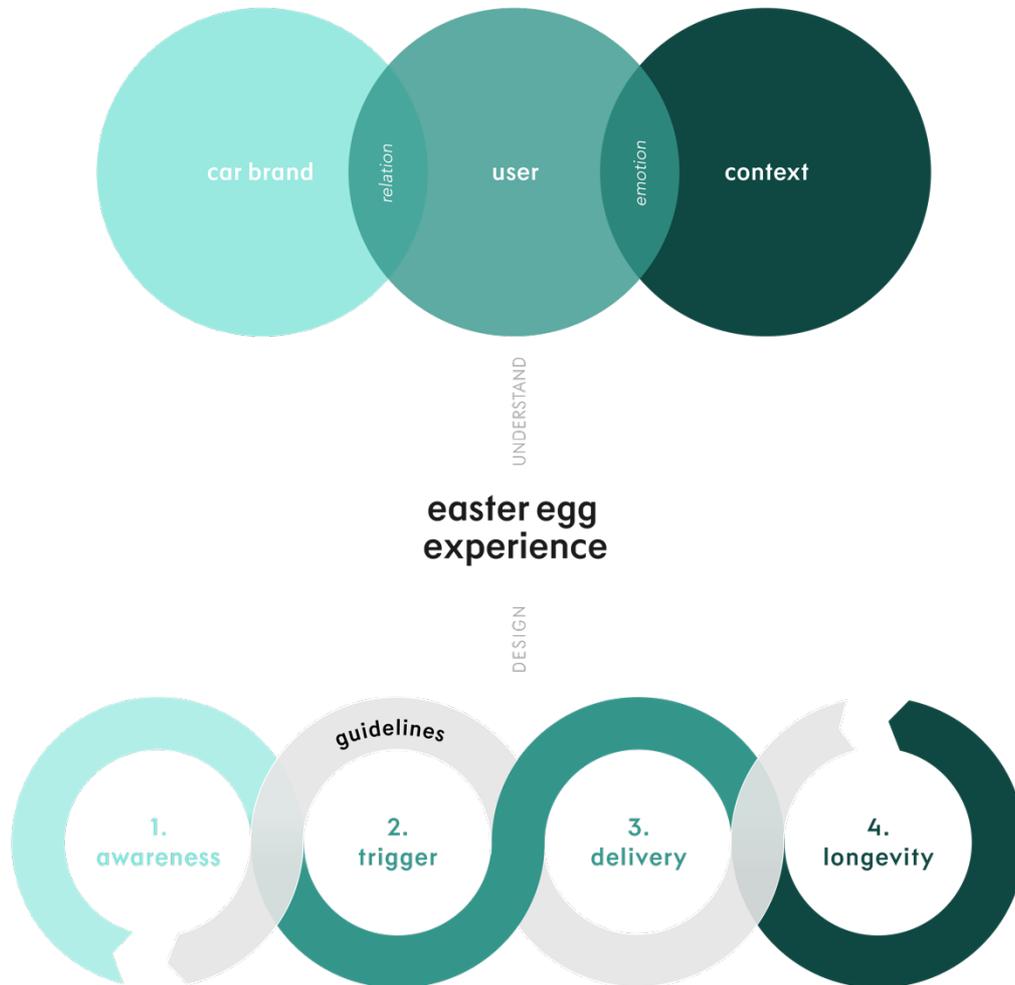


Figure 32. Complete framework for designing easter egg experiences for a car brand.

6

Discussion

This study demonstrates the correlation between the three pillars adding up to the easter egg user experience in cars. Furthermore, it established guidelines that should be considered when designing for that specific purpose. The four steps the easter egg experience includes were also identified by the study. The total result presents a new framework for this, as for today, yet unexplored subject in design, that can be compared with designing for hedonic qualities. This means that new grounds have been researched, but it also encourages further exploration within this topic.

6.1 Implications

During the study it was often indicated that the brand's decision of having easter eggs could be more essential than what the easter eggs actually are or how many they are. This opens up for interesting future subjects to explore, about what impact the easter eggs have on the brand image according to customers and potential users. In which box will people place brands who choose to have easter eggs? In this study, it has been assumed from start, and confirmed by the user research, that introducing easter eggs in the brand's products will have a positive effect on the brand, as these are new features to the context of cars. But as for the future, it might be interesting to investigate how much the delivery matter in relation to the other stages of easter eggs (awareness, trigger, and longevity), and how that will affect the brand.

The framework presented in the study increases the results significance as it can be adapted to any car brand. Knowing what needs to be considered lowers the threshold of exploring and designing easter eggs for your own business. The study is clearly limited to investigate car brands, so the result cannot tell how one should design for other products. Although, this report could be a steppingstone if one would like to approach other fields.

The result is built on broad research about the concept and use of easter eggs today and historically, but also through user research, where the participants represented the user of easter eggs in cars. As experiences are highly individual and unique, it is plausible that they did not truly represent the *general* user or the big audience. Consequently, including other participants might have led to slightly different results. However, the number of participants were considered sufficient for the scope of the project and led to an extensive amount of data.

The broad definition of easter eggs was something that was not expected in the beginning of the study. Particularly, that easter eggs was such a widespread feature used in various industries. Another interesting

insight was the idea that a brand could potentially encourage the use of functions through embedding easter eggs in them. This potential opens up for a new category of functional easter eggs, as it could be directly favourable for the brand if it actually resulted in a behaviour change, or at least be a gate that makes user try out a function they would not try otherwise.

6.2 Methods

The choice of methods was carefully considered, and each method's purpose was presented. Although, the methods and how they were performed have most likely affected the result of the study. Disclaimers about some methods, its execution, and probable impact on the outcomes are discussed below.

Contextual interview

The contextual interviews were carried out with Tesla users. This was made as Tesla is the car brand that, as for today, has implemented easter eggs in cars to a greater extent, in comparison to other car brands. It is probable that if interviews were carried out with people experiencing easter eggs in other contexts hence other easter eggs, it might have resulted in other findings. Although, it was motivated to include the context of a car in the user research as it concerns many surrounding factors as safety and control. If interviews would have been carried out in other industries, for instance the gaming industry, additional evaluations or more extensive testing would be necessary afterwards to ensure the findings' relevance to the context of cars.

Persona

Three personas were developed in this study. Two of them are adults and based on findings from the contextual interviews. The third persona is a young passenger and mostly based on the interviewees' description of their kids and their behaviours. It is important to stress that no interviews or observations have been made with such a user group, hence this persona might not accurately describe their easter egg behaviour and needs.

Another critical aspect with the personas is how well they represent and cover the user group. As it was only Tesla users that were interviewed, this could have influenced the results. However, the purpose of interviewing the Tesla users was more in order to distinguish different easter egg behaviours.

A user group that has not been included in this study is people that wouldn't appreciate easter eggs at all. In this study, it was more relevant to focus on designing for those who want them. However, it is important to consider these users if having contextual pop-up easter eggs.

User journey

The user journeys presented for each type of persona highlights different pain- and pleasure points related to their different behaviors and characteristics. The amplitude of each step's pain- or pleasure point is based on assumptions that reflects the recurring comments from the interviews. No quantitative study has been carried out to confirm their amplitudes. Yet, this was considered unnecessary as the user journeys were used to communicate a scenario with the purpose to be visualized in a way that is easy to understand.

6.3 Limitations

Limitations of the result mainly regard what impact easter eggs actually have on the brand and user experiences in the long run. Both regarding the easter egg concepts presented but also on a bigger picture and the basis of having easter eggs. How will the experience and its impact change over time? To evaluate that would require studies over a longer period of time and more sufficient testing, it cannot be told by this

study's result. Due to the topic's relative novelty in the car industry, no prior research has been done on its impact. This is something that would be of interest for brands, to answer whether easter eggs are a feature to invest in, or if it is a temporary trend that will be redundant in a couple of years. Contradictory, the desire for unexpected, delightful, wow-experiences, as a spice to the ordinary, expected product offer, is undeniably increasing. With that in mind, finding new ways to create these kinds of user experiences can be considered valuable and worthwhile, as long as it is pursued well and with effort. That also states the importance of longevity within easter eggs, and to find the key factors that will retain its relevance.

There were also some unexpected limitations that came to affect the process. Due to COVID-19 outbreak in the middle of the project, some practical changes had to be made. Remaining methods and meetings were held digitally. The biggest change that had to be done was the structure of the workshop, which was held over the online tools Zoom and Miro. Although a few limitations in this type of format, the workshop turned out successful and showed great potential of collaborating remotely. The warm-up exercise was much appreciated by users as many were new to the online tool Miro.

Another limitation was that there was no possibility to perform contextual user tests, hence the evaluation of concepts was made theoretically. If not due to the limitations, the study could have been strengthened by having user tests and to practically evaluate the concepts and the applied framework.

6.4 Recommendations

What studies might then follow this result? One area that was discovered during the process but not proceeded with due to limited time, was the potential of other purposes of easter eggs in cars. It was found that easter eggs have a large potential of being something beyond fun delights. That itself brings value in a way, yet it was considered that it could also create value in terms of pushing new functions or encourage safe driving behaviours. This remained unexplored and is a potential for future researchers to investigate.

The resulting framework is described regarding its components and suggested use. Furthermore, it is recommended to test the framework for a design team at a company, to be able to evaluate if it fits companies' working strategies, and to improve it. This should be done in order to ensure that the framework is, in fact, applicable to any car brand, as this study only concerned one brand.

The easter eggs presented in this study were evaluated theoretically. A recommendation for future work would be to prototype and test the concepts in the right context and with potential users. Testing could for instance be carried out in a car simulator, to reduce hazardous situations when driving, or through user observations of easter eggs prototyped and programmed in a car. This kind of evaluation would be necessary to ensure that a positive user experience has been achieved, and to make sure it confirms the theoretical evaluations.

7

Conclusion

It has emerged during the research that the concept of easter eggs is a widely outspread phenomenon with the purpose to create delight and surprise for those who find it. Adapting this concept into the context of cars and driving is still rather unexplored and only a few brands have embraced it as a part of their product. Designing easter eggs for cars is discovered to be dependent on user, context, and the car brand. It has also been found that it is a feature that raises the car from being just a normal car, into something else, something new, and something that also can bring added emotional value for the user.

A framework for designing easter eggs for a car brand to increase user experience was developed. It consists of two main parts; (1) three pillars (car brand, user, and context) that shows what needs to be explored and understood before entering the design phase, and (2) four stages and design guidelines, which are used when designing the easter egg UX.

The expected impacts of easter eggs on UX and brand perception is that the decision of having easter eggs in a car is a wow-factor itself and something appreciated by users, even though they do not frequently use them. Being offered small delights that solely bring light into the everyday life, has inevitably been received with positivity and the suggested framework can guide brands and designers on how that can be achieved.

This does not necessarily mean that all brands should embed easter eggs into their products. It is a decision that should reflect the brand identity and strategy of how one wants to be perceived. That is why brand has been a heavy factor throughout the study and that easter eggs deliver experiences that align with the brand, but also becomes an unexpected, appreciated addition to it.

The contribution of this study to academic research is that a glance of this unexplored, novel area has been covered and new grounds has been investigated of principles of UX design in this context.

Future directions of research, that were not covered in this study, should preferably be to investigate what long-term impact easter eggs have on the user experience and brand perception. Also, if and how easter eggs could be designed to create value beyond delight, by influencing positive driving behaviours, increasing the use of desired functions in the car, or even increase the customer loyalty and strengthen their relationship to the brand.

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Table of figures

Figure 1. HMI displays of the car.	5
Figure 2. The double diamond design process.	6
Figure 3. Contextual interview setting. Interviewer to the right and participant to the left.	8
Figure 4. Smileys used in the emotion assessment test.....	9
Figure 5. The workshop structure in Miro.	13
Figure 6. Image of value matrix.....	16
Figure 7. Timeline of the development of easter eggs and potential future purpose.	17
Figure 8. Draft of the easter egg library from Airtable.....	19
Figure 9. Categorisation of easter eggs.....	19
Figure 10. Draft from the easter egg library to exemplify each category.....	20
Figure 11. Emotions evaluated in the emotion assessment.	22
Figure 12. Results from emotion assessment presented in charts.	23
Figure 13. Categorization of result from KJ-analysis.....	24
Figure 14. Persona: Techy Ted.....	27
Figure 15. Persona: Social Sophie.	28
Figure 16. Persona: Hip Harper.	28
Figure 17. Summary of the personas' easter egg behaviours and needs	29
Figure 18. The colours of the old and the potential user journey.....	29
Figure 19. User journey of driving experiences and potential experiences with easter eggs.	30
Figure 20. Easter egg stages.	34
Figure 21. Result of workshop 1.....	36
Figure 22. Snapshots from the ideation.	38
Figure 23. Comparison of concepts in a value matrix.	42
Figure 24. Storyboard of the easter egg concept 'Friend'.	44
Figure 25. Easter egg concept 'Friend' described in the four stages of easter egg UX.....	45
Figure 26. Storyboard of the easter egg concept 'QR code'.	48
Figure 27. Suggestions of QR content.	48
Figure 28. Easter egg concept 'QR code' described in the four stages of easter egg UX.....	49
Figure 29. The easter egg user journey and how it has improved the previous user journey.....	50
Figure 30. The three pillars of easter egg UX in cars.....	51
Figure 31. Four stages of easter egg UX combined with the guidelines.....	53
Figure 32. Complete framework for designing easter egg experiences for a car brand.....	54

Appendix

- A. *Expert interview guide*
- B. *Contextual interview guide*
- C. *Easter egg library (Airtable link)*
- D. *Workshop program*
- E. *KJ-analysis*

A. Expert interview guide

Name: _____

Title: Easter egg expert _____

About the easter egg project.

tell us about your process

how did you start?

findings from benchmarking? (if a benchmarking/market research was done)

user insights, how?

ideation, how?

evaluating ideas/concepts, how?

presentation of final ideas/prototyping?

feedback?

easter egg trends you have encountered? easter egg trends you used in the project?

what happened after the project was done?

what is Lynk & Co for you? how did you adopt the Lynk & Co mindset into the project? [brand]

what do you think of easter egg in general? positive/negative aspects?

any advice for us for the project? what to focus on/what is unnecessary?

do you have any material that could be useful for us?

Name: _____

Title: Brand manager _____

About the Lynk & Co brand and customer journey.

tell us about your role

describe the brand and vision

what is Lynk & Co's tone of voice?

what would characterize a Lynk & Co Easter egg?

what would not characterize a Lynk & Co Easter egg?

can you describe the customer segments?

can you describe the customer journey – macro and micro steps?

in what phases could easter eggs potentially be placed?

B. Contextual interview guide

Name:

Date:

Model:

Sign GDPR-form

About us...

Introduce our project and purpose of the interview (understanding users experience of products, cars, easter eggs in order to create better experiences).

Explain the interview's structure (45min): Product UX, Transportation and driving, Tesla, Easter eggs

1) Product UX

Tell us a little bit about yourself... (Occupation, age, family, hobbies)

Do you have a product in your life which you wouldn't survive without? Why? Any other?

What products/things make you happy? Why?

What aspects do you value when buying a product (not car)?

What makes a product interesting?

What's your opinion on branding/marketing? Is it important for you? Why? Example?

2) Transportation and driving

A lot of transportation means are available today... (bike, electric scooters, public transport, car, Uber, taxi, train, aviation...) Can you remember/describe a positive vs. negative experience that you've had in connection with any of those?

Have you owned a car before? What kind?

Is it important for you to own your car? (compared to leasing, carpool etc.)

When driving from A to B... In which situations do you get frustrated/stressed/angry? In which situations do you feel positive, happy, calm?

3) Tesla

Why did you buy a Tesla? When did you buy it? How long have you had it, which models?

Do you know other people with a Tesla? If yes; did they influence you?

What is your overall impression of the Tesla? Why?

Are there any specific features that you like a bit extra?

Are there anything you are unhappy with?

How do you feel when navigating in the touchscreen? Compared to physical buttons? Is it different when driving or standing still?

4) Easter eggs

Have you found them? If yes, can you show? If no, show where to find them.

How did you discover/found out about them?

What was your first impression after finding them?

Have you told anybody about them?

Do you use them? If yes, how often? In what situations? If no, do other people (kids, passenger) use them?
How often? In what situations?

Then vs. now? Is the experience different from when you experienced it and today?

Have you noticed that new easter eggs have appeared over time? Have you actively searched for them?

Emotion-assessment på Easter eggs som finns

- *Fireplace*
- *Fart mode*
- *Sketchpad*
- *More Cowbell*
- *Holiday show*
- *Santa mode*
- *Ludicrous+*
- *Mars*
- *James Bond Submarine*
- *Trax*

What do you think of the easter egg offer/type of easter eggs?

Own ideas? I would rather have...

What is the purpose with easter eggs?

Who do you think is the target group for these easter eggs?

Have you encountered similar experiences with other products/brands?

Any final thought to add?

C. Workshop program

Day 1: Send e-mail with pre-study bundle together with a Zoom-link, inform about Miro

Day 2: Workshop-day

10:00 Waiting room

10:05 Welcome! *Introduce ourselves, purpose of the workshop*

Definition of easter eggs:

“a rewarding surprise embedded in an artwork (such as a film, a painting, or a video game) for discovery by those who hunt for it” & “a feature hidden in a program that is displayed only under special circumstances.”

Anything they haven't understood from the pre-study material?

Start share screen

Explain:

- Agenda
- Brainstorming rules > presenting ideas
- How to post ideaa (post-it, sketch directly on a sketchpad or sketch and upload picture)
- How to unfollow cursors and add smiley-reactions.
- Brainstorming topics
- Show "Other ideas"-board, trigger board, and personas
- Write in English!

10:20 *Share Miro-link and double check participants*

10:25 Warm-up exercise "Alternate uses"

(to get started, think quantity, get familiar with Miro)

Any questions so far?

10:30 Brainstorming session *Time each session and make sure everyone follows*

- Each person will be given a topic as starting point, 5 min on each.
- Session ends with music for 10 seconds
- Rotation, follow the arrows > New topic for 5 minutes
- Ask them to think broadly, easter eggs for different touchpoints in the car
- Any questions?

11.10 End of session

11:10 Paus *Create discussion groups*

11:15 Discussion Session

- Welcome back!
- Everyone will be placed in discussion rooms (2-3 people in each)
- The group name will be your 2 topics to discuss
- Read through the posted ideas
- Bring up 2-3 ideas that you feel is extra interesting
- Reflect upon the subject, general thoughts
- Total 15 minutes discussion, approximately 7 min on each topic

– 2 min presenting your findings to the rest of us

A, B – Personalization & The hunt

C, D – Pain points & Longevity

E, F, G – While driving & Trigger a behavior

H, I – For the passenger & Out of this world

11:20 Breakout rooms *Jump round to see if anyone needs help or have questions*

11.35 Presentation

One group at a time, 2 min each

11.45 Wrap up

Thoughts about easter eggs/feedback about the workshop

12.00 Thank you and happy easter!

D. Easter egg library



QR code to the Airtable library.

Link: <https://airtable.com/shrNKiQtJS0Yc0J5C>

E. KJ-analysis

Category: Users		
Subcategory	Explanation	Quotes
Tree-hugger	<ul style="list-style-type: none"> Care for the environment Chose sustainable products (quality, long life, certificate) Prefer sustainable brands (business models, good maintenance) 	<p>“It should be a product where the manufacturer has intentions to maintain it”</p> <p>“I look at sustainability certificates”</p> <p>“I think it’s interesting when the business model is focused on sustainability”</p>
Tech-enthusiast	<ul style="list-style-type: none"> Car enthusiast (wanting what’s new on the market) Technology as a hobby (deep-dive into interests, camera) Engineer, researcher (IT, computer sc) Male tendencies 	<p>“I’m engineer and likes technology, then this (the car) becomes an interest”</p> <p>“I’m very fond of cars”</p> <p>“That’s the thing with Tesla, they combine technology</p> <p>“I can geek into digital, small gadgets”</p>
Non-tech	<ul style="list-style-type: none"> Analog interests No interest in cars Influenced by others (partner, regarding tech/car) Not detail oriented (products main purpose most important) 	<p>“No but I like painting, board games and to read”</p> <p>“I’m not a giant fan of cars”</p> <p>“I’m not nerdy and looking into the details”</p> <p>“My husband knows about all those car stuff, I’m the contrary.”</p>
Insightful	<ul style="list-style-type: none"> Thinker, reflective Doing the right thing (sustainability, conscious choices, follows societal changes) Self-conscious (knows their personality and ability) Social concerns (work conditions, brand reputation) 	<p>“I get a grudge when something feels unfair”</p> <p>“It’s not 2020 to burn so much fuel and spit out so much crap”</p> <p>“It’s fun to be a part of the development”</p> <p>“I’m interested in that, what happens in the future, how people think, ponder, and how companies affect”</p>
Rational	<ul style="list-style-type: none"> Square Rational (to measure is to know, prefers news to social media, not impulsive) Researcher (calculates, excel, thorough research, reviews) Wants the best (regardless of brands, not compromising) 	<p>“I do thorough research and want what performs the task the best”</p> <p>“To measure is to know’ is our slogan at work, it’s a bit nerdy”</p> <p>“I’m not impulsive, rather rational”</p> <p>“not so fond of social media, I watch the news”</p>
Status	<ul style="list-style-type: none"> Superficial (value looks, design, show-off) Prefer brands (famous, exclusive) Buy the newest, modern, trendy stuff Luxury (treat yourself, we can so we will) 	<p>“I’m a bit superficial, I want it to look good”</p> <p>“everything that feel ‘new’ and ‘future’ tempts me”</p> <p>“I go for famous brands after all”</p>
Restless	<ul style="list-style-type: none"> Middle-age crisis Eager to do new stuff Bad patience 	<p>“I’m impatient, always doing new stuff”</p> <p>“I like when things happen”</p>

Category: Easter eggs		
Subcategory	Explanation	Quotes
Discovery	External <ul style="list-style-type: none"> Salesman Rumours Internet Release notes 	<p><i>"I didn't know about the entertainment-section at all when I bought it"</i></p> <p><i>"you knew about it from rumours"</i></p> <p><i>"it was generic knowledge on internet"</i></p> <p><i>"they showed us when we were test-driving"</i></p>
	Trial & error <ul style="list-style-type: none"> on purpose/ curiosity by accident 	<p><i>"of course, you have been sitting and clicking, testing in the beginning"</i></p> <p><i>"one time I accidentally started the cowbell when trying to put on the autopilot"</i></p>
Context of use	Seasonal <ul style="list-style-type: none"> Christmas time, on-season Off-season 	<p><i>"if you use it during summertime you get baked" (fireplace)</i></p> <p><i>"you don't use it in October"</i></p> <p><i>"I put it on when we go away to celebrate Christmas"</i></p>

	<p>Pastime</p> <ul style="list-style-type: none"> • Charging, shopping • Ferry • Standing still (queue, waiting) 	<p>"everything with games and stuff is for families with kids, when charging or shopping I believe" "you can't play when driving so it's quite shortbold" "pastime when charging, but then I rather use Netflix or YouTube"</p>
Sceptical	<ul style="list-style-type: none"> • Not knowing when • Don't have time • Don't care 	<p>"I don't care enough to remember it" "It's fun stuff but it doesn't contribute to the overall experience of the car if you ask me. It's not the reason you buy a 1,5 Million SEK car, to get some Easter eggs" "It's totally uninteresting for me" "seldom sit still long enough"</p>
Longevity	<ul style="list-style-type: none"> • Fun in the beginning (as a joke) • Life changes (growing up affects the humour) 	<p>"It's like a joke, it's only fun the first time you hear it" "It's one of the oldest Easter eggs so I'm pretty used to it by now" "It's been a while since I used the fart pillow now, the kids are bigger. Before it was almost every time after kinder garden"</p>
Target group	<ul style="list-style-type: none"> • Kids, 15 units • Male, mid-age, 5 units • Nerds/engineers, 1 unit 	<p>"the kids shout, "we want the rainbow". They think it's funny. I think it's loud" "the kids love the fart pillow, daddy is farting" "my age, 20-40 maybe, but it feels like they are more towards men" "I know that the guys at work loves it" "engineers and kids, doesn't feel like they are for everyone"</p>
Understanding	<ul style="list-style-type: none"> • Gets the reference (Elon/brand, pop-culture) • Don't get the reference • Don't get the purpose/how to do it. "Why? How?" 	<p>"It's fun, they're aiming at flying to Mars" "A reference to Saturday night live, a sketch long time ago" "The submarine in Bond is owned by Elon Musk" "It's very boring, I don't get it." "Is this it or...?" "They have a thing with Mars, but what's the purpose in the car?" "I don't know what to do?"</p>
Previous experience	<ul style="list-style-type: none"> • Old-school, generation gap (Excel, google) • General knowledge of its existence (but few remembered what it was, Google) 	<p>"in Excel and Windows there are a lot of Easter eggs, back then I knew a few" "Google change their logo now and then"</p>
Hot topic (easter eggs)	<ul style="list-style-type: none"> • Other knows about it (internet) • Fart pillow is the most "hot topic" among the Ee offer • Conversation starter 	<p>"Others often knows about it and wonder if it's true" "I've told many people about the fart pillow" "It's things like these you show if someone sits in the car –look at this stuff"</p>
Positive experiences (of Tesla's easter eggs)	<ul style="list-style-type: none"> • Ridiculously funny, fart pillow, mischievous (6) • Delightful/happy, (3) 	<p>"fart-mode; we did it once, it's so tremendously ridiculous and you laugh until you cry" "I have to admit, they brighten up your day"</p>
Negative experiences (of Tesla's easter eggs)	<ul style="list-style-type: none"> • Too much, exaggerated, 2 units • How to improve the X (Don'ts), 6 units • How to exit, 10 units 	<p>"It's already too much" "Oh there's that motherfucker! It's not possible to lower the volume" "I tried the car game but then I got carsick" "I don't even know how to exit this" "I got irritated because I couldn't exit it"</p>
Contradictory feelings	<ul style="list-style-type: none"> • happiness & irritation (4) • meaningless but fun (2) • fascination and boredom 	<p>"both happy and irritated because the sound is extremely annoying" "It's a bit meaningless but fun, I don't know..." "they all are fascinating, because why? But at the same time bored"</p>
Unexpected surprise	<ul style="list-style-type: none"> • Multi-sensory • Sceptical to surprise during driving, safety 	<p>"it's a bit fascinating that It's more than just a picture" "Oh, now the music started!"</p>
Trigger	Level of hiddenness changed (hidden--> toybox)	"don't know if you can call it easter eggs anymore since you only press a button."
Easter egg vs. function	<ul style="list-style-type: none"> • Definition (is it really an Easter egg,? or function, or feature) 	"it's not only an easter egg that is fun, it's actually a function since it unlocks the last horse powers of the car"

	<ul style="list-style-type: none"> Users create situations where the Easter eggs are useful (freedom of the user, not planned used, making their kids happy/quiet, note) 	<p>"fart mode is in its own league, as I have a use of it in comparison to other"</p>
Competing media	<ul style="list-style-type: none"> Games (infotainment, karaoke) Music On-demand TV/film (Netflix during longer stops) Smart phone (has everything, vital function as bank, key, parking, phone numbers, maps, primary choice (10)) 	<p>"I watch Netflix and not easter eggs if I need to wait for someone"</p> <p>"It's very hard to compete with the smart phone"</p> <p>"when they added the infotainment section with movies and games I thought that was much more worth it than easter eggs"</p>

Category: Brand		
Subcategory	Explanation	Quotes
Brand image	<ul style="list-style-type: none"> Own path, stand out from the crowds, dare to think new Playful attitude, humour Everything the brand does affect the overall impression 	<p>"they have an image of being playful and humoristic"</p> <p>"they go their own way, they dare to think new"</p> <p>"everything that a company does is reflected on the brand image. It's not only about the product itself, it's about everything around it that makes it interesting"</p>
Role model	<ul style="list-style-type: none"> Fascination, admiration The visionary (space) Creates bond owning a Tesla 	<p>"the feeling of owning this car brings me closer to him, Elon Musk-visionary and his fascination of bringing people to space"</p> <p>"I like Elon Musk in general, I think it's charming"</p> <p>"I think it's funny because it has to do with Elon Musk, otherwise I don't care"</p>
Car 2.0	<ul style="list-style-type: none"> More than a car (living room, entertainment) A computer instead of car Loyalty to the brand, forgiving towards its quality 	<p>"tried to make the car something else and more than just a car; amusement, cool, different. A living room, suddenly you can have a fire place and put on some music"</p> <p>"I knew beforehand what kind of car I was buying: a computer instead of a car"</p> <p>"I forgive tesla more than I would forgive a Volvo"</p>
Hot topic	<ul style="list-style-type: none"> Other's curiosity (friend, colleagues, neighbours, kids) Other's judgements (woman owning a Tesla) Owner's pride (forums, like talking about their cars, influence others to buy) 	<p>"many people are asking questions, want to try it when going for lunch or so"</p> <p>"I'm one of the youngest at work and a woman, and people say like "what? Is it you that own the tesla?!"</p> <p>"it's a problem with us tesla-owners that we might talk a little bit too much about our Tesla"</p>
Resource investment	<ul style="list-style-type: none"> Fascination of prioritizing the time, R&D, money (doing Easter eggs) Opposite: Sceptical towards priorities, should invest time in more important, functional stuff Playful attitude/doesn't have to be so serious 	<p>"its existence is doing more than its actual function"</p> <p>"you become impressed when you think that someone has actually done this"</p> <p>"that they even care...it means they have humour"</p> <p>"it doesn't need to be so serious driving a car, it's okay if it's fun and that they invest R&D money on it"</p>
Fun at work	<ul style="list-style-type: none"> Accepting corporate culture Programmer's joy (keep them happy and entertained) Other engineer's appreciation (understand the time and resources invested) 	<p>"playfulness among programmers and engineers, a corporate culture that allows these kind of things"</p> <p>"it's funny because you imagine a bunch of engineers sitting and doing this"</p> <p>"we engineers understand the amount of work that's behind it"</p>

Category: User experience		
Subcategory	Explanation	Quotes
Products		
Wow-factor	<ul style="list-style-type: none"> Hassle-free experience (charging, retail) Trigger emotions (happiness, curiosity, joy, satisfaction, surprise) "Must have"-feeling (from first sight, whole family loves the experience) 	<p>"this car feels super fun, we want it!"</p> <p>"this was wow! A lot of questions, how is that working and where is that, so it evoke a lot of curiosity"</p> <p>"it's extremely funny. We use to joke about that we don't need membership card at amusement parks anymore"</p>
Fulfilling needs	<ul style="list-style-type: none"> Unknown needs, the need you didn't know you had Solving everyday struggles (micro mobility, something becomes simpler, flexible to life situations) 	<p>"so you haven't thought about the problem before but suddenly you find a product that solves it"</p> <p>"it brings me joy to be able to accomplish things, without being stuck"</p>

	<ul style="list-style-type: none"> Added value (becomes funnier, usability, having a purpose, what can be achieved through the product, enable creativity, health, connected to hobbies) 	<p><i>"what it adds in to my life, then it doesn't be particularly useful, but something should become easier or funnier, most of all funnier"</i></p> <p><i>"you don't need much, it's more about the situation"</i></p>
UX preferences	<ul style="list-style-type: none"> Low-tech (everyday needs) Personal added value (Usability, quality, prize, smart products, novelty, reward) 	<p><i>"I paid extra for it because I wanted it to be able to accept all formats"</i></p> <p><i>"when it's connected and smart things, for example Google Home, a lot of things would fall into place"</i></p> <p><i>"the usability is nice"</i></p>
<i>Car</i>		
Interaction	<ul style="list-style-type: none"> Familiar UI (screen, intuitive, large icons, avoid complex systems) Simple interaction (time saving, everything at one place) Balance between screen interaction and haptic buttons (prefer tactile feedback) Safety concerns (placement of functions, screen requires focused attention) New systems require learning (takes time to get used to, novelty) Voice assistance (varied in use, mostly uncommon but people know about it) 	<p><i>"I appreciate that it hasn't become Microsoft-damaged yet, the UI is more natural and more familiar, like an iPad"</i></p> <p><i>"It would have been even better if it was some more haptic feedback"</i></p> <p><i>"now that I'm used to it there's no problem, but initially you need to take the eyes from the road for too long I think"</i></p> <p><i>"It can be more difficult to find things, especially in the beginning, but they're always somewhere. You just have to figure out where"</i></p> <p><i>"I'm not a friend with voice control system. I don't use it on my phone and I definitely don't use it in the car"</i></p>
Behavior	<ul style="list-style-type: none"> Sustainable behaviour (energy consumption, safety in traffic) Compensating behaviour (adapts interaction with screens when standing still) A to B (purpose of driving is the transportation, irrelevant with other features) 	<p><i>"there are useful features that I believe makes you a better driver, like lane-assistance"</i></p> <p><i>"you keep track of the energy consumption"</i></p> <p><i>"when autopilot is activated, it feels safer to interact with the screen"</i></p> <p><i>"I drive from A to B so in between that I don't have time to play"</i></p>
Updated software	<ul style="list-style-type: none"> Appreciating updates (fun that it evolves, surprise) Neutrality (do not notice, don't care) Curiosity (what will be the next update, expect improvement) Bad updates (aware of bugs, previous version was better, being cautious) 	<p><i>"it's fun that it's not constant but updates regularly"</i></p> <p><i>"I think it was six months ago a new Easter egg appeared, I haven't noticed really"</i></p> <p><i>"You expect to receive new functions that will improve, especially when it comes to software"</i></p> <p><i>"You need to be careful and think what has gone wrong in this release. It happens quite often, small bugs"</i></p>
<i>Other mobility</i>		
Shared mobility	<ul style="list-style-type: none"> Efficiency (moving while working/sleeping, easy access, time saving, on time, hassle-free) Journey is the goal (experience things along the way, pleasant service) Comfort (having your own car, freedom, kids, nice seat, quiet area) Fun and new, interesting (micro mobility, easy, happy life) 	<p><i>"on trains you don't have to drive long distances on your own and you can work at the same time"</i></p> <p><i>"last year I took the train to Milan , and you see so many beautiful places at the same time compared to a plane"</i></p> <p><i>"car pool would be perfect if we didn't have kids"</i></p> <p><i>"it's something playful and childish with Voi and I liked that"</i></p>



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