CHALMERS
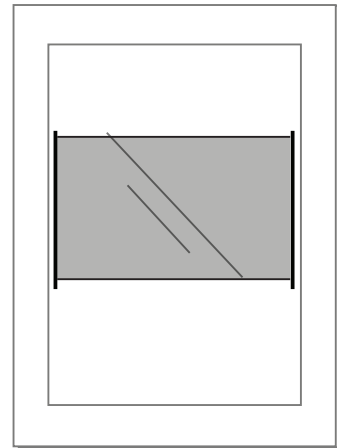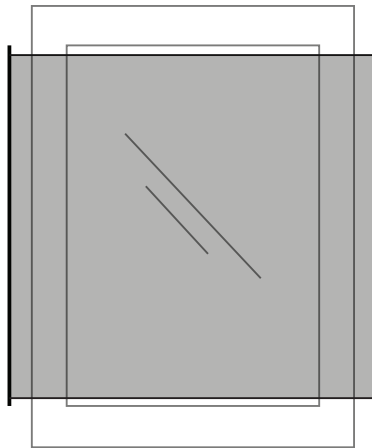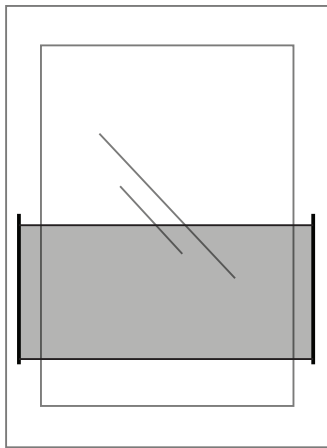## UNIVERSITY OF TECHNOLOGY

A New Window Solution
Investigating and designing for enhanced range relevance and for the many people

Master of Science Thesis in Industrial Design Engineering

ANNA MAGNUSSON

Master of Science Thesis

A New Window Solution
A design project in collaboration with IKEA of Sweden

Author
ANNA MAGNUSSON

Supervisor and examiner
Pontus Wallgren

ACKNOWLEDGEMENTS

Göteborg 15 February 2018

Anna Magnusson

ABSTRACT

This project thesis have been conducted in collaboration with IKEA of Sweden to explore the relevance of a part of the IKEA range, concerning window solutions. Based on this general task, the aim was set to investigate the use and possibilities of window solutions and to explore and demonstrate how the IKEA range can supply its customers in an appropriate way.

In early stages of the project the field was explored with a general approach using the methods of benchmarking, social media listening and task analysis. This resulted in an overall picture of what people want and need in window solutions, and a defined focus grounding for studies on the IKEA range. By meeting with the customers and comparing the IKEA way to other competitive ranges, using customer journey mapping, story boarding, KJ- and SWOT analysis, the studies showed how customers perceives the range and in addition the shortcomings and how they affect the range. How the range is perceived was found to be affected by how people hang, what assumptions they have about standards and their understanding of window solutions. For the IKEA range to be relevant for the customer, the experience is important as well as the offer of appropriate products.

The findings lead to a scope, which sets the basis to a design process dealing with how a window solution can help the user to a better everyday life. Based on this, diverse ideas were created through generative research and by challenging assumptions, to explore possible solutions. Three concepts were formed and by weighting each of the concepts against specified criteria, established to ensure the solution to complement the range, the most promising concept was identified and further developed. The development of the concept resulted in a visualization of a beneficial product, GRANNEN, with the main benefits of its flexibility to different window frames, being easy to install by the non-drill solution and being easily adapted to individual needs. GRANNEN is designed for the user, based on user needs and the IKEA way to make the IKEA range more relevant to its customers.

Introduction

Chapter 1. The task grounding for this report is presented in this chapter, as well as other things of importance which have framed this thesis work.

A. PROJECT BACKGROUND

We live in a constantly changing world and how we live show on big difference in for example type of home, how space is used, and how interior styles differ from person to person. Thus, the IKEA range needs to be relevant to the many people, meeting needs and dreams of life at home in all IKEA markets. This is an everyday challenge for the development teams at IKEA of Sweden.

Health, wellbeing and happiness were in Life at Home Report (IKEA, 2017) found to be most important when it comes to life at home. Light is important to us humans and in our homes, windows are great light providers. But, sometimes we need to cover our windows to be private and feel truly at home.

Window solutions are products that **facilitate the coverage of a window and can by its design and usage improve environments, add value to a home and to the people who live there**. The added value provided by window solutions may be the way the solution provides privacy to a home, but may also be the possibility it gives to control light or/and its decorative benefits.

But, how do people hang their curtains and other window applications? Does the range of window solutions have what the market demands? What knowledge is important to have for future developments?

AIM AND OBJECTIVE
The aim is to investigate the use and possibilities of window solutions and to demonstrate how the IKEA product range can supply its consumers in an appropriate way. The objectives are to give an overall picture of what customers need and want in window solutions, to define eventual range shortcomings and to visualize an example of how certain shortcomings can be dealt with through beneficial solutions.

DELIMITATIONS
The research has its focus on the field as a whole, without mechanical details. The final design proposal explains a concept and its potential benefits. Final verification is not included in this report, but further recommendations are given.

REPORT DISPOSITION
This first chapter gives the framework to the project followed by chapter two presenting the methods and tools used in the procedure. Chapter three, Field Study, presents a market analyse as the background to the chapters four and five which lead to the concept development in chapter six. Finally, in chapter seven, the project is discussed and conclusions are made.

B. IKEA VISION & TARGET GROUP
The core of IKEA is very much about trying new things and do so in different ways - being different with a meaning. The brand identity is developed by searching for new solutions in places that have not been looked in before, making it possible to stay close to people and keeping the brand fresh and exciting. IKEA always considers their value chain, where for example smart flat packages is a known outcome. By integrating the customer in the assembly process of the IKEA products, both IKEA and its customers save money as prices of products can be kept low.

The IKEA vision is to **create a better everyday life for the many people** and is reached by offering 'a wide range of well-designed, functional home furnishing products at prices so low that as many people as possible will be able to afford them'. Accordingly, all IKEA developments are steered by the five democratic design dimensions; form, function, sustainability, low price and quality (figure 1). These five dimensions make the IKEA brand stay unique and the combination of them result in good design. In all development work the

five dimensions should be included to result in a product meeting the user expectations.

The target group, both men and women, live where IKEA has its markets (2017): Europe, America, Asia and Australia. According to a business study (Dudovskiy, 2017) the age of the typical IKEA customer is 22 and older, but the target group is **the many people**. Accordingly the IKEA product range is shaped by secure and safe solutions for all ages and developed to support the many people.

To make sure IKEA can support the many, IKEA addresses a number of different living situations and stages in life (Inter IKEA Systems, IKEA Range Strategy: Design & Quality, 2017, pp. 25-26). The different stages can be used to identify common and different expectations amongst the groups. And to make sure all users are thought of in the development of new solutions for a better everyday life. Stages in life differ between the many people, and in this report the different stages are summarized as three major ones (figure 2).

Figure 1
Democratic design by IKEA.

C. DESIGN THINKING

Design thinking is a solution-based, user-centered and creative design methodology, characterized by a number of different attributes, which may differ depending on who you ask. According to Baeck and Garremett (2011) the core attributes of design thinking include the attributions of ambiguity, collaborative, connective, curiosity, empathy, holistic, iterative, non-judgemental, and open mindset. It is a combination of these, as well as a progression of activities, that enable the thinker to deal with 'wicked' problems, meaning problems that are complex and where both problem and solution aren't defined at the project start. This points to the necessity of looking at the bigger context for the customer (Waloszek, 2012).

The concept *Where Life Happens* (IKEA campaign from 2016) is brilliant in showing us how IKEA products can help, improve and solve emotional everyday problems. To understand people and the complexities of their lives it is important to empathize with them (Kolawole, 2017). To empathize is in many design thinking processes the first and crucial step for understanding the problem to be solved (Siang & Dam , 2016).

Figure 2
Life situations/stages in life.

D. DESIGN FOR EXPERIENCE

Design is a term which can be used to describe almost everything around us: form, expressions, the process of designing, the intended experience, the usage scenario, for example (Wikberg Nilsson, Ericson, & Törlind, 2015). Within product design, design for experience refers to the experience created through products. Research says that for the user to have pleasurable experiences, he/she has to perceive the benefits as fulfilling expectations (Kenyon & Sen, 2015).The experiences are pleasurable if the product fulfills the user needs (Hassenzahl, 2013).

User satisfaction is a way of measuring pleasurable experiences and refers to 'the state of mind that customers have about a company when their expectations have been met or exceeded over the lifetime of the product or service' (National Business Research Institute, 2017). The way people feel about interacting and using a product and how people experience products are not only determined by the actual interaction, but also by thoughts and anticipations (Karlsson, 2016).

To explain the relation between users and what they interact with, there are existing frameworks, models and theories that can be used. Patrick Jordan (1999) describes pleasures in a product-pleasure model where a pleasure refers to 'the emotional, hedonic, and practical benefits associated with products' (Jordan 1999). His framework consist of four pleasure categories; the ideo-, psycho-, socio- and physio-pleasures, beneficial in identifying all pleasures with products and can be used as a structured approach in a product developing process.

Pieter Desmet (2003) explores the relationship between users and products by looking on the emotional response to consumer products by using his model of product appraisal. His model shows that product, concerns, appraisal and the interdependence between them will result in specific emotion/emotions (Desmet, 2002). In design we can use emotional responses to understand how we should design for positive user experiences.

Ways of describing human-product interactions is by looking on emotions but also how humans process information. Donald Norman (2004) means that everything we do has a cognitive and affective component. Information is processed by interaction between different levels of the brain and is driven by perceptions (of a product) and thoughts (product concerns). Norman's model shows three levels of the brain; the visceral being an initial preconscious level, the behavioral being a subconscious level and the reflective being a conscious and judgmental level. By understanding these three levels, emotional design can be created. Visceral design generate in immediate emotional reactions by a products physical features. Behavioral design generate in emotional reactions by the interaction and use of a product, for example by how a product feels and gives feedback. Reflective design generates in emotional reactions by the context of where the product is being used and lead to judgments based on knowledge, assessments and memories (Norman, 2014).

Applied methods and tools

Chapter 2. The first task was to understand the overall context to gain crucial knowledge for further investigations. Applied methods and tools were selected accordingly and are presented in this chapter, as well as the process outline.

A. PROCESS OUTLINE

The process was conducted in two major phases (with two parts each), illustrated in figure 3. First phase focused on gathering material to identify shortcomings and to gain an overall picture of what to focus further on. This was done by first looking into the field with a general approach, then using the understanding of the most important input and transferring it to the research of how the IKEA range meets its audience.

In the second phase, the material was analysed to conclude upon what defines a relevant window solution range for the IKEA customer. This was used to decide upon how the work should proceed with the solving of identified problems, including a product design process.

To reach the project goal, different methods and tools were used, shown in figure 3 and described in next three sections.

Stakeholder analysis

Dialouges

KJ analysis

Market analysis

Evaluation

Morphological matrix

Syrveys

Social media listening

Observations

SWOT analysis

Challenge assumptions

Task analysis

Storyboarding

Brainstorming

Customer Journey

Generative research sessions

GENERAL RESEARCH

RANGE SPECIFICS

SHORTCOMINGS

CONCEPT DEVELOPMENT
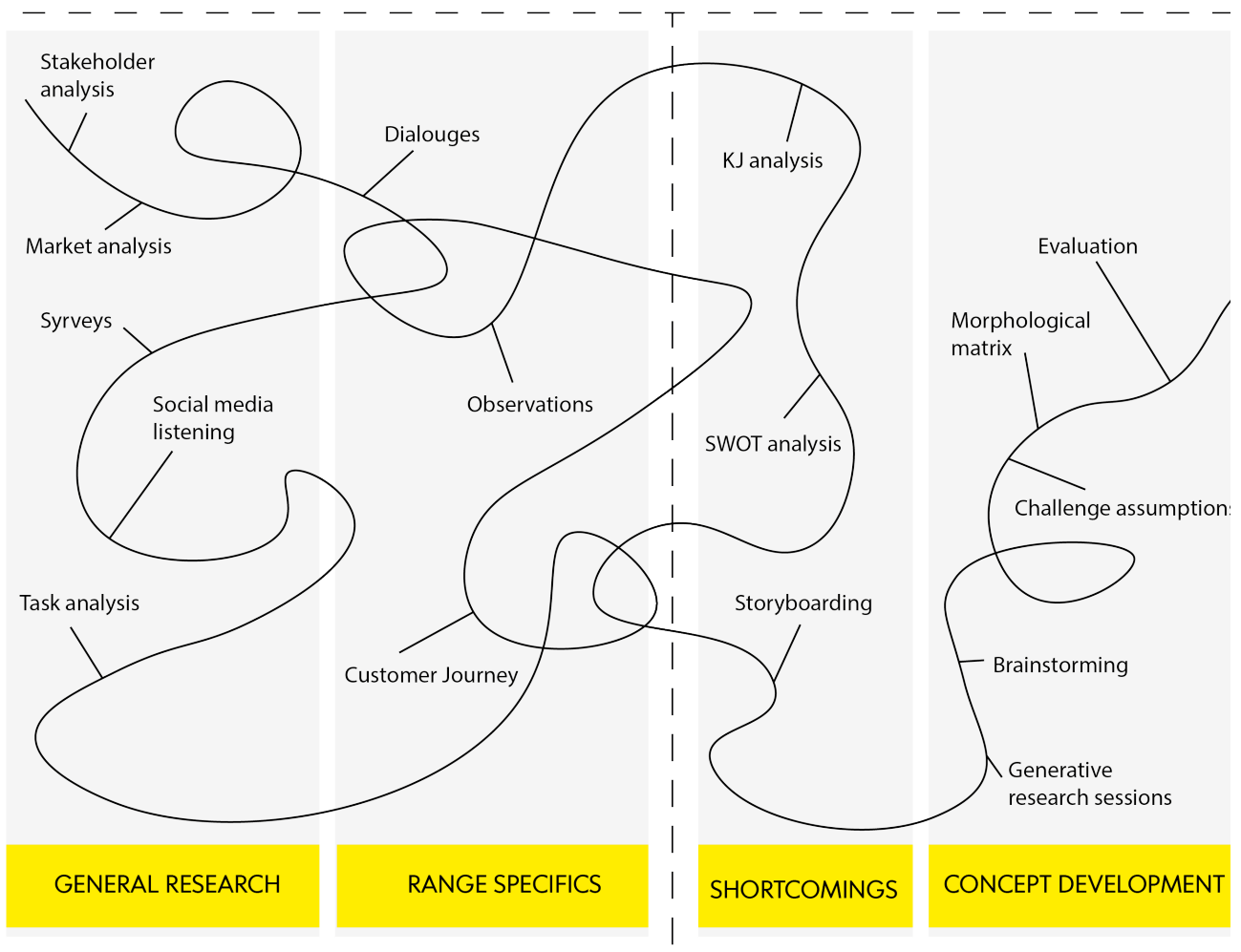
Figure 3
Illustration of the phases and events in the overall process.

B. RESEARCH AND DATA COLLECTION

The material that was collected was mainly qualitative data, which is the type of data essential for understanding human specifics and relations to objects and is used to describe patterns and perceptions (Williamson, 2002).

STAKEHOLDER ANALYSIS

A stakeholder analysis is a tool used to identify the interests and parties involved in a project process and completion of a project (Project management articles, 2017). For this project it was important to include such analysis, as the stakeholders have different impact and interest as they may or may not be affected by the project result. See the analysis in Appendix A.

MARKET ANALYSIS

There are many competitors in window solutions and they are located all over the world. To get a wide and time effective overview the market analysis included an online scan of competitive product ranges (see companies listed in table 1, appendix B1); how competitors display what they offer to their customers and what they offer.

SURVEYS

Different survey questionnaires were established and sent out via e-mail to two groups (populations) of people with common characteristics that is of interest in the research: potential end users and IKEA sales leaders. The forms are found in appendix B2. The surveys (see table 2, appendix B1) to end users (survey number 1 and 2) were designed to give insight in what type of window solutions people prefer and how they are used. The survey to sales leaders (survey number 3) was designed to result in knowledge about markets in different countries.

SOCIAL MEDIA LISTENING

To explore how people live a searching on the internet was conducted. The study included exploring social media forums (see table 3, appendix B1) and collecting material to analyse. Investigating social media forums made it possible to get in touch with people with interests and hobbies connected to interior design. By investigating and observing what people post gave understanding about how people use different window solutions. Posts and comments were collected and gave accurate and valid information about how users add meaning to, hang and experience window solutions on today's market. The collected material consisted of more than 400 comments and photos, studied and organized through KJ analysis (see section C).

TASK ANALYSIS

In order to understand user goals, needs and dreams of customers a web-based task analysis was conducted. The method includes observing users in order to, for example, understand what experience users bring to the tasks and how users achieve goals (Martin & Hanington, 2012). This supported the understanding of events users deal with, towards getting window solutions to their home.

CUSTOMER JOURNEY

By identifying experiences that occur when users interact with a service, processes can be understood and improved (Wikberg Nilsson, Ericson, & Törlind, 2015). By documenting customer interactions, actions, comments, questions and experiences, customer journey-mapping was used. To evaluate user experiences over time, a UX-curve can be used (Kujala, 2011). In this project this type of curve was used to understand how the range is perceived by customers during the customer journey.

OBSERVATIONS

To gain understanding of the real conditions and gain deeper understanding of customer interactions and actions, observations was performed at an IKEA store. The observations were so called "fly-on-the-wall observations" (Martin & Hanington, 2012), meaning that the observer does not get recognized as an observer. By dressing up as any
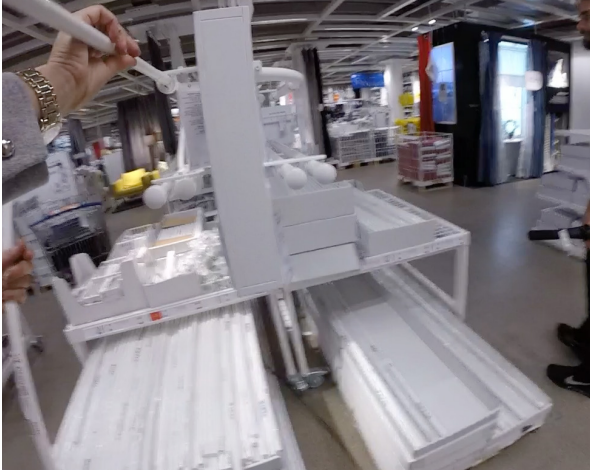
Figure 4
Customer trying out product.

Figure 5
Product presentation.

co-worker the observations made it possible to detect and understand actions made by customers. The observations were focused on 50 different meetings between staff and customer, interaction between staff and products and customer and products (see figure 4 and 5). The goal was to find out if, and how tasks are performed and why they are performed as they are, identifying the reason behind customer visiting a store (needs and wants).

DIALOGUES
In combination with the observations, dialogues took part (*N=30*). This meant approaching the customers to ask what they needed as well as helping customers with their specific questions. Having dialogues allows storytelling, which is a good way of letting people under investigation speak for as long as possible without interrupting (Williamson, 2002). This gave new information to the project and contributed to deep understanding of specific questions. Comments, questions and customer feelings could be collected.

C. ANALYSING DATA
To analyze qualitative data different methods can be used to make sense of the data. By analysing the data as it is being collected, the researcher can

be more aware of when the collected material is enough to answer the research questions (Williamson, 2002). This reflects the process in this project.

KJ-ANALYSIS
To categorize data collected through different methods KJ-analysis was used in several stages. Sorting out the different theme aspects gives an intuitive overview of the findings and which makes it possible to detect patterns of similarities and differences (Martin & Hanington, 2012). These could be reflected on along with the establishments (see figure 6 and 7).

SWOT-ANALYSIS
This is a method used to understand the company-performance in relation to its audience (Thompson, 2017). A SWOT-analysis was established and supplied the project with an overview of strengths, weaknesses, threats and possibilities.

STORYBOARDING
In order to build empathy, analyse the customer journey and communicate related issues storyboards were created. Storyboarding is a way to by illustrations communicate how, where and why people interact and engage with services and products (Williamson, 2002).

D. IMPLEMENTING FINDINGS

Knowing what is needed to provide the right hanging solutions, a mapping of possible improvement areas in IKEA's product range was made to find the missing parts of range. The gained knowledge was used to examine how compiled findings could be translated and implemented in a design process leading to the final result and conclusions.

GENERATIVE RESEARCH SESSIONS

A major part to trigger the creative brainstorm process was the meetings with users discussing daily scenarios. Generative research engages users to discuss feelings, desires, needs and dreams (Martin & Hanington, 2012). The sessions were performed in the homes of users and resulted in a big amount of ideas and rich information which was analysed and used in the development of concepts.

BRAINSTORMING

The ideation strived to have a constant innovative approach. Brainstorming is a creative method used to generate as many ideas as possible. In order to collect and manage many ideas they were documented by sketching. Sketching is time- and resource effective and through fast line-drawings which only requires pen and paper, a designer can describe form in a few seconds (Sjölén & Macdonald, 2011). Digital sketching, both in 2D

and in 3D, was used to further visualize ideas. By using Adobe tools and CAD-programs, digital sketches took form. Digital sketching was used to communicate concepts in a more comprehensive and realistic way.

CHALLENGE ASSUMPTIONS

Creating ideas focused also on challenging the assumptions and thoughts about window solutions. This is a good method for developing concepts in a field that hasn't had any recent innovations (Dam & Siang, 2017).

DECISION-MAKING

To make sure that all decision-making has a base and that the solutions corresponds to what the market demands the idea selection has been done by comparing ideas and by evaluation. A morphological matrix can be used in order to find conceptual solutions. This is done by organizing the ideas in sub-functions and combine them in the creation of new concepts (Silverstein, Samuel & DeCarlo, 2012).

By weighting design options against defined criteria, potential design options can be managed (Martin & Hanington, 2012). The weighted matrix was established with the aim to conclude upon what concept to go further with. This was done
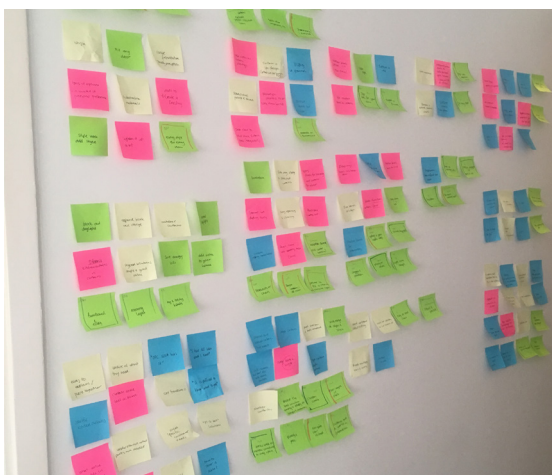
Figure 6
Categorizing data using KJ analysis.

Figure 7
Organizing information from social media listening.

by listing requirements and give them a number of importance. Then, each of the concepts are evaluated in how well they fulfil each of the criteria.

Field study

Chapter 3. This following chapter presents the findings that were made researching the market. It includes a market analysis, exploring other ranges to provide knowledge about what there is on the market and what users tend to prefer. This first research phase provided a general overview of what is of importance to users (potential IKEA customers) and a clarified vision grounding the investigation of the IKEA range in chapter 4.

A. WINDOW SOLUTIONS

Literature reviews show that the majority of published books about window solutions are about instructions of how to measure, plan and install products or inspirational books of "window treatment ideas". The author of the book Window Treatments (Nielson, 1989) guides interior designers to help their client to the right choices. There are certain treatments that are better in different aspects, since each window has certain requirements according to its placement and the orientation towards north-, south-, west- or eastern winds – making the east window require glare control and the north not. Comfort, security and privacy are important criteria when making treatment (window solutions are also spoken of as window treatments) choices, but glare control, sound absorption, energy conservations are also to consider. In the book Nielson explains the window in architecture and that the primary function of windows is the light, crucial to human wellbeing.

There are multiple studies done, showing that light has positive affect on our health. In a study described in Vetandets Värld (SR, 2011), the natural light (light from the sun) in two classrooms with different amount of light intake were examined. One classroom had more windows letting light through than the other classroom. The study showed that the kids in the classroom with more windows were more active. This is supported by another study stating that lack of daylight may lead to disorders in our circadian (Boyce, Hunter, & Howlett, 2003).

Nevertheless, we need shade. Throughout our history we can find material revealing how people have tried to for example, create shade by hanging rugs over holes in the wall, building porticos and tying bamboos together to make shade (Nielson, 1989). Today there are a lot of products on the market. One of the most common ones are venetian blinds, where the first pioneer was John Webster in 1767. As the forerunner to today's solutions the first roller shade solution patent was by Steward Hartshorn in 1864, probably originated in early 1700s (Gordon, 2014).

According to Nielson's book, certain principles and key elements should be considered when designing (as in putting it together) a window solution, to a complete interior design and the experience it may give. The principles include proportion and scale, balance and rhythm between the room and window. They are applied by considering the space, light, colour, texture, pattern, form, shape and mass of the elements included in the final solution (Nielson, 1989).

Wrong decisions, in choosing the right window solution, are many times made due to lack of knowledge. In The Design Directory of Window Treatments (Tobel, 2007), the author brings up five design fundamentals to help the reader make the right decisions. (1) Features and functions (the beneficial attributes), (2) principles (functional and aesthetic needs), (3) elements (physical tools), (4) rule of thumb (proper proportions) and (5) specifications (quality in construction).

B. SOLUTIONS ON THE MARKET

This section presents the products and connected features to interior home environment window solutions offered in the field. They are presented as the four product categories which are used by the market, found by market analysis.

HARDWARE

Hardware (see figure 8) products are used to hang covers, mostly curtains. This is done by minimum two brackets mounted with screws (adapted to the material) in the wall, window frame or roof. Depending on the length and the intended weight (of the cover), additional brackets are needed. Brackets are essential for A, B and C. D is a non-drill solution that does not require any screws. It is mounted by tension between two (mirroring) walls.

Traditional rod (A in figure 8), usually extensional, is the most common type in the field. The traditional rod is placed on the carrying brackets and on the both ends of the traditional rod there are usually nobs called finals which can prevent the rod from movement, but also adapt to the style, being very decorative to very discreet. The finals are what differentiates a traditional rod from an infinite rod (B in figure 8) where there are no specific finals – the rod is infinite from bracket to bracket.

Tracks (C in figure 8) are presented as a more modern alternative to rods (according to product presentations). Tracks puts more focus on the covers and can be discreet. Tension rods (D in figure 8) are an alternative offered for smaller, narrower solutions designed to be used where there is no reason or possibility for drilling holes for brackets. The tension rods can only be used for light weight fabrics.

There is a huge variety of rod-styles on the market, from very decorative to very discreet. Common materials are aluminium, metal and plastic with paint coating, in some cases also wood, especially seen in America-based ranges.

CURTAINS
Curtains come in many designs, from classic and casual to victorian and shabby chic. Common materials for curtains are cotton, linen, polyester and different blends of these. The material and its

Figure 8
Hardware.
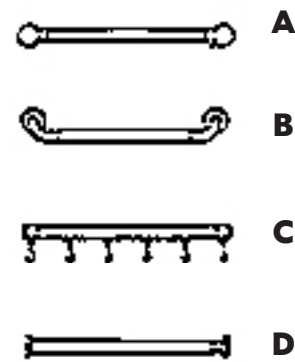
structure decides how the light is filtered and different styles are referred to as sheer curtains, light filtering curtains, block out/black out curtains. Block out means blocking out light as black out means blocking light out completely. Block out and black out are used differently between companies to describe a materials behaviour in relation to level of light filtering, because of standards being different. Same level of light filtering can be black out curtains in Japan and block out curtains in Sweden, depending on what the standards say in the specific countries.

When looking for curtains (see figure 9) there are many things to consider. First, if you want the regular curtain (B in figure 9) or some of the other types such as swags (D in figure 9), valance (E in figure 9) or café curtains (A in figure 9). A, D and
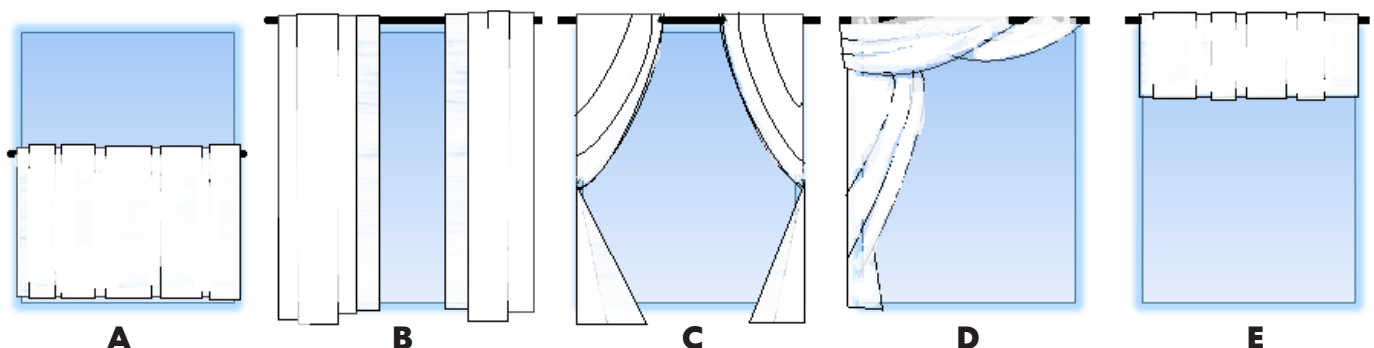
Figure 9
Curtain types.
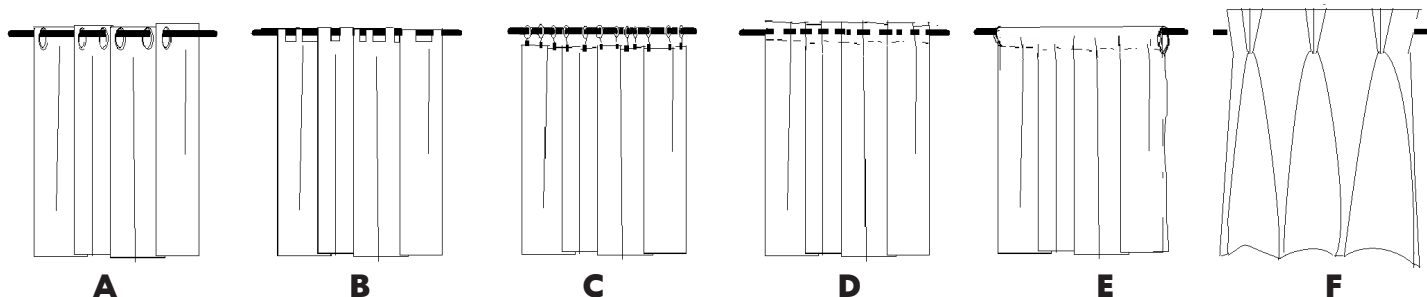
E are usually connected to certain styles through its form and way of being used, being promoted as more stylish and cosy curtain types. To decorate the curtain or move fabric from the view, tie-backs can be used as in C in figure 9. Curtains hang in hardware and for this different heading types exist, as well as different hooks. Regular curtains are connected to style through material, pattern/colour and heading type. Heading types affect the choice of hardware, how the curtains hang and how they can be adjusted sideways. For example grommet are designed for rods, as well as tab-top, clip hooks and slot-top (a, b, c and e in figure 10). Heading-tape (d in figure 10) can be used both on rods but are also common in combination with tracks using additional hooks to create pleated headings (f in figure 10 gives an example).
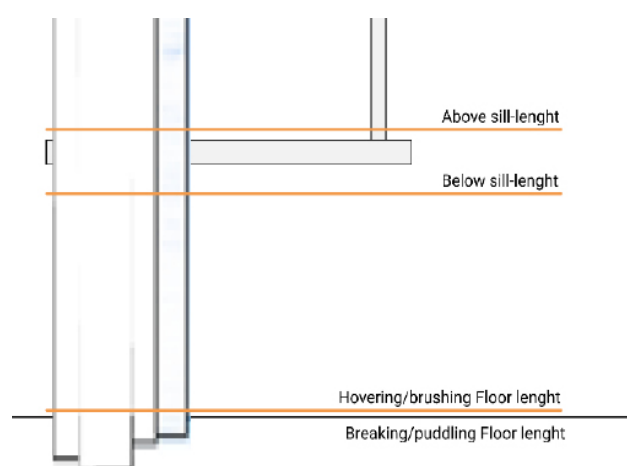
Curtains are in some cases called drapes or panels, referring to heavier fabric usually hung tall and touching the floor. There are different levels in how curtains touch the floor, commonly referred to as sill-length (below or above) or floor-length (hovering/brushing, breaking or puddling). See different curtain lengths in figure 11. Panel curtains are offered in ranges with big audience in Spain and Portugal but is not common in other ranges. The field communicates 'kids-curtains' and means short curtains (in sill length) with colourful prints. Also common is 'kitchen-curtains', which are sheer/semi-sheer (sill length) curtains in material resistant to steam.

Café curtains are used for privacy and cosiness, noticed in kitchens and bathrooms but also in other rooms where blinds or shades are not a good or preferred privacy solution. It is easy to hang café and valance curtains when using tension rod. Alternative solution is thin curtain rod with clip-hooks (see heading type c in figure 10). Valances and swags used for decorative reasons are popular options to some people while seen as 'outdated' by others. Since there are many different types and designs of curtains, some are referred to according to occasion.

BLINDS
A blind is a traditional type of cover, found in many households – both apartments and bigger houses. Commonly when moving out from a place, the venetians are left to next owner and re-used since they are inconvenient to change, as well as conven-

Above sill-lenght

Below sill-lenght

Hovering/brushing Floor lenght

Breaking/puddling Floor lenght

ient to leave and use. Blinds give privacy as well as light control. Blinds are usually described as to give a classic look, and are a convenient solution if the cover fits the window and is installed correctly. Since windows have unique measurements , many companies offer size customization and home installation of all types of blinds to make it easy for their customers.

Venetian blinds (A in figure 12) have slats organized in horizontal order and can be rotated to control and filter (or block out) light as well as provide privacy on your conditions. They are most commonly controlled by cords and when not in use the slats are pulled together above the window to leave the window full view. Common materials are metallic, vinyl and wooden materials (also faux wood).

Vertical blinds (B in figure 12) are more commonly mounted above taller windows and sliding doors. This product provides privacy and shade to protect the interior from, for example, fading in colour. The vertical slats can be pulled to the side of the window when not in use.

SHADES
Shades are promoted as to be easy to integrate in interiors. Main functionalities are light filtering, block out (blocking out light) blackout (blocking light completely) features. Shades are usually offered in many different appearances to fit many different styles, from casual to bohemian. Common
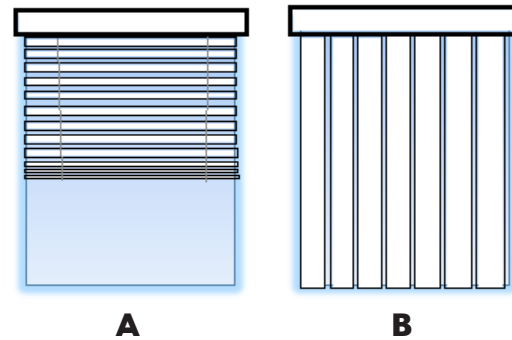
Figure 12
Blinds.

materials are polyester, bamboo, vinyl and other blend fabrics. The shade category is mainly for privacy and light filtering and sometimes compete with blinds as being more aesthetically (and in some cases cheaper).

There are different types of shades (illustrated in figure 13), top examples are; pleated (A), tie-up (B), cellular (honeycomb), roman (C), layered, roller (D) and top-down bottom-up (E). Roller shades (D) stores the fabric in the top of the solution, whereas in the roman shades (C), the fabric is folded from bottom and upwards. Pleated (A) and cellular shades store the fabric in pleats.

All shades are designed to be mounted above the window, making a closed solution to cover the whole window. Most standard shades raise and lower from the bottom of the shade (top of window). However, the top-down bottom-up shade is different. Even though it is mounted above the
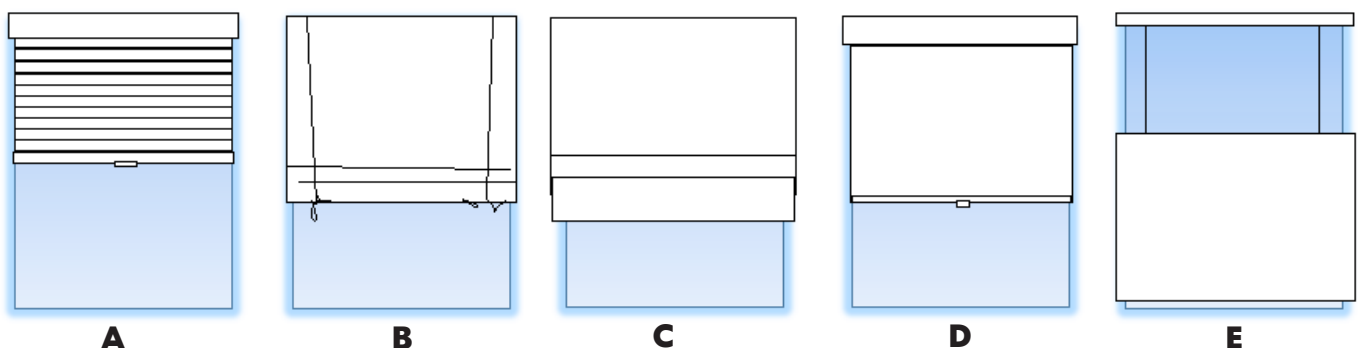
Figure 13
Shades.

window its design makes it possible to decide if to cover from the bottom or from the top.

C. HOW PEOPLE HANG

The field offers many different solutions and individual components that can be put together to create an infinite number of solutions (Tobel, 2007). In analysing over 200 pictures and 200 and more comments collected through social media on how people use products to create solutions for their desires, 3 ways of hanging, all horizontal, are prominent and illustrated in figure 14: above and outside, wide and high, inside and narrow. Within them there are secondary patterns (elaborated below and shown in figure 15).

ABOVE AND OUTSIDE

This way of hanging is the most frequent in the investigated material. The objective (the goal) for above and outside hanging is to cover the window, desiring a specific functionality to the window. The window, its placement and function in a home should inflict the covering.

All types of curtains can be hanged above and outside, but grommets are found to be particularly popular (especially in America). Mostly, curtains are hanged in pairs, but single or triples of curtains also appear. There are different lengths to curtains; floor-length, above and below sill-length where the shorter types are frequently found in kids room and kitchens. Tie-backs are commonly used and an easy way to decorate curtains. For decorative reasons people can have divided solutions, meaning two shorter rods instead of one long.

Venetian blinds are popular to hang above and outside, mainly for gaining privacy and light control. They are seen in all types of rooms and homes. Shades are also hanged like this, above but sometimes *not* outside the window frame, and when people have multiple shades besides another, there are gaps in between.

Also valances, a very disputable style either much appreciated or much disliked, are hanged outside and above. They are typically found in kitchens and are used for decorative reasons and to hide blinds and shades when they are not in use. Café curtains are often combined with valances to cover half/bottom of the window to promote privacy.

To get both privacy and light control, people use layering (including more than one cover in a solution). The benefits of layering are that people can have both functional and decorative covers. It is common to combine shades or blinds with curtains, where the blinds/shades are for filtering light and the curtains for decorations.

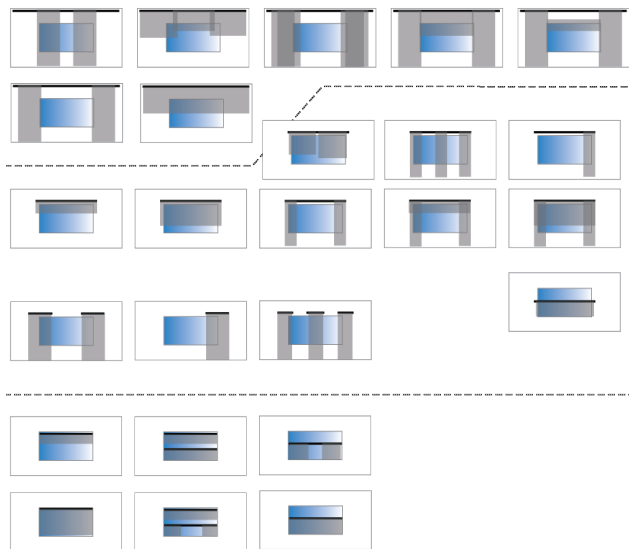**ABOVE AND OUTSIDE**   **HIGH AND WIDE**   **INSIDE AND NARROW**

Figure 14
The three ways of hanging. Pictures show a wall with a window and how the hanging is mounted.

WIDE AND HIGH

Wide and high hanging is mostly used for window facade, sliding doors, or windows in a room with tall walls. This way of hanging cover areas of the wall outside of the window frame, therefore more spacing around the window is required to get the most out of this way of hanging. This way is promoted by home magazines and interior blogs, but not as much by companies selling the solutions. The whole wall is involved in the solution and smaller windows can appear bigger with this type of hanging. People who hang this way strive to by height, width and choice of fabrics create an open and light atmosphere. This way of hanging is really a part of the room and interior and much for decorative reasons. A shade or a blind can be added (hanged above/outside or from the roof to hide the "dead space", especially natural bamboo shades) to get convenient light control.

Both light and heavy fabrics are used. Lighter fabrics are popular when the desire is to create a light feeling and heavier fabrics are common to give the feeling of luxury, grand and classy appearance of the room. For this to happen it is needed to have enough fabric and the right fabric. The mounting is made high on the wall or in ceiling. Tracks are commonly used as they are possible to mount close to a surface and curtains tend to slide easier on a track when hanging high. According to findings, users prefer robust and stable hardware solutions, as they want to make sure it can carry all the hanged fabric.

INSIDE AND NARROW

Here, the solution is mounted inside the window frame to take up as little space as possible from the rest of the room. It is common to adapt this way of hanging to smaller windows, for example in bathrooms and kitchens. People hang inside and narrow to get privacy, make it cosy, or simply because they have no possibility of hanging outside the window frame. This type of hanging is especially common with café- and kitchen curtains, valances, venetian blinds, vertical blinds and shades in different appearances. Tension rods are widely used as hardware to hang light fabrics giving privacy but light to the room. Homemade café curtains and valances are common.

D. WHAT PEOPLE WANT

A result from the surveys number 1 and 2 on what people acknowledge to be the most important things showed that the top considerations targets sunlight, privacy, colour, material and price. A KJ analysis on findings from social media listening, resulted in three priority aspects: appearance, functionality and convenience. How the solutions contributes to improvement and added value are defined by how appearance, functionality and convenience are perceived and the desire is formed by priorities between them.

These three aspects are what people on social media exchange and they concern the theory behind window solutions. Thus, if the desire is to sleep

Figure 15
Elaborated ways of hanging covers.

well, the objective is a dark room, prioritizing functionality. A night shift worker may prioritize sunlight and blackout functionality more than the colour of the cover. Students (and young adults) are usually more dependent on cheap solutions. How the functionality itself is perceived is dependent on each individual's personal preferences.

APPEARANCE

Home styling, and to have a beautiful home, has become an important feature for developing one's identity. However, what a beautiful home is, differs with style preferences. This is a fact also for trends in window solutions, so some people exchange thier covers accoring to this. Like everything else in a home, the appearance of window solutions generates emotions in people and can have a great affect in creating a desired atmosphere. For example, the light in a room can be manipulated and controlled partly by the window solution - changing the appearance of a whole room.

FUNCTIONALITY

Some people consider the functionality of window solutions as the priority aspect. People who prioritize functionality are usually affected by the windows and location of the home and has a specific personal desire. The functionality of window solutions can help to improve, and really add value to people's home and life. This is why functionality becomes an important aspect. If the solutions are not installed correctly for the context the solution will most likely not perform as foreseen. A solution intended for providing a room with darkness, must be installed correctly to be able to be blocking out the light. The entailed darkness has to do, with how the light slips pass the cover, which has to do with the installation.

CONVENIENCE

People's desires of window solutions is also connected to the aspect of convenience – the intuitiveness of the product to the user. The convenience of a product depends on price, the way the product is understood, communicated features and the way the product makes sense, including how well the solution suits one's needs and window size. Companies are often offering customized products with perfect measurements for each specific case.

ASSUMPTIONS

Findings from social media listening and survey number 1 and 2 resulted in the findings of general assumptions. Exploring how people make connections between features and curtains/blinds gave consistent findings to assumptions made by people (users or potential users) on social media.

The result shows that people in general do consider curtains as decorative whereas blinds are being used for more functional reasons. The participants in the surveys express that if they want shade but not complete darkness curtains are to prefer, followed by blinds. Curtains and blinds or blinds only are used to a greater extent than curtains only when the ability to adjust the solution easily is prioritized.

The survey results show that curtains are preferred by people who want an aesthetically pleasing window. Regarding privacy issues blinds are selected as preferred cover. Social media listening indicated that findings in chart 1 are congruent with general preconceptions. Further findings by survey analysis (more charts to be found in appendix B3) shows that top preferred covers amongst the participants are curtains, venetian blinds and roller shades/roller blinds. This is consistent to the findings of the social media listening.

When surveying what people prefer as curtain headings, it shows that eyelet/grommets and slot top are the most popular types. Through social media listening it was found that grommets tend to be preferred when the curtains are used for functional reasons and for more beauty reasons slot top and pleated headings are top choices. The heading type have big impact on the way the curtains 'float'.

The majority of participants (43%) in survey 2 say that 'satisfied' best describes their feelings for products in the window solution field, followed by 'interested' (24%) and 'bored' (14%). However, a major subject concerning the field of window solutions are the unsureness people express about how to select the appropriate window solution. An underlying reason seem to be that people do not know what they want or what they need. In general, it appears to be difficult to understand the fundamentals behind window solutions as a concept.

E. HOW PEOPLE UNDERSTAND
The findings show that people in general know little of what window solutions is about. Complexity and misunderstandings characterize the way the products are being used (hanged) and perceived. It is evident, that there is a risk of misunderstanding product performances and the events (described in next section) connected to them – a major problem since it will affect the way the concept is being experienced. Three levels of understanding are identified: basic, intermediate and advanced. The basic level is adaptable to users with insufficient
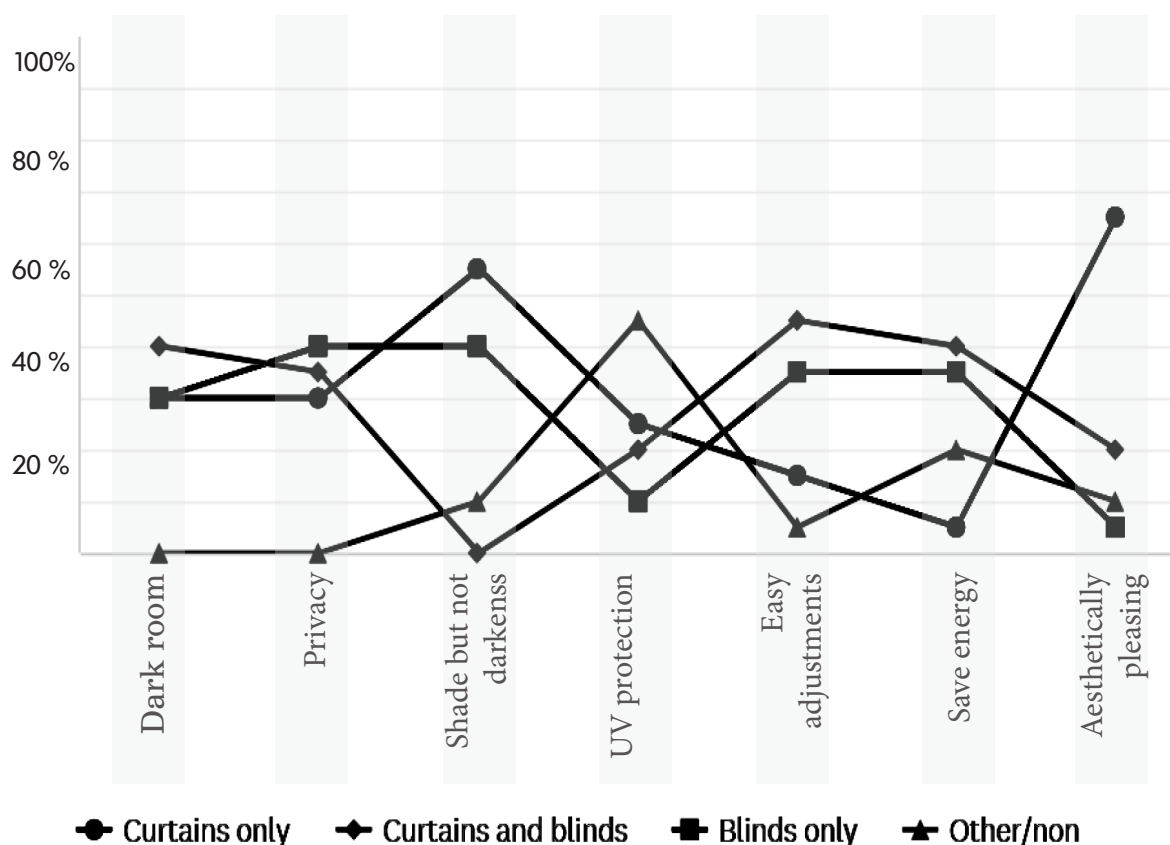

Chart 1
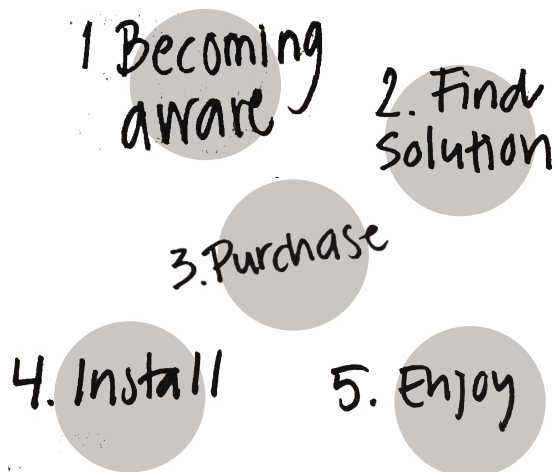How people connect features to products. Data from survey 1.

knowledge of solutions. People with the basic understanding are usually not interested and do not really understand their lack of knowledge. When discovering a desire they do not know what they want or what they need to fulfil the desire.

The intermediate level is adaptable to users who know what they want. Their desires appear to be influenced by surrounding inputs and personal values. However, they find it difficult to know what they need.

Advanced level is adaptable to people who know what they want and what they need. They can understand the benefits of different products and the theory of concept. What decides the selected solution, are usually grounded in personal preferences.

IMPORTANT & CONVICTING EVENTS

Task analysis depicted five connected events (illustrated in figure 16) that a user of window solutions go through. The level of understanding of these events has a significant role in the decision and purchase which is often described as 'difficult' and 'such a struggle having to go through'.

"What alternatives are there for standard windows?", "How do I dress my kitchen windows?".

"I want sheer curtains that touch the floor and make my window appear bigger, how do I hang?", "I need to sleep during the day, but the sunlight is disturbing, any advice?".

"I will go for vertical blinds for the sliding doors since they are easy to order in the right size, look decent and provide good privacy".

1. The introducing event of becoming aware can vary in its cause and might happen without reflection. When a person discovers a need or want of something, expectations based on previous experiences take form – a vision of how we can enjoy what we need/want. For example, based on windows solutions in the home while growing up users unintentionally create a certain meaning for specific products, grounding their understanding. As shown in the social media listening other influencers to awareness are received from social media, friends and family, interior magazines and by any other intake of surroundings.

2. The next step is about finding the solution for the desires. In this step people search solutions by visiting home improvements stores or browsing the web – an easy access to inspiration and advice. On Facebook there are several groups and pages about how to hang curtains, tips about how to think, what to consider along with people exposing their DIY -window-projects, asking questions, sharing and giving feedback on different posts.

Figure 16
The events and tasks of pre-usage.

3. To take the decision and buy a concept, i.e. to understand what to purchase, can be accomplished in two ways: (1) pay extra money for services to make sure the solution is right, (2) understand what to purchase for your needs. Many companies offer therefore home consultation – an easy way for customers to ensure they get it right. The people that do not want to pay extra money, need to understand what is needed. Many stores offer personal support, but also guidance if purchasing online.

4. A correct installation of window solutions is important for the optimization of the desired functionality, appearance and convenience. Also in this event companies offer home installation for their customers, some even recommend customers not to install the window solutions by themselves. Findings show that people find the quality important. Especially important for a good hanging result is the quality of hardware and how it is installed.

5. Last step in the events is about enjoying the solution, experience the added value the solution provides in a home. Listening to what people discuss on social media, it appears that the result of the purchased window solution often does not become as expected. To optimize the features of a window solution, it should be selected to fit the specific case, match desires and be installed to work with everything regarding the specific window.

F. CONCLUSION

Of importance to the understanding of how to build a range that applies to the needs of the customers is not only to launch standard products but also to put interest into how the products are understood. This includes how customer perceive their needs and how these can be met by the range content. It is essential how the range is presented, how benefits are shown and how customers react to the communication. This will be investigated in the next chapter.

Range study

Chapter 4. The outcome of the field study in previous chapter was used to select focus areas when investigating the IKEA range. The IKEA way is here compared to other companies, the IKEA customer is observed and the customer experience is explored.

A. COMPETITION STUDY

As a big global company IKEA has shop leaders who are experts on the market in the country they work. The shop leaders are familiar with FAQ and they know what the IKEA customers want and what they can get from competitors. Through the survey "Window solutions range" (find the form in appendix B2), shop leaders shared their expertise. In their answers they give insight into IKEA's strengths, weaknesses, opportunities and threats. According to the shop leaders, who are seen as IKEA's market experts ('market expert' used in the following), the range of today needs to be better adapted to customer needs and market competition. The shop leaders were in the survey asked to rate how they think the range suits the market they work in. It shows a higher satisfaction in how the European market experts rated, compared to the market experts in America and Asia (see figure 17).

Figure 18 shows how compiled data of market expert comments were distributed on specific product categories and overall range content. The comments are divided in relation to how they target the appearance, functionality and convenience of the product categories. As blinds and shades have different meaning on the market, and since the IKEA range does not have blinds, blinds and

shades together form one product group. The data was collected as four open questions to ensure qualitative, authentic answers. The comments are summarized as bullet points according to SWOT (strengths, weaknesses, opportunities and threats).

Strengths
Pricing, blackout and sheer curtains, fthe flexibility of VIDGA system, IKEA simple design

Weaknesses
Range presentation, Lack of traditional blinds, Products require too much effort, VIDGA quality perception, Lack of tension rods, Curtain length options are limited

Opportunities
Make VIDGA the best on the market, Add functionality to range

Threats
Home consultations and installation as service, Competitive ranges with more stylish options, Customized products

The SWOT-analysis points to similar aspects as found in the market analysis, thus they support each other. The identified shortcomings (explained in next chapter) are to some extent found to be recognized by the IKEA market experts as shown in their answers to the questions on future challenges and development focus.

According to the American market experts, the challenges are the overall range understanding, the need for a solution for non-drill/tiny windows and the 'constant need' for short curtains in more colours. Focus for future development is identified as range improvements and overall establishment. In particular, having more blackout options since these are popular, offering a smaller selection of short curtains, developing VIDGA to a better quality solution and to provide a complete rod
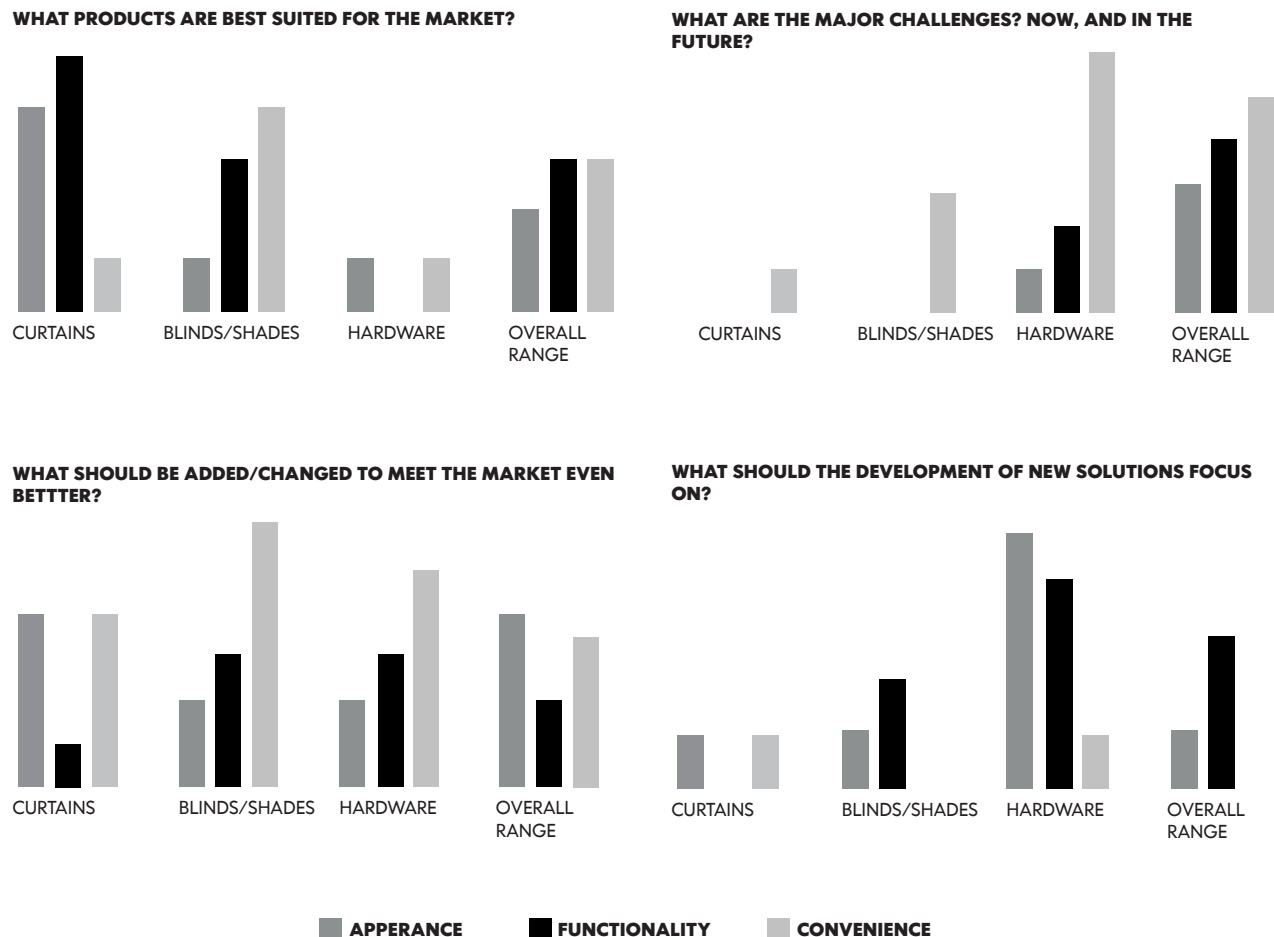

Figure 17
Compiled expert ratings (September 2017).

solution (packed all together). The American market experts also call for more focus on material as well as on adding stylish hardware and tie-backs.

According to the European market experts the big market challenges are to meet the future window dressing trends and trends of non-dressed windows, to offer and ensure easy installation and possibilities to, perhaps control temperature. The focus for future development are stated as the functionality and quality of in particular VIDGA since this is a well-adapted solution for the market. Further, improvements are called for in the buying process and in the design of solutions for a more sustainable life at home.

The Asian market experts point to challenges regarding the user understanding, user friendliness, installation and in the possibilities to meet competitive offers such as home installation to an affordable price. The Asian market experts call for the development on smart solutions that are easy and fast to install as a future focus.

To further understand how the IKEA range performs, it was also compared against other ranges. This discovered important aspects (developed in next section) of the IKEA range that may affect the range and its relevance towards the market.

WHAT PRODUCTS ARE BEST SUITED FOR THE MARKET?

WHAT ARE THE MAJOR CHALLENGES? NOW, AND IN THE FUTURE?

WHAT SHOULD BE ADDED/CHANGED TO MEET THE MARKET EVEN BETTTER?

WHAT SHOULD THE DEVELOPMENT OF NEW SOLUTIONS FOCUS ON?

■ APPERANCE   ■ FUNCTIONALITY   ■ CONVENIENCE

Figure 18
Four questions where the height of the poles represent the amount of comments, consequently taller poles indicate more frequently commented topics (essential when compiling the findings in next chapter).

THE IKEA WAY VS. THE OTHERS' WAY

Most ranges have a greater amount of products within each category (presented in *Field study*). The bigger companies are retailers providing window solutions from well-known brands such as Bali Blinds, Hunter Douglas and Levolor. In comparison, IKEA has its own range building on their own products which means that the Development team of window solutions at IKEA has to stick to a certain number of articles. Thus, this can be identified as a weakness for long term development (Wintzell, 2017). The competitive market seem to be agreeing on that variety in materials and features is what makes a range appeal most people.

The discovered ten aspects differ the IKEA range from the standards of the competitors. In the following these ten aspects are explained and explored as to their market relevance and subsequently they can be identified as weaknesses and threats. Comments by IKEA market experts are added accordingly.

1. IKEA presents the range content as curtains, curtain rods and tracks, panel curtains and roller blinds as ranges by competitors with the same target audience are organized in a holistic way, by standard products: blinds, shades, curtains and hardware/accessories. On company-websites the products are referred to as window treatments.

2. Blinds does not exist in IKEA range, but they do in the ranges of competitors. The IKEA range cannot contain products with visible cords due to one of the core values regarding safety, respect-

> As of January 1, 2016 IKEA across the globe only offer window blinds and curtains with no cords or non-accessible cords.

Figure 19
IKEA fact, cordless products.

ing kids and their right to play in a safe way (see figure 19). American market experts would like something filling the gap for wooden blinds. The existence of vertical and venetian blinds are FAQ, according to European market experts.

3. The curtains at IKEA are all measured to a standard size whereas competitors also offer customization. In chart 6, six different ranges are examined and their approach to length is represented. It shows how IKEA stands out by offering one length, while other companies offer different variations in length. It is not possible to draw conclusions on the most convenient length on curtains based on the material. But, American market experts say that a selection of short curtains and valances is requested by the customers on the American market. On the European market experts mean that IKEA should offer café curtains as well as longer curtains than offered today. Especially on the European market it is popular to hang high, but the height is limited because of the standards.

4. Curtains at IKEA are sold in packages of pairs, and displayed in order to its colour. For example, white colour theme curtains are displayed together and therefore the functionality and features of the different curtains are mixed. Also the heading types are mixed. Some competitive ranges sell curtains as singles and most online stores group curtains to features and/or heading type.

5. Many companies offer customized products curtains, blinds and shades while IKEA does not. Competitors also offer home consultation and installation. American market experts mean that customers want bigger sizes, especially in cellular shades. European experts express that products should be designed to enable adaptation also for roof windows, doors, etc.

6. IKEA is quite weak in accessories compared to competitors, who offer a lot more in this category, for example tie-backs and hooks with dif-

ferent coatings. Tiebacks should definitely be a part of the range, according to American market experts. Asian market experts want customers to also be able to choose good black out fabric, as many customers want to make their own block out covers.

7. The IKEA way is the average way in curtain design and one of four companies represented in chart 7 offer the same division of patterned and solid coloured curtains. Four out of six companies have more than 60% of the total curtains offered in solid colours, less than 40% are patterned curtains. Bed Bath & Beyond have more than 70% patterned curtains and Dunelm are also strong in patterned curtains with over 60%. However, experts on the American market want more variety in style, colours and sizes - more IKEA pattern designs. European market experts say that customers want more variety in sheers and black-outs, even though it is one of IKEA's strengths.

8. In most competitive ranges hardware and accessories are sold together. The IKEA range contains a major track system (VIDGA) and a few rod solutions. Some rod solutions are sold all together (IRJA), but the majority are sold as separate pieces (RÄCKA, HUGARD). Brackets, rods and complementary products needs to be collected by the customer to a full hardware solution. Finals are sold in pairs but also needs to be collected. At many other companies the customer may choose to purchase hardware sets instead of having to make many decisions. It was noticed that most other companies offer a huge variety of rod and track solutions, in many different designs. The design of rods are either discreet or decorative.

The American market needs more hardware that are easy to explain, as well as non-drill solutions. Experts on the European market mean that café rods for café curtains is needed as well as better colour adaptation in hardware alternatives (black and silver works well). VIDGA system design
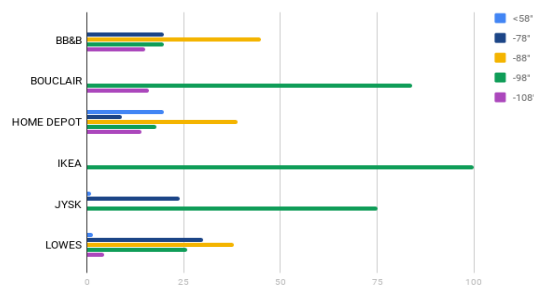
Chart 6
Curtain length, amount in percentage (sept 2017).
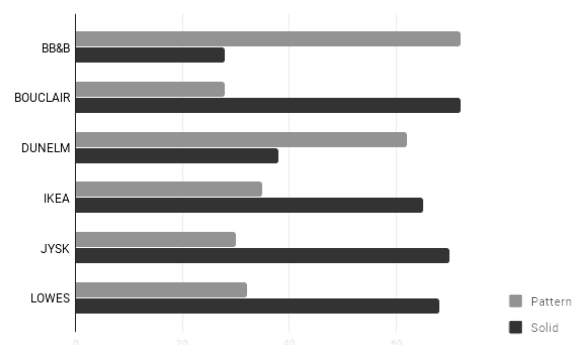
Chart 7
Curtain design.
Solid/pattern designed curtain division in percentage.

should be improved since a good quality expression is necessary and it is the most flexible system on the market. On the Asian market, expert comments on the pricing of hardware (HUGARD, VIDGA and BETYDLIG) which seem to be a good low price comparing to similar products in the market. However, they miss a non-drilling curtain rod with high loading, this should be added to the range.

9. IKEA has a product category of panel curtains, which must not be mixed up with curtain panels. Panel curtains are not common in competitive ranges. According to European experts panels should be more expressive to suit the market. Other market experts did not comment on this.

10. IKEA offers roller shades with light filtering and block out features. Competitors make a difference between blinds and shades. The same

type of product, for example a cellular cover, are therefore referred to in different ways by IKEA and other companies. There are many shade solutions on the market and the most common promoted types are cellular, roman, pleated and roller shades. Natural material shades are a trend in window design on the American market, and covers for bigger windows in general is a want, according to experts. Shades/blinds with more functionality (for example shades for conservatories) should be a part of the range, since customers on the European market want this.

B. CUSTOMER STUDY

Observations and dialogues with customers in the events of the IKEA visit, built understanding about how misunderstanding and lack in knowledge can affect the IKEA experience and perceptions of range. The observer was dressed as a worker during the sessions to get valid and direct material.

Rapid storyboards were created in order to, in a quick way illustrate and communicate the results from the customer study, where the information was collected through mapping the customer journey by observing and having dialogues with customers and store staff. The customer journey at IKEA includes events where the customer (1) search and consider, (2) in different manners tries to understand and take decisions. The result from observing actions, overhearing conversations and from having dialogues with customers show that the range of window solution is in many cases difficult for the IKEA customer to understand. Thus, customers do not always know what they want or what they need.

Purchasing window solutions requires understanding. A customer wants to make sure to purchase the appropriate products. The overall complexity makes support from workers crucial in the buying process, since many customers do not know what to get or what they need (basic/intermediate understanding require support). To understand the overall logics of the range, purchase is dependent on the support explaining what parts are needed to what solution.

The emotional experiences between customer – product, customer – support and also, support – product are characterized by complexity and dependency and determine the pleasure/displeasure in the experience of events. Customers want to understand the benefits of things but displeasure was found in the customers attempt to understand the range and products. Some customers ask for help, while others feel stupid not understanding on their own. The IKEA-workers (customer support) express that they experience frustration/displeasure, since they get tired of explaining the range over and over again especially when they have other tasks to deal with in the store. Sometimes workers even "escape" their department to avoid frustrating situations.

Throughout the establishment and development of storyboards, patterns were found and three customer types could be identified: the pro, the seeker and the assumer. The identification is based on the customers' different experiences of the range according to their expectations. The customer types can, through their desires (forming the expectation) also be connected to the three levels of understanding presented in chapter 3: basic, intermediate, advanced. The storyboards all start with customers forming expectations. The previously defined steps 2 and 3 in the task analysis from chapter 3 were used, where step 2 includes both getting a good overview and take desicion.

The curves in chart 8 illustrate the typical experiences according to the customer types with typical expectations. It becomes clear that, customers with low expectations have a more positive experience of the range, while customers with high expectations tend to get disappointed. The chart illustrates the pleasure/displeasure of the experience formed in the different activities of overview, decision-making and purchase.
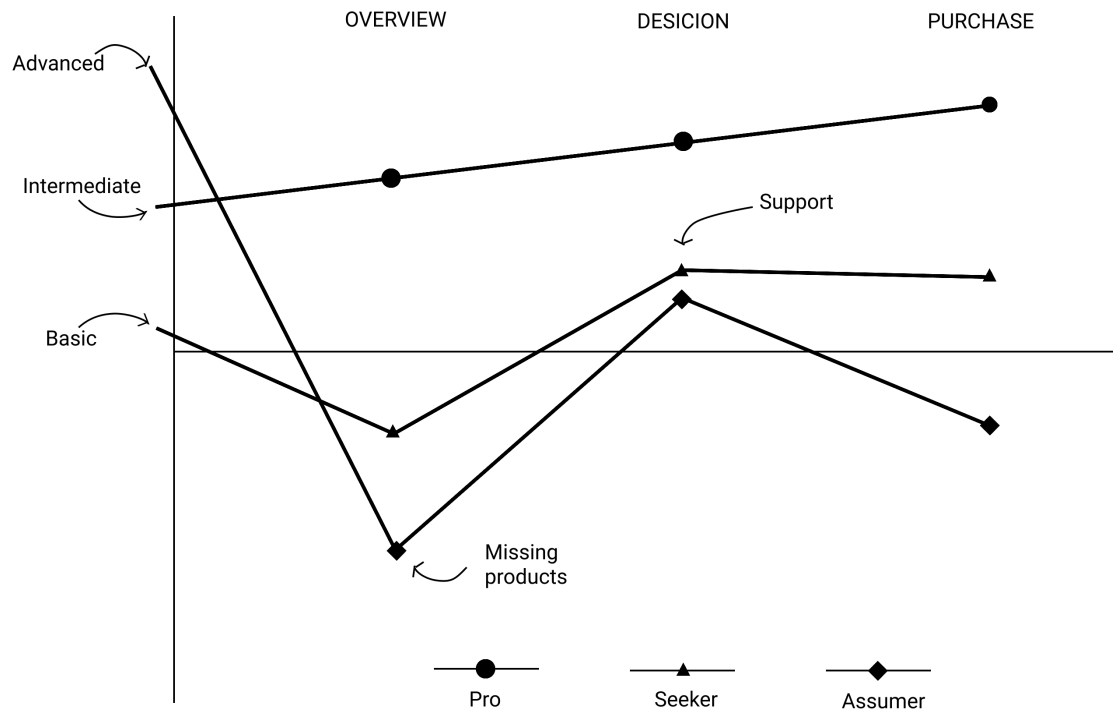
Chart 8
Emotional experiences shown in the curves during overview, decision and purchase. Centreline is neutral.
Above centreline symbolize pleasure (positive emotions), and the area beneath centreline is characterized
by displeasure (negative emotions).

THE TYPICAL CUSTOMERS
Here follows examples on the typical types of customers found in this study.

The Pro. This customer has brought window covers before and feel confident about what they were buying. These customers did not need to spend much time at the windows solution range area. See one of the pro-stories in figure 20.

The Assumer. The assumer has a vision already before coming to the store. This customer is sure that IKEA, one of the leading home furnishing brands in the world, will have what they are looking for. See one of the assumer-stories in figure 21.

The Seeker. The seeker was found to be the largest customer group in this study. The seekers come to look for solutions for specific problems. See one of the seeker-stories in figure 22.
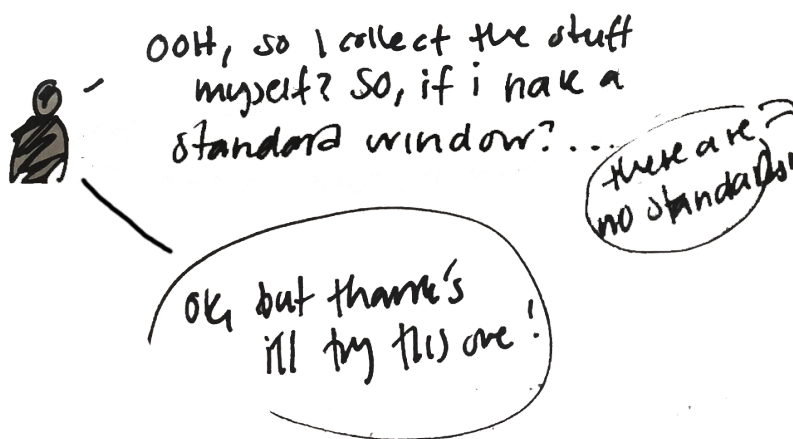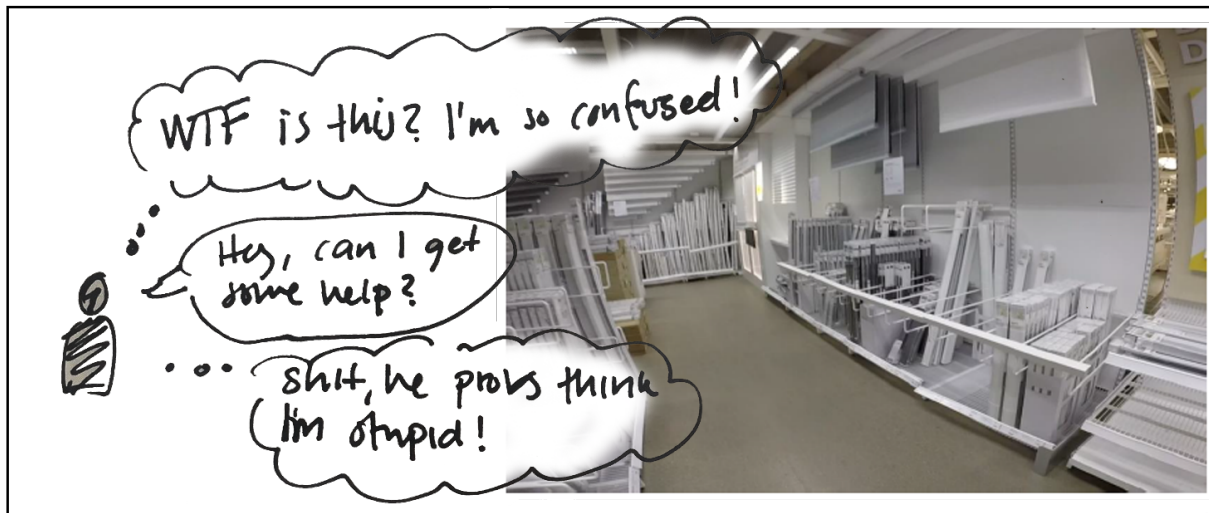
Figure 20
The Pro.
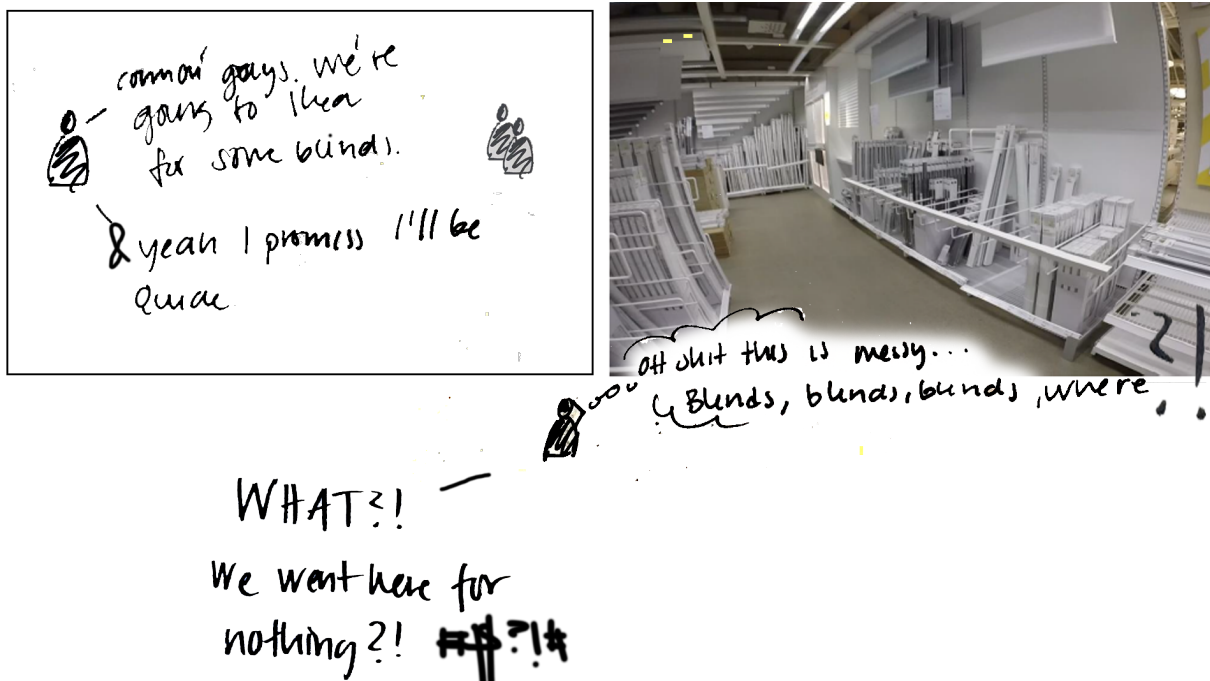
Figure 21
The Assumer.

Figure 22
The Seeker.

C. CONCLUSION

Since IKEA works under certain values, which influence and form the range of window solutions, their range differ in certain aspects from the competitive ranges. The IKEA way of targeting the market results in a slightly different range, which can be considered as a weakness compared to the competitors who use 'the holistic way' of targeting markets. For the IKEA range to be perceived as relevant by the customers the customer experience needs to be improved and the range has to be developed to better match customer expectations and making it simpler to understand.

Shortcomings and further focus

Chapter 5. The findings were compiled, elaborated and discussed. In this chapter reflections concerning different aspects of the shortcomings are explained in regards to how they were mapped as possible improvement areas. The focus of the project is presented and further explored.

A. THE RIGHT PRODUCTS

The importance of offering the right products is highly necessary for a range to be relevant for the many people. This research has shown how solutions are preferably hanged - people hang in three different ways to match desires. Therefore, it is important that the range have the essentials allowing the customer to hang above/outside, high/wide and inside/narrow. Today this is not fully met by the actual IKEA range, see problem mapping in appendix C where the IKEA range was analysed according to how well wants and needs found in this study can be met.

ALLOWING PEOPLE TO HANG ABOVE/OUTSIDE

As this seem to be the most traditional way of hanging, it is important to offer products that make this possible. IKEA has many products which can be hanged this way, all existing solutions in the range are adaptable for this hanging type. The lack of blinds is a problem in this case since blinds are seen as standard in above/outside hanging. Blinds are convenient because they can provide light control, privacy, view and daylight in one solution – it is convenient not having to create layered solutions.

Since curtains are cheap, it's not a problem that they are sold in pairs, however it might be frustrating to some customers. For example, a customer who really consider not to over-consume would probably find the way of packaging curtains disturbing and unsustainable (this stresses the importance of range presentation). Many customers seem to consider tie-backs as a standard product in the window solution range. IKEA only offers tie-backs together with some curtains. IKEA wants to offer a basic range but accessories such as tiebacks give the customer the opportunity to further develop the solution to become more adapted to the desire in regards to appearance, functionality and convenience. Also decorative hardware, which is preferred together with hanging above/outside, is lacking in the IKEA range. These limited options in accessories and decorative hardware are highly affecting the relevance for some consumers.

ALLOWING PEOPLE TO HANG HIGH/WIDE

The IKEA range offers to some extent the essentials for hanging wide and high. VIDGA system is especially suitable and adaptable to this type of hanging, since it is flexible and can be built in many different ways. However, the quality expressions affect the relevance of the whole system, as well as the understanding of it. For the customer to believe in the solutions, the quality expression is important, therefore the lower quality expression in VIDGA hardware can be considered as a weakness. The lack of blinds has in this case only a medium deficiency since they are used as a complement to high and wide hanging. Hanging high and wide, requires a lot of fabric. The standard sizes of IKEA products becomes a major problem when customers want longer curtains/shades. Also more decorative solutions are limited in the options offered by IKEA.

ALLOWING PEOPLE TO HANG INSIDE/NARROW

The support to this type of hanging is poor. IKEA does not have the possibility to offer customers simple ways to hang inside and narrow. Neither can IKEA offer an obvious alternative to customized blinds which are popular with hanging inside and narrow. A limited selection of the IKEA shades can be cut to fit inside but some shades contain hidden cords which may be destroyed if cut. The hardware products are limiting options as they are more adapted to be hanged outside the window frame than inside. To hang inside and narrow, non-drill solutions are to prefer but a product that IKEA does not have in the range today.

B. THE PERCEIVED EXPERIENCE

How the range is perceived depends on what type of customer we are looking at. Desires derived from priorities between appearance, functionality

and convenience, result in the fact that solutions with the same functionality may look completely different depending on how they are used. IKEA has the ambition to create a relevant experience of the range and according to this study it would include the following aspects.

PRESENTATION OF RANGE

The way the range is presented to customers is of big importance. It should make the customer feel comfortable with their visit and purchase. The results show a tendency of misunderstanding and customers getting confused when interacting with the range instead of becoming more determined in choices and purchase. Being experts (considering that IKEA are home furnishing experts) in the field does not only require understanding about the users, but also about making the customers see possibilities and help them understand their needs and what they want. A relevant range has a simple overview, making it easy for the customer to understand, navigate and collect solutions.

People have different knowledge. The three levels of understanding, identified in this report, can be used to understand the user better and hence evaluate improvements of the range presentation and its overview.

ADAPT PURCHASE PROCESS TO CUSTOMERS

The customer purchase experiences have certain characteristics in common. Even if the customers have different expectations about the purchase, the experience tend to be interrupted by complexity and dependency. Three types of customers were identified in the research. Purchase problematic are especially connected to the Seeker and the Assumer.

Common to all IKEA customers is that they want to see the products on display, pick and purchase a box of the parts included in the product solution, come home and install the product solution and

then enjoy the product installation in their home. The overview and purchase experience of the range has shown to have big impact on how customers find the range relevant (pleasant) or not. The more relevant the range, the easier decision and purchase for the customer. To keep the range relevant to the Pro customer, it is necessary to keep the basics of today's range. To make the range more relevant for the Seeker, the range needs to be more inspiring and intuitive in its way to communicate features and purpose. A relevant range for the Assumer is reached by offering the essential products which people in general need for the ability to hang in three ways.

PRODUCT EXPERIENCE

As research show, experts find some solutions very good and flexible for user needs and wants. VIDGA is a system that allow different types of hanging - layered or single layered. As customers many times find the collection of needed parts confusing, this has to be taken into account in the development of new solutions. The quality expressions in window solutions are important. According to findings products have to be and express to be strong and in good quality to fulfil all aspects of personal preferences. The products must also communicate features and values in an intuitive and logical way to help the customer to understand the conceptual fundamentals.

CREATING EXPERIENCES AT HOME

The range should provide solutions which are designed to help the customer to a better everyday life by letting them understand the added value and notice an improvement. Three main aspects of how window solutions are perceived to improve homes and lifestyle according to the many people have been identified; appearance, functionality and/or convenience. How people stand in relation to these are influenced mainly by people's knowledge, interest and desires, influencing how they prioritise and add meaning to different solutions.

C. FURTHER FOCUS

How can the shortcomings be dealt with? Can deep understanding of users, knowledge about the current window solution market and the IKEA vision lead to new products and to a more relevant range? Can user needs be met in other ways than with current (standard) products and how can the IKEA range supply products that due to IKEA core values are currently not included in the IKEA range? The important aspects found in the project research phase were in focus. Important to consider was that we all live different lives and prefer different things. A new window solution should provide the user with features that are developed to make the best of life at home, in a new way aligning with the IKEA way.

In agreement with IKEA (20/10 2017) the focus scope was selected, formulated as shown in figure 23. 'The others' is referring to a new way of solving people's needs and dreams, in alignment with the IKEA way. A New solution should make fill gaps identified as shortcomings, where today's lack of blinds and weakness in the non-drill solution are major concerns. A new concept is needed with aim to by its implementation in the range to increase the relevance.

INVOLVING THE USER

IKEA constantly conducts research on their target group. Each year a Life at Home-report is published. In the recent edition (IKEA, 2017) the research team discovered that by exploring the satisfaction of four identified dimensions – things, relations, space and place – the interplay between them can explain how people can create a better life at home.

In order to use the information gathered up to this point, further investigations needed to be done about people's life at home concerning the use window solutions. With inspiration from IKEA Life at Home Report (2017) home visits (generative research sessions) were conducted as well as studies

of windows (not window covers in particular) to make assessments and gain deeper understanding about user experiences. Of particular interest was how window solutions contribute to the everyday life.

Home-visits (selections presented on next page in figures 24-27) gave better understanding about the importance of the social contexts as well as how the individual's experiences form the needs of the home. During photo studies of windows, it was noticed that many people have other things then covers in their windows, for example plants and decorations. Some people see a window as an opportunity for placing personal favourites on display, or simply store stuff.

Ideological and sociological aspects regarding the values and the use of the home goes hand in hand. For example, as well as getting privacy for own personal value, the way it is perceived by others also appear to be important. Some users are more concerned than others about the way other people (the ones we live with or neighbours) perceive and think about the choices in window covers (some people do not care at all). Home visits revealed different preferences about the use of window solution. During a session about shared usage, it was found that personal preferences actually had developed into an infected conflict which resulted in both personal issues due to collisions in wanted routines, as well as issues of frustration affecting the social relation.

As well as daylight, the study showed that physical connection to the outside is important. This is supported in a report, saying most people prefer to be in a room with windows providing view, but at the same time prerequisite privacy to feel comfortable in the home (Rogers & Tillberg, 2015). However, many people have their windows covered the whole day. Most window solutions on the market today give either full privacy or full view inward/outward, which by users can be both good and bad.

With better electrical light, natural daylight may not feel important even if daylight is beneficial for human health. Also the home visits revealed that the light inlet was increasing the concentration and the person felt more energetic – affecting both physical and psychological aspects, supported by research (presented in chapter 3).

Investigate what **'the others'** can be in window solutions and how it can help the customer to a **better everyday life**.

Figure 23
The focus scope.

Young adult living (almost) alone

Male student rents a room in an apartment owned by elderly lady. The room is 25 square meters and has one window, which provides the whole room with light. As he studies, the light intake provides him with energy and he reckons he gets more concentrated, at the same time as he doesn't want the neighbour to watch him the whole day – as they might be thinking that he's watching them. As he lives in a rented furnished room, he doesn't want to put anything new up on the windows. Today he rolls down the block out shade and kind of forgets about the time. This is a problem since when he's done with a day of study and roll up the shade, it's already dark and he feels like he missed the day.

Figure 24
Home visit: Young adult living (almost) alone.

Living with kids

A family lives in a small village on the countryside. The ground level house has small windows. The family wants to let in as much daylight as possible. Even if the house is located on the countryside it's passed by many people. Everyone knows everyone but sometimes the family would like to feel completely alone. Since the atmosphere in the village is nice and open it is very odd to cover the whole window. Today the family has self-made café curtains in all windows but would like another solution for especially the living room.

Figure 25
Home visit: Living with kids.

Two females live together in a sub rented apartment. They do not know each other from before, they describe their relationship as 'strangers but getting to know each other more each day'. One of the females really wants the windows to be open and not covered, as she needs the 'connection to the world' as well as not feeling trapped inside. The other female prefers to have the blinds down. She wants to be certain about that no one can see her in her pyjamas. This is an issue since they both find it disturbing and annoying when the covers are not as they prefer.

Figure 26
Home visit: Sharing place and space.

Figure 27
Home visit: The home of a couple.

A couple just moved in to an apartment which has a rich light inlet. The surrounding houses are pretty to watch and creates a nice feeling in their home – they love their view and being able to see the sky. However, the neighbour across the building seem to have similar opinions. It has happened (quite a few times) that they get eye contact with the neighbour in the most awkward moments.

D. IDEA GENERATION

Based on project findings brainstorming was used, with aim to create a wide variety of possible solutions that could lead the exploration of what the new solution might be. To achieve that, different sessions of brainstorming were applied. Firstly, a session of brainstorming based on the findings from the home studies were conducted. Secondly, the brainstorming was based on the insights from the window studies. Third brainstorm session was based on existing solutions and the assumptions of them to challenge, for example, the assumptions of how covers are hanged and how they are used in interior.

The sessions resulted in many diverse ideas, where the most interesting ideas were elaborated and the background to three concepts. The first concept, presented in figure 28 is based in the idea of making a window more integrated in a home. The idea is a product meant to be placed on the window sill which allows personal favourites and plants to be put on display. The vertical shapes, can be rearranged creating a place for plants or other items. Together with personal items the solution creates privacy in other ways then traditional covers do.
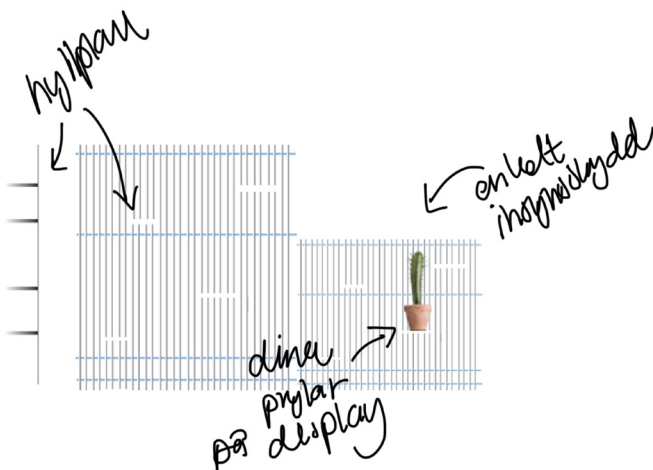
Today, IKEA customers are limited by the offers as solutions used for good privacy also cover the whole window and force the filtering of light. The second concept, figure 29, is based in the idea of providing the user with both privacy and light control and not drown out the other – rather combine them. This is done by adding covers where needed on some type of frame which is mounted on the sides of the window.

By challenging window solution installation, the third concept is based on a tension principle in top and bottom of the window frame. It's meant to be a 'create your own'-solution where the user can choose the components themselves, see figure 30.

EVALUATING THE CONCEPTS

First concept was interesting as it gives the customer a new view on the complexity of installing window solutions. At the same time it was not an obvious article in the window solution range, rather something for the product area of storage. The first concept did not feel as flexible as the second and third concept which were idealized to be more for the demands of user preferences – providing use and possibilities to a greater extent.

The second concept seemed to have the greatest development possibilities and was foreseen to become a simple solution for the customers in their decision and purchase process. Both the second and third concept were seen as concepts which could be developed to decrease the shortcomings of the range to a greater extent than the development of the first concept would do, but the first concept was still interesting as it could be developed to a solution adding something new to the range.

The shortcomings of the range were translated to a list of the most important criteria, which points to what a new product should fulfil to make sense to customers and the range. The concepts were evaluated in a weight matrix (table 1). As shown in the matrix second concept has the highest score.

Figure 28
First concept.
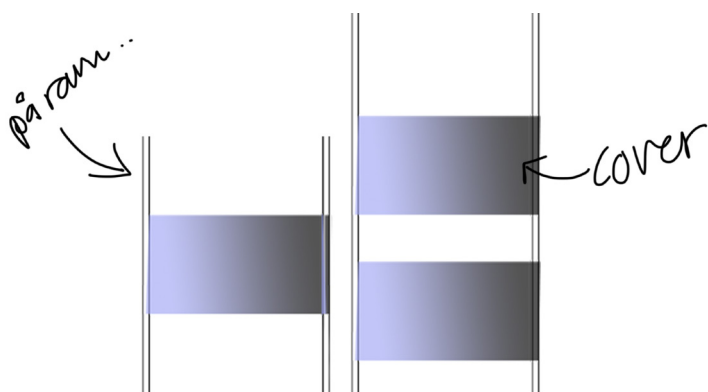
Figure 29
Second concept.
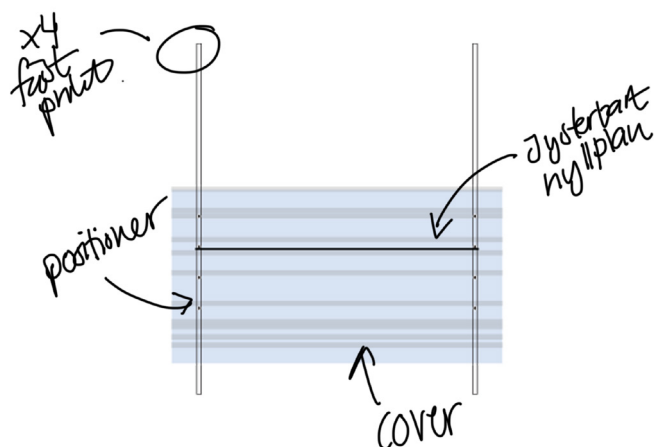
Figure 30
Third concept.

After discussion with project supervisor at IKEA of Sweden, the further development continued on second concept.

Despite the list of criteria for products contributing to a relevant range, the design of a new solution needs to adapt to the five democratic design dimensions and core values of IKEA. As presented in the theoretical framework of this project, Window design fundamentals and Window design principles are important to consider when creating and putting together window solutions, but may also be of importance in designing a new window solution. Simplicity and designing an understandable solution was in focus throughout the concept development, presented in next chapter.

Criteria	Weight	First	Second	Third
Allow three ways of hanging	3	2	4	2
Add essentials to range	5	2	5	4
simple to understand and purchase	4	4	3	1
allow convenient installation	5	4	4	3
added value to environment trough features	5	3	5	5
applicable to democratic design principles	5	4	5	4
have the ability to become a necesary product	4	1	4	2
have the ability to be a competitive product on the market	5	3	5	5
TOTAL		106	160	123

Table 1
Weight matrix, how well the concept is fulfilling each criteria is shown by scaling 1-5.

Concept development

Chapter 6. The folliwing chapter is a presentation of how the development of the selected concept did proceed. In the end of this chapter the final solution is visualized and explained.

A. DEMOCRATIC DESIGN BRIEF

To make sure the design process is steered in the right direction, a democratic design brief according to the IKEA Democratic Design Principles was established.

Form
The form should be simple in its shapes, it should be possible to match the many peoples preferences and fit many window types and work with many different home environments.

Function
The functionality of the solution should be beneficial in a new way. The solution should give the user the opportunity to have control of the light inlet, be easy to adjust and add comfort to a home. Its functionality should reflect market needs found in this study.

Price
The solution should be suitable for low price products without impacting quality perception. Cheap mass production methods should be considered when designing for manufacture.

Sustainability
The solution should be desiged for circularity as well as that the different parts should be easy to assemble and dissassemble for reuse and recycling.

Quality
The solution should give the user an easy mounting experirnce and work properly for x cycles. All mechanics should be relible and according to the low price indication.

The development aimed towards a simple solution according to IKEA values and to ease the decision making and purchase process. The solution also had to be designed with cheap principles. Therefore, techniques as cool automatic and remote control were eliminated early in the development process. It was important to make the solution work in a convenient way, both for the customers, IKEA business as well as making it attract as many potential users as possible. Benchmark show, many of the most flexible solutions are controlled by cords. Hidden cord was an option if used as in IKEA HOPPVALS where the solution locks in position by simply letting go of the movement controlled by hand pressure (pull/push), shown in figure 31. However, the concept development strived to result in a solution completely cordless, as this is preferred by the IKEA development team.

Needs were translated into technical and functional requirements and resulted in specific principles which shaped the concept. The basic movement of the concept (illustrated in figure 32) was then decided. It consist of vertical 'framing' profiles (A) and horizontal 'arms' (B). The cover (C) can be exchanged according to fabric trends and personal preferences. A pleated cover was found to be appropriate for the desired solution as not being too stiff in x-led, allowing the installation to have a tolerance on a few centimetres. The movement of

B allows a cover (C) attached to it to be positioned in different ways, as figure 32 shows, exemplified with positions 1 and 2.

The positioning and the movement was with this concept aiming towards a solution that could be adjustable in a simple way and preferably familiar to most customers. Ideas were generated upon this requirement. The different ideas were focusing on something that generated B to stay in place and be easy to adjust and move.

B. PROTOTYPING AND TESTING

The iterative use of mock-ups were useful for intuitive tests and to explore the functionality connections within features. The mock-ups (see example in figure 33) led to new insights and refined requirements as well as new ideas. Different options were generated and compiled in a morphological

Figure 31
HOPPVALS.
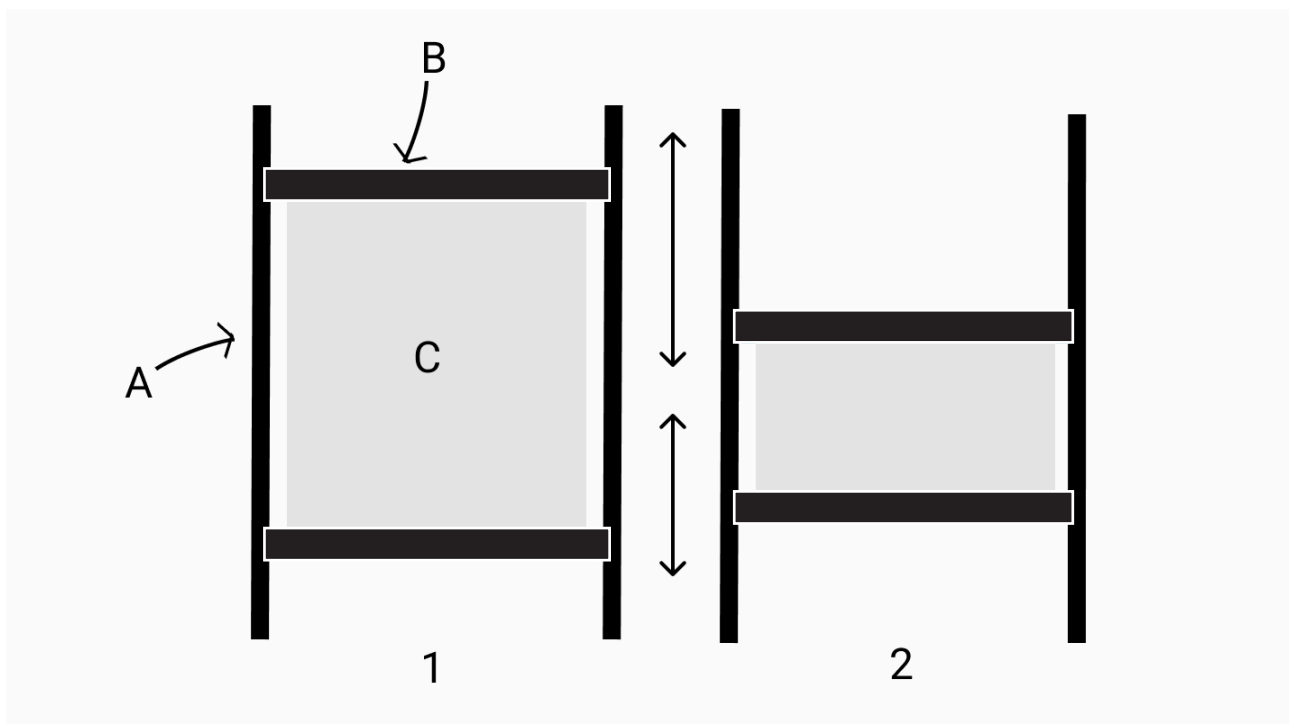
Figure 32
The basic movement.

matrix where it was possible to detect and find possible combinations (see appendix D). With a lot of ideas on the table, some of the most promising ones were discussed with experts in different fields.

The idea that in the end decided the inner shape of the framing profiles, came up during discussions with an expert on extruded aluminium profiling. As outcome mounts could be defined and were estimated to manage the desired load of 5 kg (Helander, 2017). These mounts will make it possible to position the arms anywhere along the framing profiles, without any pre-decided positions. The outer shape was developed to allow options in installation in a more intuitive way through three flat surfaces meeting each other right-angled. But it was also important to include the behaviour of the cover. Also here the use of mock-ups lead to findings of a possible one-handed positioning movement (see figure 34). The refinements of the inner and outer shape elaboration can be found in figure 35, where also the mount is represented.

For a test-prototype, mounts and parts of the framing profiles were 3D-printed and wooden sticks were used to represent the moving parts. As a cover the HOPPVALS pleated shade was used. The concept was further tested with the prototype to fulfil the functional requirements. See photos of the test prototype in figure 36.

Figure 33
Mock-up ex 1. Elaboration of a twisting principle.
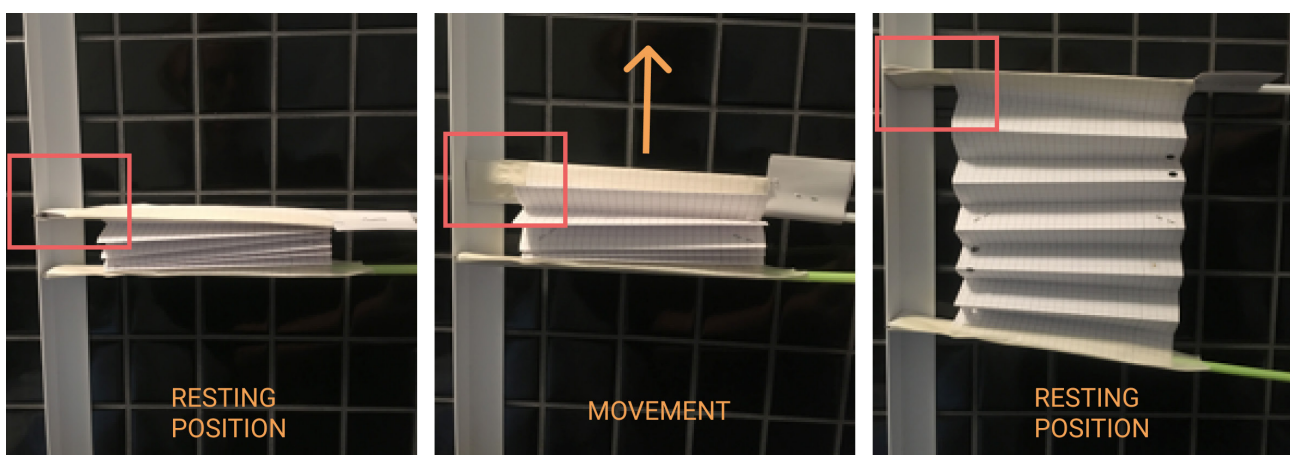
Figure 34
Mock-up ex 2. Exploring how the cover would behave.

CONCEPT REFINEMENTS

Testing and discussing the prototype with the people known from the home visits, gave further improvement ideas of how to refine the concept. Overall outcome of the testing revealed that the positioning and movement was found to work, and the way the solution provides privacy well met the requirements, especially since it can be combined with view and light.

Further test insights were concerning the way the one-handed grip and positioning principle were understood by the users. Testing this resulted in improving the shape so that it would communicate functionality in a more intuitive way. It meant going from a rounded shape towards a more edgy shape. However, this is something which can be modified in the future.

After testing the functionality and making sure the solution and technical ideas around it would work in practice, the concept could be finalized along with defined characteristics:

• The shape of the framing profiles make the solution work in many window contexts (including angled windows) and can be connected with self sticking principle.

• The shapes of parts allow cheep mass production methods as well as different material options as long as enough friction can be generated.

• The positioning has no limitations.

• The length of the window does not have to be the same as the length of the framing profile, but it is important that the two framing profiles are parallel.

• The horizontal arms are extensional (telescopic) and their length can be adjusted, resulting in that no exact measurements are needed from customer.

• With velcro the attachment of the cover is possible, and makes it simple to exchange.
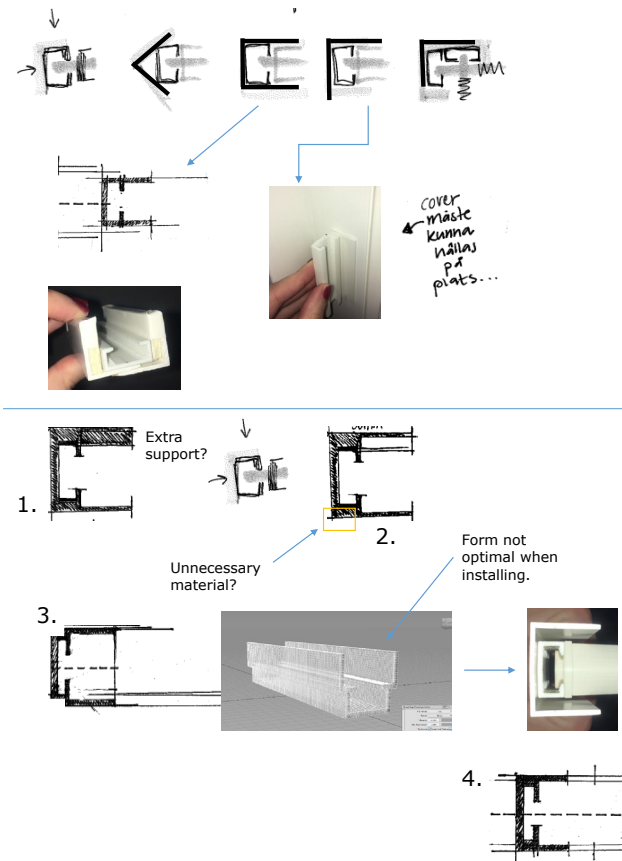
Figure 35
Test prototype development.

Figure 36
Test prototype.

C. FINAL CONCEPT

The final concept is named GRANNEN, which means 'the neighbour' in Swedish. It has a lot of benefits and as it is developed upon findings of this study and to add relevance to the IKEA range.

The major benefit that helps create a better everyday life at home is the way GRANNEN combines privacy and light inlet. This is a new combination of functionalities within the IKEA range and product area of window solutions. GRANNEN allows you to feel private without having to cover the whole window. How it works allow the user to create privacy and to control the light inlet as well as being able to feel connected to the outside – creating comfort to life at home. The combination of functionalities can possibly contribute to enhanced wellbeing.

More benefits are connected to the simplicity of the solution, regarding purchase, installation and usage. Customers want simple solutions which are easy to collect, therefore it was important to make GRANNEN simple and in few parts, as well as able to be used in most window types. The few parts in the solution should decrease the complexity of purchase and be packed in a beneficial way.

As IKEA strive to always make sure the product is packed in a smart and space efficient way, the design of GRANNEN also included this requirement. Figure 37 illustrates all parts of GRANNEN, an example of how GRANNEN can be packed and the interaction between the inner shape of the framing profile and the mount.

In appendix E, an example of how GRANNEN can be sold online is visualized through one of the already existing IKEA tools – but today window solutions [fönsterlösningar] are not included. At the product area of window solutions, GRANNEN will seem like a simple solution and be interesting as it is very flexible and does not require the customer to have all details about their window at home to work - it allows the user to have a simple alternative when deciding upon window solutions.

To install GRANNEN, the frame is 'mounted' with self sticking tape, simply by removing the release paper and placing the profile in preferred position. The mounts are attached to the ends of the moving parts and placed in position into the shape of the framing profiles. In figure 38, the installation steps are further explained and illustrated.
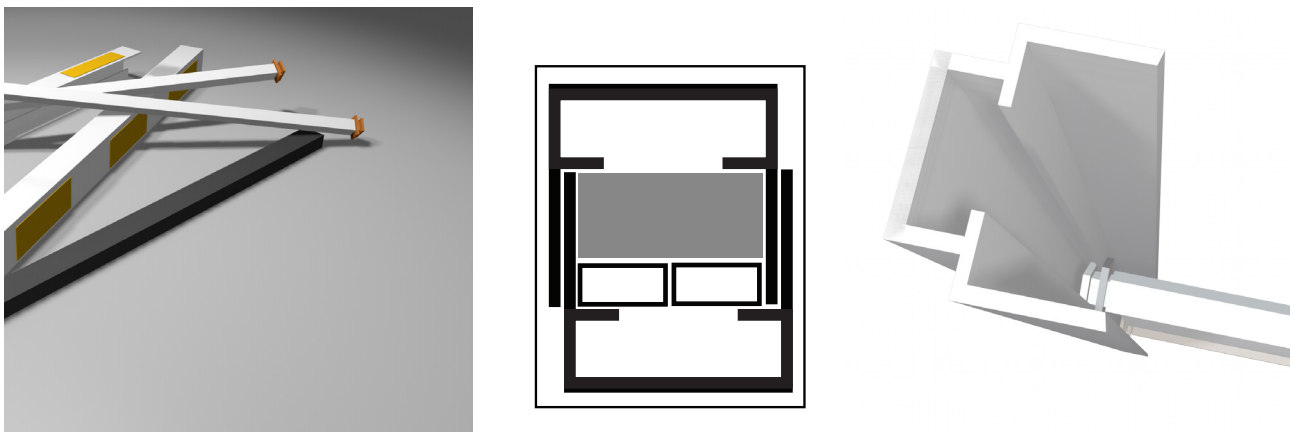
Figure 37
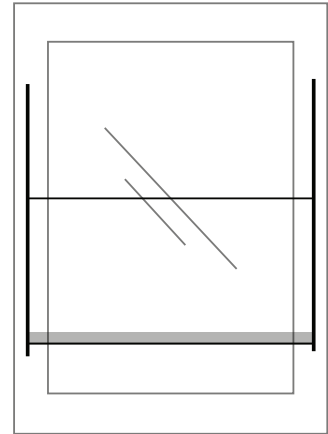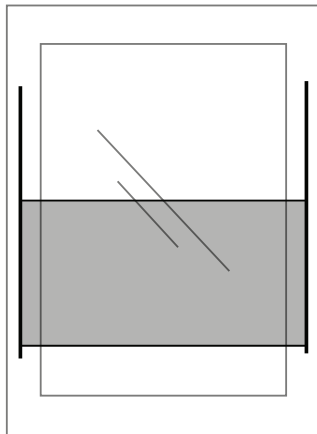The parts which are included in GRANNEN solution.
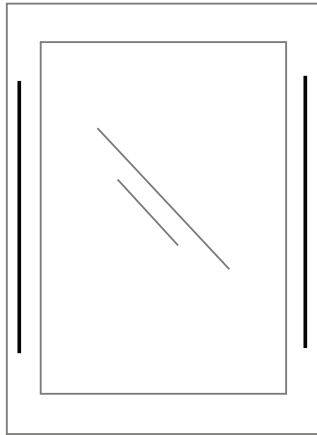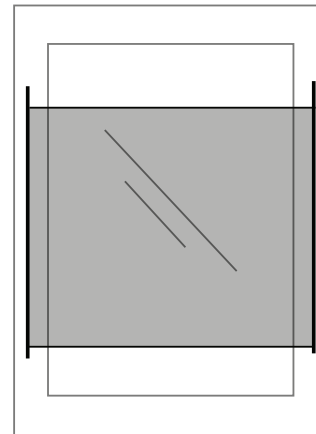
1. ATTACH PROFILES.
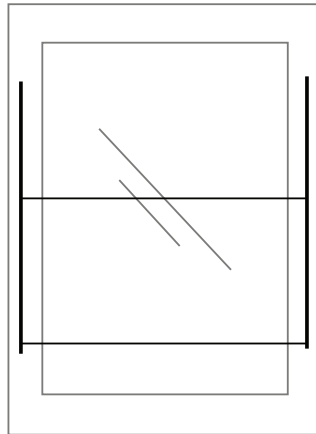
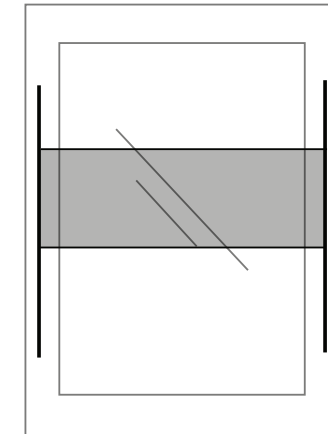2. ATTACH MOUNTS TO MOVING PARTS AND POSITION ALONG THE PROFILES.
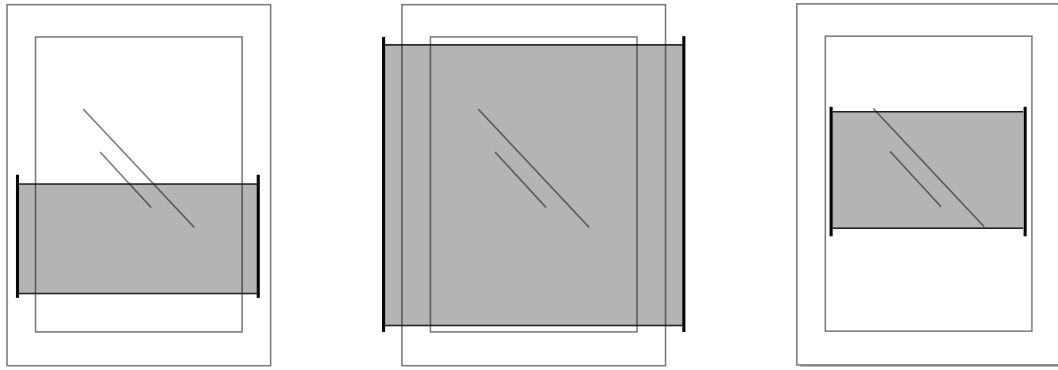
3. ATTACH COVER TO BOTTOM.

4. ATTACH COVER TO TOP.

5. ADJUST THE COVER AND POSITION IT HOW YOU PREFER.

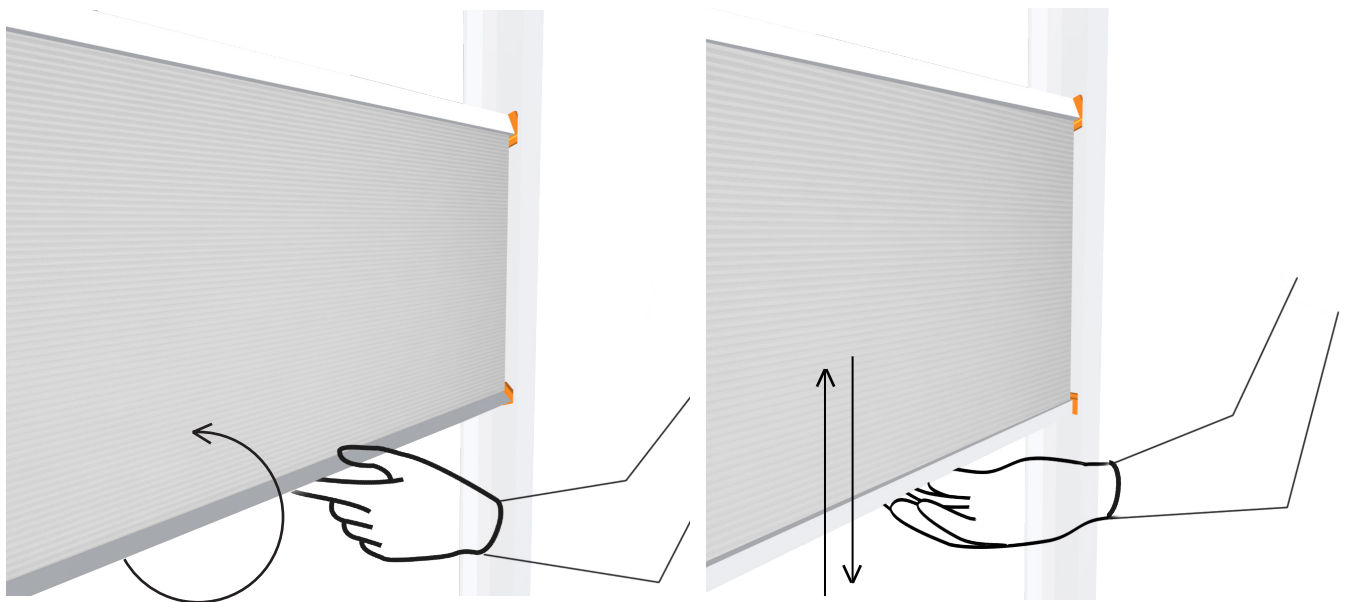**Figure 38**
How to install GRANNEN.

Figure 39
GRANNEN hanged in three different ways.

Figure 39 and shows on the flexibility of GRAN-NEN where the solution is installed in between the window frame walls or on the glass. As the figure also shows, the length of the profiles are different as it can be decided depending on presonal preferences and need to match desires of functionality, convenience and apperance, also possible to split if desired. Figure 40 illustrates the usage and how the movement and positioning is enabled by the design. As the figure also shows, the adjustment of the cover is managed with one hand.

As a finalization of the project at IKEA of Sweden, GRANNEN was visualized in home environments, see an example in figure 41. Note, the price is not based on proper calculations - this number is only made up. Original picture from IKEA catalouge 2017.

Figure 40
Adjusting the cover by one hand grip.

Figure 41
Example of how GRANNEN might be featured in the IKEA catalouge.

D. FURTHER DEVELOPMENT RECOMMENDATIONS

Further development includes preparing for manufacturing, among other important parts as further durability testing, applying materials and finalize dimensions according to the existing IKEA range. For the overall range relevance and experience, look into how the range can be built up by one system. For example, VIDGA and GRANNEN could be developed into one system shaping the range. GRANNEN might also be possible to use as brackets for curtains in the future.

Discussion and conclusions

Chapter 7. In this last chapter the project is discussed and the final conslusion presented.

DISCUSSION

The aim was to investigate the meaning of window solutions, and demonstrate how the IKEA product range can supply its consumers in an appropriate way. The aim has been fulfilled by giving an overview of what customers need and want in window solutions and by defining range shortcomings followed by visualizing an example of how shortcomings can be dealt with.

METHODS AND TOOLS

Attributes of design thinking was applied during the process and was especially effective in the beginning when the task was general and complex. Design thinking approach gave an overall view of the field which made it possible to concentrate to a range audit – the research of what to research was important. The holistic knowledge grounded for the understanding of how people in general add meaning to window solutions. Design thinking allows an open minded attitude, contributing to new insights about how the range can be better formatted to enhance peoples understanding of the concept.

The design theory was particularly important in the establishment of user surveys, and they are additionally useful in understanding customer experiences by studying positive and negative emotions. This theory has also been considered in the design process to reflect over how certain design intentions may affect the user context. During the combined observations and dialogues with the actual users the attitude of empathy thinking was valuable to understand the users and their way of behaving allowing to dig deeper and learn about how general assumptions can limit a person in his/her options. The holistic way of thinking was carried out through social media listening and field audits which contributed to the context of what people hang and why. Additionally, in the product development, constructive thinking was used to go further based on the findings.

The methods used are considered relevant and rewarding for the project. However, the market audit of how people hang, could have been smaller as the result after analysing 100 photos and comments was the same as after 200. At the same time, it was important to ensure insight from as many IKEA markets as possible. Social media listening was profoundly important to this project, but it is essential to keep in mind that the users are a special sample of the greater user population, where not all are active in social media. To conduct surveys in the beginning is necessary but difficult to establish due to yet undefined and specific problems. Nevertheless, these surveys gave valuable input from users in different countries and proved to be useful for deciding on further investigations.

By iterative thinking further investigations shaped the result. Looking at the result the design thinking attributions of thinking constructive, based on old ideas on the market, lead to the result along with thinking open minded and challenging the assumptions of standard field products and having different approaches in the process of brainstorming.

FINDINGS AND RESULT

One essential reflection concerning people's perception of window solutions was the discovery of the tendency people have of talking very general about window solutions more as a concept rather than specific products. This might have to do with the outcome about that people find it difficult to know what they want and what they need, or that the ranges look similar and they are all assumed to provide the essentials. The most important finding for defining the shortcomings of the IKEA range was the identification of three ways of hanging. This was essential to conclude the essence of the range and also to elaborate on the importance of fulfilling the shortcomings through the concept development.

The project has shown that the field of window solutions for a majority of people is seen as complicated. The experience of a range in terms of overview, is very important if the range is perceived as relevant or not. For a pleasurable

experience the expectations must be met, therefore it is important to know the customers and supply them with the essentials. IKEA visitors in the window solution area can be defined in three ways, previously referred to as the pro, the seeker, and the assumer whose levels of understanding IKEA brand and business values vs. understanding benefits in window solutions are not matching. This also indicates range shortcomings – since it should be understood by customer and match preferences to be perceived as relevant. These three customer types are of course likely to find within other range areas, it would be interesting to see what conclusions such investigation would give.

The window is the border and connection between outside and inside and an important part in our homes. The development of appropriate solutions means dedication to and understanding of the users as well as understanding of increasing demands on sustainability and changes in the everyday life and home trends. A constantly growing trend is to put health in focus. The result indicates that wellbeing is an important feature in window solutions – a compromise between light control, privacy and view created by the user. The daylight are for many people annoying when shining through the window, however it is necessary for human wellbeing as it affects our circadian. Future development of window solutions may include this dimension as important in future design. By communicating involvement through the products people can by using the products understand the benefits of windows more and also see the benefits of use in homes. The more we know, the better we can incorporate new knowledge in the systems of window solutions. This, in turn, makes it easier to find connections and consistencies, making ranges more understandable and relevant.

The features of GRANNEN is that it provides privacy without having to cover the whole window. It provides connection to the outside, through the view and daylight which both are important to human wellbeing as they affect circadian and mood. The example is designed both for the experience it can contribute to in the home and for the coverage of a window. Further benefits are that it can be an alternative for venetians, which today creates a big gap in the range. Also it is a non-drill solution, which widens the implementation possibilities.

CONCLUSIONS

The market looks very similar, customers have special and similar needs as standard products seem to be an underlying reason for the impact on what people value. This has affected the relevance of the IKEA range. To investigate the relevance of how the IKEA range meet its audience, it is important to both investigate how customers are perceiving the range and to investigate if the range can provide the right solutions to its customers.

By looking at the way people hang and by knowing the importance of purchase experience for customer satisfaction, shortcomings connected to these aspects can be identified. Some of the identified shortcomings are more severe than others. If we focus on finding solutions to the highest ranked problems the range will, through the implementation of improvements, become more relevant. By elaborating user and range requirements we can find the solutions. The lack of replacement for blinds and the non-drill solution are considered to be the major shortcomings content-wise. In this project these shortcomings are in a way met by GRANNEN.

Based on the project findings it would be interesting to further investigate better ways to inspire and sell to customers. Customized products are simple to order, but when in store – how can inspiration and selling be improved for enhanced understanding and comfort in the purchase? There are a lot of digitized opportunities – how can these be developed and used in store?

References

Boyce, P., Hunter, C., & Howlett, O. (2003). The Benefits of Daylight through Windows. Capturing the Daylight Divided Program. New York: U.S. Departments of Energy.

Dam, R., & Siang, T. (n.d) Introduction to the Essential Ideation Techniques which are the Heart of Design Thinking. Retrieved 2017-11-12 from Interaction Design Foundation : https://www.interaction-design.org/literature/article/introduction-to-the-essential-ideation-techniques-which-are-the-heart-of-design-thinking

Desmet, P., & Hekkert, P. (2002). The basis of product emotions. In P. Jordan, Pleasure with Products, beyond usability. London: Taylor & Francis.

Dudovskiy, J. (n.d) IKEA Segmentation, Targeting and Positioning: Targeting Cost-Conscious Customers. Retrieved 2017-10-30 from www.research-methodology.net: https://research-methodology.net/ikea-segmentation-targeting-positioning-targeting-cost-conscious-customers/

Gordon, N. P. (2014). An Arcitect's guide to engineered shading solutions; the nest generation in window coverings. Bloomington: iUniverse.

Hassenzahl, M. (2013). User Experience and Experience Design. In M. Soegaard, & R. Dam, The Encyclopedia of Human-Computer Interaction . Denmark: The Interaction Design Foundation.

Helander, A. (2017, 12 11). Mail. Vetlanda.

IKEA. (2017). Life at Home Report: Beating the Battles.

Inter IKEA Systems B.V. (2017). IKEA Range Strategy: Design & Quality.

Inter IKEA Systems B.V. (1976-2013). The testament of a furniture dealer.

Karlsson, M. (2016, November 03). Design for experience theories and models. (D. &. Development, Performer) Chalmers University of Technology, Gothenburg, Sweden.

Kenyon, G. N., & Sen, K. C. (2015). The Perception of Quality. London: Springer.

Kolawole, E. (n.d) Empathy. Retrieved 2017-09-07 from Designkit.org: http://www.designkit.org/mindsets/4

Kujala, S. (2011). UX Curve: A method for evaluating long-term user experience. Interact. Comput.

Martin, B., & Hanington, B. (2012). Universal Methods of Design. Beverly, MA 01915-1601: Rockport Publisher.

National Business Research Institute. (n.d) Measuring and managing customer satisfaction. Retrieved 2017-09-07 from https://www.nbrii.com/customer-survey-white-papers/measuring-and-managing-customer-satisfaction/

Nielson , K. J. (1989). Window Treatments. Canada: John Wiley & son.

Norman, D. A. (2014). Some Observations on Mental Models. In A. L. Dedre Gentner, Mental Models. New York: Psychology Press.

Project management articles. (n.d). What is Stakeholder Analysis? Retrieved 2017-09-07 from Project-management.com: https://project-management.com/what-is-stakeholder-analysis/

Rogers, P., & Tillberg, M. (2015). En genomgång av svenska dagsljuskrav. SBUF.

Silverstein, D., Samuel, P., DeCarlo, N. (2012). The Innovator's Toolkit. New Jersey: John Wiley & Sons.

Siang, T., & Dam , R. (2016). The Interaction Design Foundation ApS [DK]. Retrieved 2017-09-07 from 5 stages in the design thinking process: https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process

Sjölén, K., & Macdonald, A. (2011). Learning Curves . Sweden: Ljungbyberg Tryckeri AB.

SR. (2011). Det livsnödvändiga dagsljuset. Vetandets värld (p. 28/10). Sveriges Radio.

Thompson, R. (n.d). Stakeholder Analysis: Winning Support for Your Projects. Retrieved 2017-11-12 from Mind tools: https://www.mindtools.com/pages/article/newPPM_07.htm

Tobel, J. V. (2007). The Design Directory of Window Treatments. Layton: Gibbs Smith.

Waloszek, G. (2012). Introduction to design thinking. Retrieved 2017-09-07 from SAP User Experience Community: https://experience.sap.com/skillup/introduction-to-design-thinking/

Wikberg Nilsson, Å., Ericson, Å., & Törlind, P. (2015). Design: Process och Metod. Lund: Studentlitteratur AB.

Williamson, K. (2002). Research methods for students, academics and professionals: information management and systems. Wagga Wagga: Quick Print.

Wintzell, L. (2017). Dialouge about range delimitations. Älmhult.

Appendencies

A. STAKEHOLDER ANALYSIS (1/1)
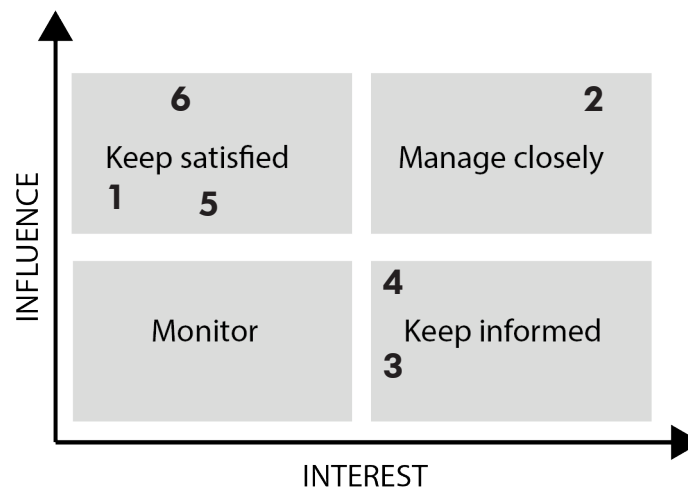
In this project there are many stakeholders. First of all, IKEA as brand (1) will influence the project and the outcome as the IKEA values and vision are used to frame the project and decision making. The main contact towards IKEA of Sweden is the Project Supervisor at IKEA(2), one of the members in the development team and has an important role in the project. As she provides guidance and is involved in the decisions she has high interest of the project set up and its result.

The Examiner and Supervisor at Chalmers University of Technology (3), has influence on how the project is performed and reported, which also frames the thesis work.

The Development Team (4) is the client of the task and can provide input during the project which will influence the scope. The team wants information about how customer hang curtain and window applications to be able to decide if the products they work with are relevant for the customer needs and dreams and accordingly, their interest of the result is high.

Sales people and shop leaders (5) are representatives working in different IKEA markets, they are not particularly interested in the procedure of the project but they may have interest of the result as it may explain how the sales are performing and also why people purchase/ do not purchase certain products. They know a lot about the customer and therefore have certain power in the contribution.

The IKEA customers (6) need to be considered as a stakeholder with high influence as their values are highly valuable in this project, and should be interested in the content of the product but not the procedure. Potential IKEA customers are also contributing to the project as they can provide information to the project as users of the products that IKEA should offer.

B1. SURVEY SAMPLES (1/1)

TABLE 1 COMPETITORS INCLUDED IN ANALYSIS.

Company	Web site
Bed Bath and Beyond	https://www.bedbathandbeyond.com/
Bouclair	https://www.bouclair.com/
Dunelm	http://www.dunelm.com/
Home Depot	https://www.homedepot.com/
Leroy Merlin	https://www.leroymerlin.com/en
Lowe's	https://www.lowes.com/
Nitori	http://www.nitori.co.jp/en/index.html
XXXLutz	https://www.xxxlutz.se/
Wayfair	https://www.wayfair.com/

TABLE 2 SURVEY MATERIAL.

No	Survey title	Population sample	Sharing type	Activated
1	*Small survey (pilot test)*	20 sampled elements.	Web based link	22/7/17
2	*How do you hang?*	100 participants in 16 countries.	Webb based link Shared on facebook.com	31/7/17-3/8/17
3	*Window solution range*	23 representatives responsible for different markets.	E-mail link sent out via IKEA-mail	10/7/17-10/8/17

TABLE 3 SOCIAL MEDIA SAMPLES.

Social forum	Community
Facebook	@Make a house a home :) @DIY Top tips on a BUDGET @Inredning & renovering
Instagram	#curtain #windowtreatments #windowart #windowsill #windowview #windowshot #facade

What do you as an expert think?
IKEA of Sweden, business area: textile, are currently running a student-project regardingwindow covering solutions with the goal to ease the process of developing the right hanging solution for curtains and window applications.

The following questions are focusing on today's product range and market.

* 1. Sales leader in:

[   ]

2. How well do you think the product range is suited for the market?

bad   good

○———————————————————————————————— [   ]

3. In your opinion, what product/products are best suited for the market? And why?

[   ]

4. What do you think should be added/changed to meet the market even better?

[   ]

5. As an expert, what would you say are the major challenges? Now, and in the future?

[   ]

6. In your opinion, what should the development of new solutions focus on? And why?

[   ]

How do you hang? A survey about window coverings.

1. Where do you live?

[   ]

Please have a look at these illustrations representing different window coverings, existing today.

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.
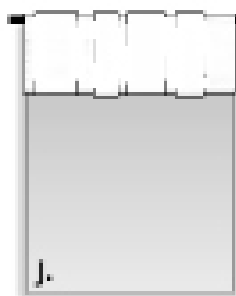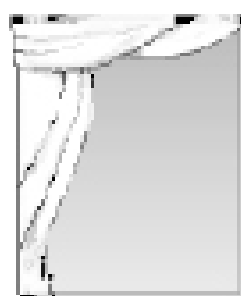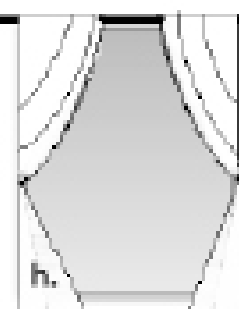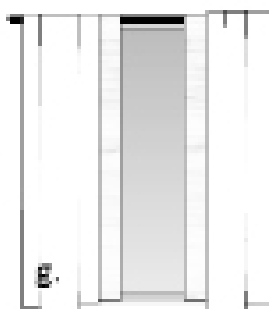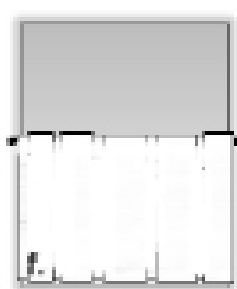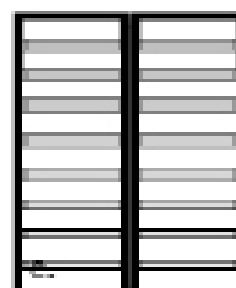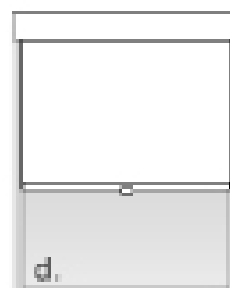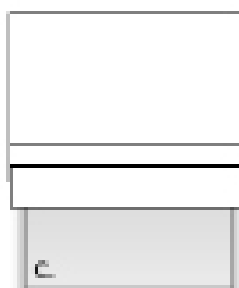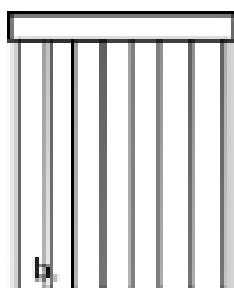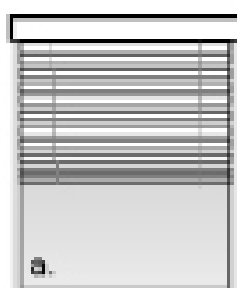
3. What Window coverings above do you prefer? (in your home)

☐ a. Venetian blinds.

☐ b. Vertical blinds.

☐ c. Roman shades.

☐ d. Roller shade.

☐ e. Shutters.

☐ f. Café curtains.

☐ g. Curtains.

☐ h. Curtains with tie-backs.

☐ i. Swag curtains.

☐ j. Valances.

☐ None.

☐ I don't know.

Comments:

[   ]

4. Do you prefer layering? (multiple coverings in the same window)

○ Yes.

○ No.

○ I don't know.

Comments:

Please have a look at these pictures describing different heading types, existing today.
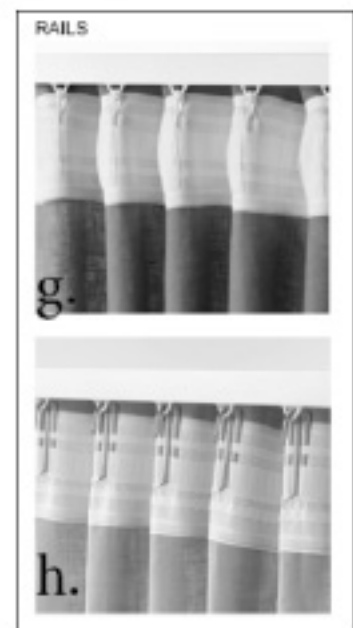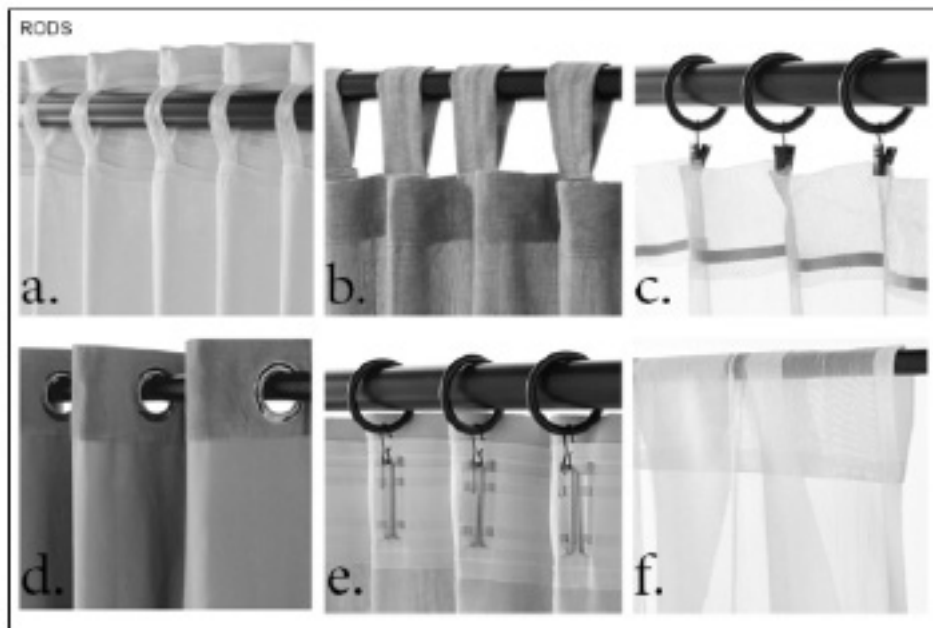
5. What heading types above do you prefer?

See example pictures above.

☐ a. Tape Top.

☐ b. Tab Top.

☐ c. Clips on Rings.

☐ d. Eyelet.

☐ e. Pleat Hooks on Rings.

☐ Other, please specify.

☐ f. Slot Top.

☐ g. Hooks on Gliders.

☐ h. Pleat Hooks on Gliders.

☐ I don't know.

6. When you're considering products in the window covering area, what are the top things you generally consider? (check 1-3 boxes.)

☐ sunlight

☐ trends

☐ energy efficiency

☐ quality

☐ texture

☐ privacy

☐ adjustability

☐ color

☐ price

☐ uv-protection

☐ material

☐ draft

☐ nothing really

☐ Other, please specify.

7. What could complement your window covering solutions today? (to the better)

1. 2. 3. 4. 5. 6. 7. 8.

8. Which of the following best describes your feelings for products in the window covering area?

See illustrations above.

○ 1. Frustrated.   ○ 5. Satisfied.

○ 2. Disappointed.   ○ 6. Interested.

○ 3. Bored.   ○ 7. Surprised.

○ 4. Confused.   ○ 8. Excited.

Comments:

How do you hang? A survey about window coverings.
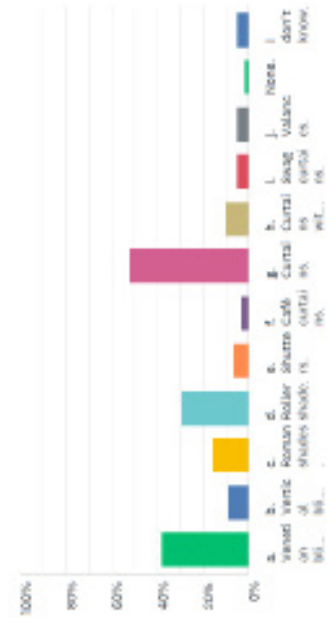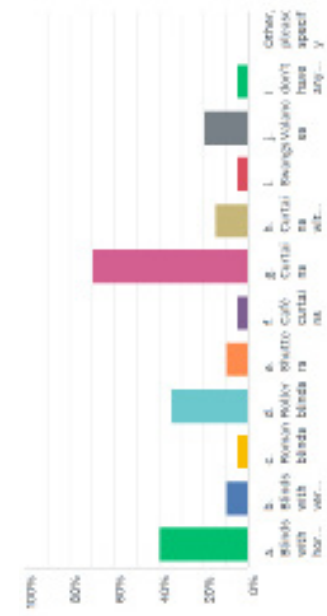
B3. SURVEY CHARTS (1/1)

CHART 2. ANSWERS SURVEY 2.

CHART 3. ANSWERS SURVEY 1.
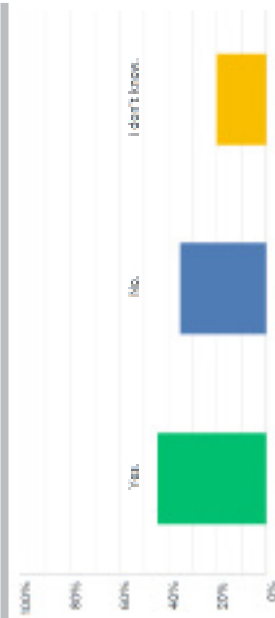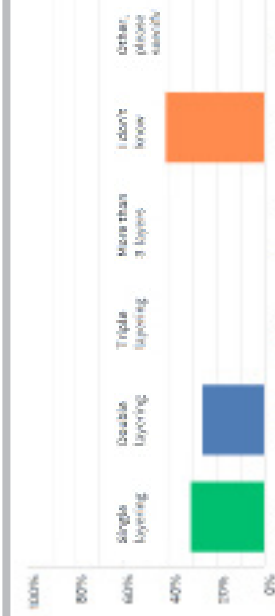

CHART 4. DO YOU USE LAYERING? SURVEY 2.

CHART 5. HOW DO YOU LAYER? SURVEY 1.

C. MAPPING IMPROVEMENT AREAS IN THE IKEA RANGE OF TODAY (1/2)

ABOVE/OUTSIDE products	Feature options	DEFICIENCY*	Comments impacting relevance
Curtains	Decorative		
	Customized	MEDIUM	Length is standardized, but there is hemming tape – possible to make shorter curtains.
	Privacy		
	Light filtering		
	Block out		Not communicated as good as sheer on the web!
	Divided hanging	MEDIUM	All curtains sold in pairs. Cheap, buys anyway?
Valances and café curtains	Decoration	MEDIUM	Does not exist in range, bot not very popular, many DIY. Fabric metervara are a possible solution.
Blinds	Privacy/light filtering/view	HIGH	No venetian nor verticals! **Expected so** what is the alternative?
Shades	Decorative		
	Customized		Effort in cutting, but since hanging outside: can be longer.
	Privacy		Cover whole window …
	Light filtering		Not well communicated in web shop!
	Block out	MEDIUM	Called blind… confusing!?
Hardware/accessories **Pref. rod**	Decorative	HIGH	IKEA basic Two colours
			No spare tiebacks
			Quality expression… Cheap
	Layering (2)		
	Custom	HIGH	Many parts to collect, not convenient!

*estimated impact based on qualitative research.

🟧 MEDIUM
🟥 HIGH

Performance:	Experience:
• Blinds: standard • Lack of possibilities to make solution personal (decorative). • Difficult to understand rod solutions not pre-packed.	• People don't know what to choose instead of blinds. → WHAT? • If accessories are missing, people tend to buy whole solution in other places. • People get confused and frustrated. → support.

HIGH/WIDE products	Feature options	DEFICIENCY*	Comments impacting relevance
Curtains	Decorative		
	Custom	HIGH/MEDIUM	Length is standardized… How to create longer curtains?
	Privacy		
	Light filtering		
	Block out		
Blinds	Privacy/light filtering/view/daylight		No blinds – complementing a solution but not hanged this way…
Shades	Decorative	HIGH/MEDIUM	Taller lengths, high hanging
	Custom		How to merge multiple shades for wider solutions?
	Privacy		
	Light filtering		Not communicated in web shop!
	Block out		Called blind…
Hardware/accessories **Pref. track/rail**	Decorative	MEDIUM	Two colours IKEA basic, Quality expression
			No spare tiebacks
	Layering (2)		
	Custom	HIGH	Difficult to understand. How to get ppl motivated ?

* estimated impact based on qualitative research.

🟧 MEDIUM
🟥 HIGH

Performance:	Experience:
• Too high hanging is too high for the curtains/shades. HOW? • Thanks to VIDGA we can give the customers the option, however it is often dependant on support.	• Irritation, goes to other place? • Disappointed by quality and decent accessories. • Not motivated to try to understand a system when there are other on the market.

INSIDE/NARROW products	Feature options	DEFICIENCY*	Comments impacting relevance
Blinds	Privacy/light filtering/view/day light	🟥 HIGH	No venetian, vertical blinds. No alternative?
Valances and café curtains		🟧 MEDIUM	Does not exist. Standard in I/N.
Shades	Decorative		
	Custom	🟥 HIGH	Cutting, Must be perfect fit. Not all can be cut!
	Privacy		
	Light filtering		Light filter not communicated on web
	Block out		Called blind... Confusing
Hardware/accessories **Pref. tension rod**	Non-drill	🟥 HIGH	Does not exist. Should be standard product

	MEDIUM
	HIGH

* estimated impact based on qualitative research.

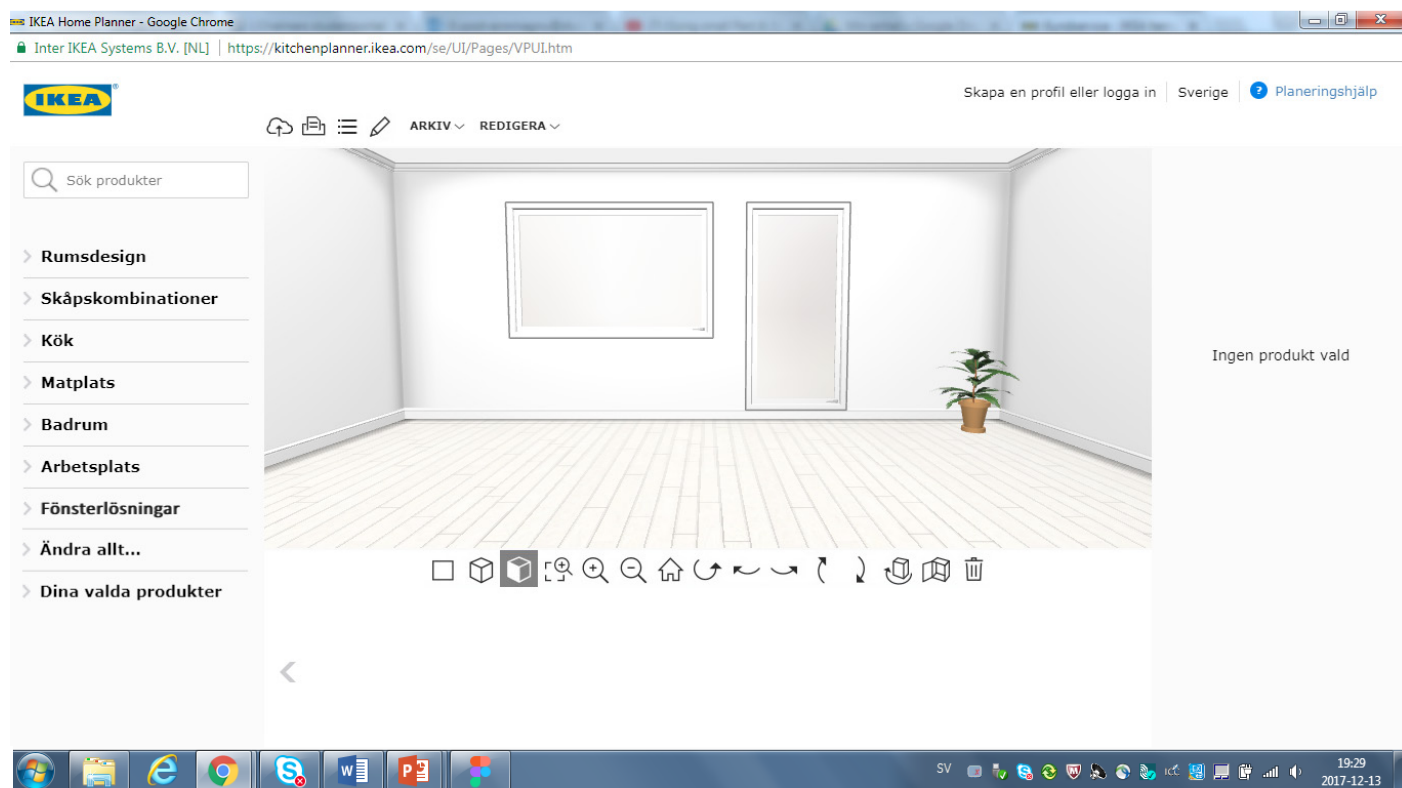| Performance:	Experience:
• Limited in essential products. • Miss non-drill solution, very popular for this hanging type. • Only shades "work" today.	• Confused, limited in options they don't understand? • People expect solutions for small space living?! • Disappointed customer.

BASIC MOVEMENT

INSTALLATION

PARTS AND COMPONENTS

FLEXABILITY

POSITIONING PRINCIPLE

IKEA'S NUVARANDE VERKTYG KAN ANVÄNDAS ÄVEN FÖR FÖNSTERLÖSNINGAR

KLICKA PÅ [FÖNSTERLÖSNINGAR]
VÄLJ TYP AV LÖSNING, TEX INNANFÖR/SNÄVT
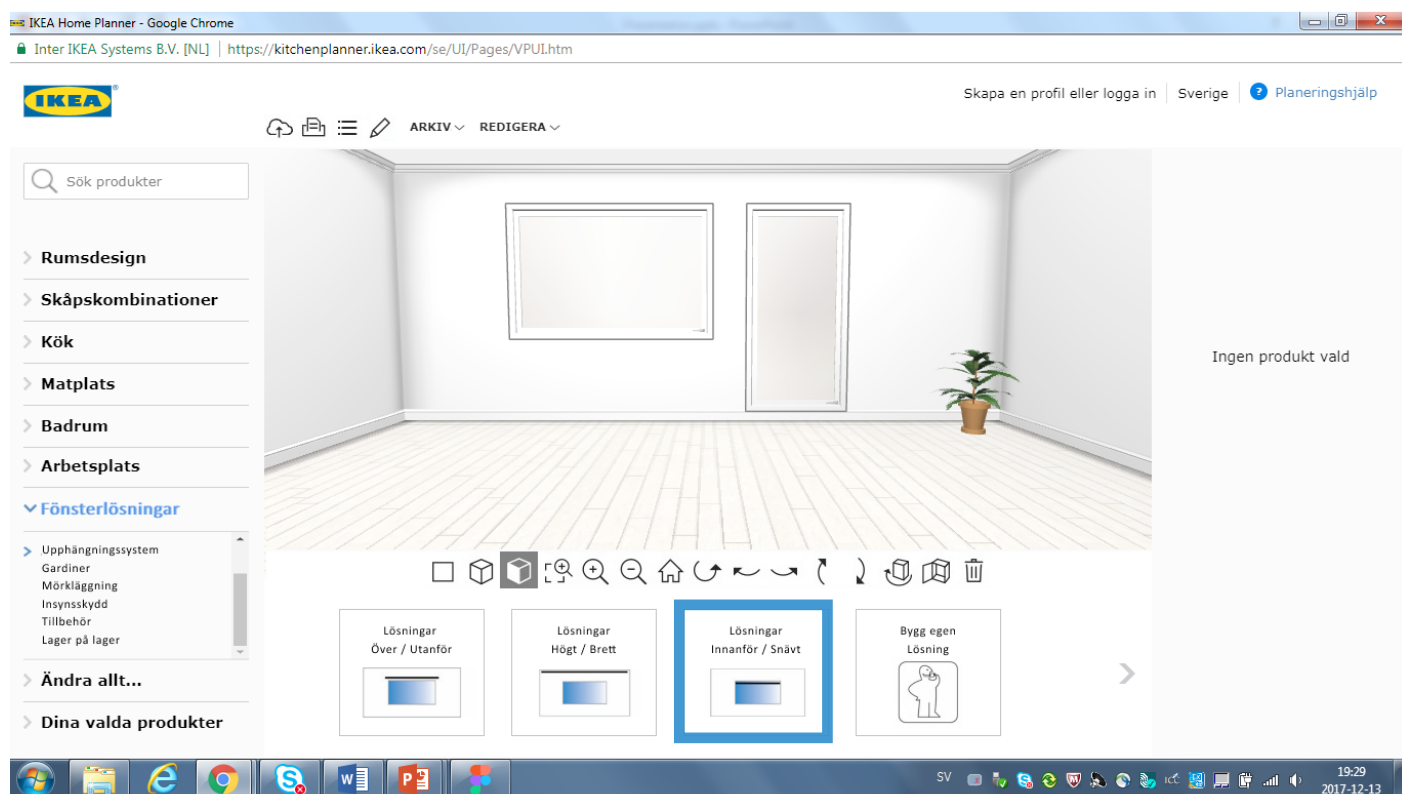
DET VISAS NU ALTERNATIV FÖR DIG
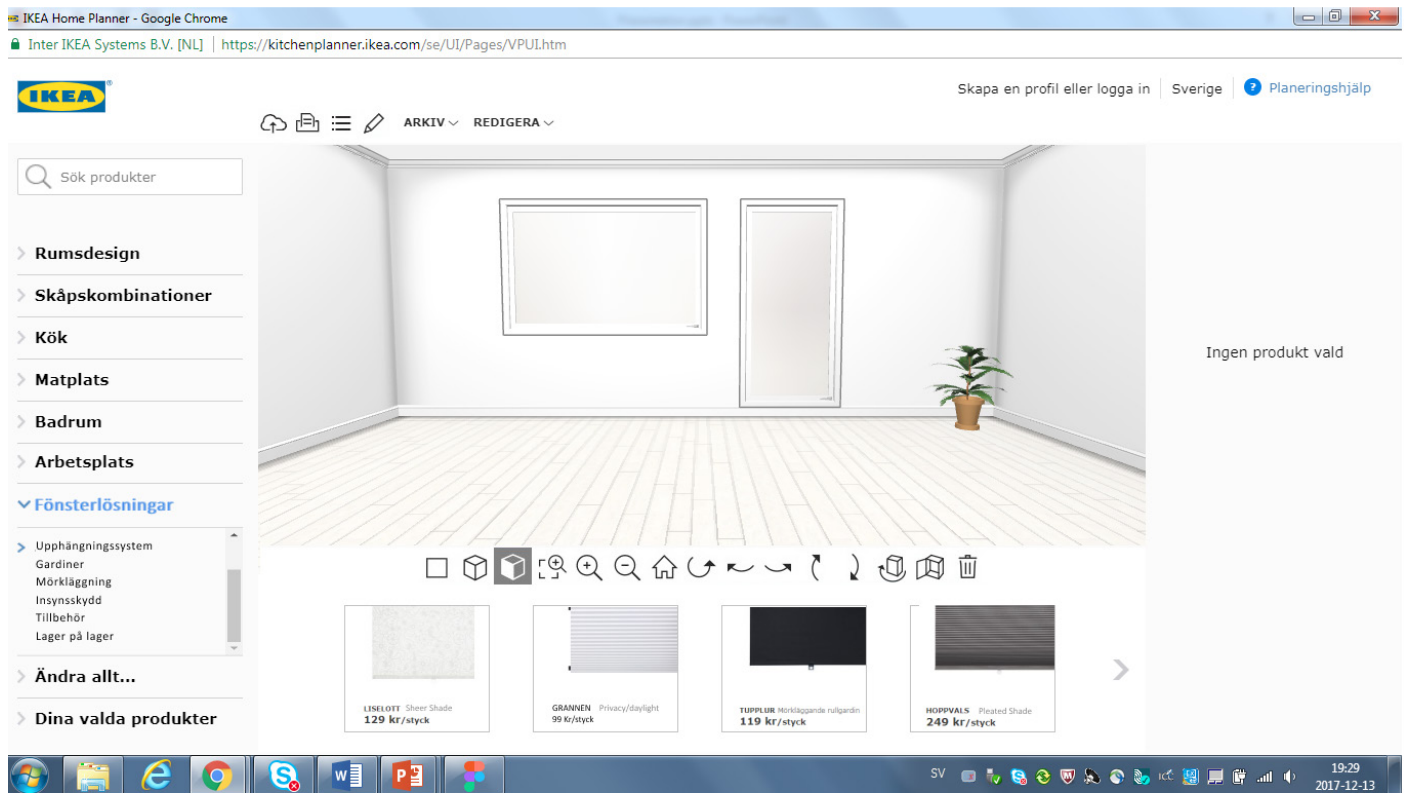
VÄLJ LÖSNING, TYP GRANNEN
VERKTYGET KAN NU GE EN BILD AV HUR
DET KOMMER ATT SE UT HOS DIG