How, and why, we made KOMP

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Introduction

KOMP is a communication tool for seniors and their families who want a simple way to keep in touch. Struggling to use the complex interfaces and touch screens found in many of today's modern communication tools, this vulnerable group of seniors need communication tools as much as any.

KOMP is developed with and for the users. Focusing on the user throughout the design process is essential for making a successful product. This report is written to summarise the process of developing KOMP, starting with the initial idea and all the way to the finished product.

In the first part of this report, you will find in a brief overview of the background of the project, and a presentation of the goal and our target users. The main part is about how we worked to develop a solution, with key findings from our workshops and user tests. KOMP is presented in the last part, also discussing the future of KOMP.
Our users

Defining the user group is important to stay focused on the goal. Background research together with workshops helped us find the key issues we wanted to address, and who was most affected by these issues. This chapter presents the background of KOMP and the research done to define the project, presenting the goal and target user of KOMP.

The beginning of KOMP

The initiative for the project came back in fall 2016. During an ongoing collaboration with the Norwegian Cancer Society on testing an avatar for long-term ill children, they challenged No Isolation to also make an avatar for seniors with a cancer diagnosis. As the research team began to work, it was soon clear that this was a complex issue.

Loneliness amongst seniors

In early 2017 the research team presented their work, and they highlighted three closely related factors that increased the risk of feeling lonely amongst seniors; age, perceived health, and civil status.

Three factors that increase the risk of feeling lonely amongst seniors:

**Age:**
The risk of feeling lonely generally increases as we get older, and the group 80+ is the most vulnerable group.

**Perceived health:**
Health issues have a huge impact on the feeling of loneliness. Limitations due to reduced health increases the threshold to participate in the social life as before.

**Civil status:**
People living alone are more likely to feel lonely. As we get older, the chance of losing your life partner increases, and thereby also increasing the risk of feeling lonely.

The three key factors are all tightly linked with the fact that some bodily functions are reduced as we age. Sight, hearing and the ability to learn new interactions are issues all seniors experience to some extent. The age when these health issues start to affect daily activities differs a lot from individual to individual, but generally it affects us more and more as we grow older.
Defining the goal

There are many potential issues to address when looking into how to reduce the feeling of loneliness amongst seniors. Therefore we had to limit our scope as we moved forward.

We were inspired by a project in Ålesund kommune, where seniors living in a care facility were helped by the nurses to hold video calls using tablets with Skype. The results from this project were very promising, and both the family and seniors felt they had better contact with each other. The relatives showed no signs of decreasing their in-person visits, and the visits were also more enjoyable for everyone, as they had more to talk about.

If we could make this possible for everyone, also for those who had no one to help them to connect to Skype, we were convinced it would help reduce loneliness amongst seniors.

A combination of looking into existing research and projects like the one mentioned above, as well as a 3-day design-sprint and a workshop with the Norwegian Cancer Society in spring 2017 together helped us define our scope.

The aim was to reduce loneliness amongst seniors, focusing on building the close relations.

Main focus:
- make it easy for seniors and their family and friends to stay in touch
- enable more meaningful communication for everyone involved

To help seniors and their family and friends to communicate more, with higher quality, we needed to develop a communication tool based on the seniors' premises, which also motivated the entire family to participate.

Existing communication tools for seniors

The research team had been looking into existing solutions for seniors addressing some of the same issues. The most relevant products found were in the categories: tablets and smartphones developed for seniors, simplifying tablet and smart-TV software, and mobile telepresence units.
### Simplified tablet

<table>
<thead>
<tr>
<th>Device</th>
<th>Main functions</th>
<th>Compared to KOMP, requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>grandPad</td>
<td>Video/voice call, Address book, Photo &amp; video sharing, Email, Entertainment, Weather, Family app</td>
<td>grandPad requires a high level of technological understanding to operate and is based on a touchscreen interface. It has a small screen (8 inches) compared to KOMP (17 inches), and unlike KOMP it is not tailored for reduced vision or hearing.</td>
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<td>€66/month</td>
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### Simplifying smart TV software

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<thead>
<tr>
<th>Device</th>
<th>Main functions</th>
<th>Compared to KOMP, requirements</th>
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<tbody>
<tr>
<td>Independa</td>
<td>Video/voice call, Photo &amp; video sharing, Text messages, Reminders, Assistance button, Family app</td>
<td>Independa requires a high level of technological understanding to operate. Independa is operated by a remote control sub-optimal for seniors without technological competence. The solution requires a Smart TV to function.</td>
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<tr>
<td>€338 + €43/month</td>
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### Simple Smartphone

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<thead>
<tr>
<th>Device</th>
<th>Main functions</th>
<th>Compared to KOMP, requirements</th>
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</thead>
<tbody>
<tr>
<td>Doro Liberto 825</td>
<td>Voice call, Address book, Photo sharing, Text messages, Email, Internet browser, GPS, Assistance button, Platform for apps</td>
<td>Doro Liberto requires a high level of technological understanding to operate and has a small 4.5-inch touchscreen interface. Also, portable devices as Doro is easy to mislay and/or forget to charge.</td>
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<tr>
<td>€295</td>
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### Simplifying tablet software

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<tr>
<th>Device</th>
<th>Main functions</th>
<th>Compared to KOMP, requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapestry</td>
<td>Address book, Photo sharing, Text messages, Weather, Custom app selection, Family app</td>
<td>Tapestry requires a high level of technological understanding to operate. Unlike KOMP one need to know how to operate a tablet to operate Tapestry. KOMP is on the other hand tailored for those who cannot or do not want to operate a tablet.</td>
</tr>
<tr>
<td>Free to download</td>
<td></td>
<td></td>
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</table>
**Mobile telepresence robot**

<table>
<thead>
<tr>
<th>Giraff</th>
<th>€10999 + 182/month</th>
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</table>

**Main functions:**
- Video/voice call
- Automatic pick up
- Remotely mobile

Similarly to KOMP, Giraff is tailored for seniors with no technological competence. But unlike KOMP, Giraff is an expensive product. The price of Giraff is 11 times the price of KOMP the first year and 22 times the price of KOMP after 5 years of use.

Photo: Unsplash
We chose not to include the 80+ seniors with dementia or severe handicaps (blind, deaf, lame) in the core target group when we developed KOMP.

Target users

Looking at the existing solutions, it was clear that one group of especially vulnerable seniors often were not taken into account. The solutions required high technical competence and often the use of a touch screen, or on the other side was too simple, giving the senior very limited interaction means as well as being very expensive.

We found no direct competitor combining the advantages of social interaction available on a tablet, (sharing pictures, sending messages, video calls) and the minimal interaction required in the use of telepresence units available to the private market.

We wanted to make a specialized communications tool for the seniors of age 80+, who were struggling with new technology and needed something simple, but still wanted to take part in the lives of family and friends in a meaningful way.

By targeting the 80+ seniors we had to take into consideration the following key issues when moving forward with the development:

### Issues related to health:

- Dry fingertips make touch screens difficult
- Reduced hearing and sight
- Reduced cognitive capacity reduces the ability to learn new technology

### Issues related to communication:

- Seniors do not necessarily familiar with the concepts video chat and picture sharing as the younger generations use it today
- Their closest relatives could already be 60+, and might also struggle with advanced technology
- The family do not always live close by, grandchildren and great-grandchildren could be far away, having limited means to visit the senior
- When the senior is cut off from joining family activities due to health issues, common conversation topics could be limited

We chose not to include the 80+ seniors with dementia or severe handicaps (blind, deaf, lame) in the core target group when we developed KOMP.
Making KOMP

KOMP was developed for our target users, but part of the process was also finding the target users. This chapter gives a more detailed description of the steps we took to be able to define the goal, form concepts, test, conclude, and move on, from the very beginning to the final KOMP was built.

Our process

We have followed a user-centered design process to make KOMP. The general phases of this process touch upon the following steps, but is not rigorous regarding when in the process it should be executed:

Specify the context of use:
Identify the people who will use the product, what they will use it for, and under what conditions they will use it.

Specify requirements:
Identify any business requirements or user goals that must be met for the product to be successful.

Create design solutions:
This part of the process may be done in stages, building from a rough concept to complete design.

Evaluate designs:
Evaluation - ideally through usability testing with actual users - is as integral as quality testing is too good software development.

(source: https://www.usability.gov/what-and-why/user-centered-design.html)

No Isolation emphasise the context of use and design evaluations to ensure we make what our users want, not what somebody else tells us they want.
Concept development

We had no idea what we were going to end up with. Neither did we have established methods to aid the creative process. Therefore, we utilized Google Venture's Design Sprint. Originally intended as a five-day workshop with a team of ~7, we modified it to fit into three days for a team of 18. See www.gv.com/sprint for more information on the process.

The entire company was presented with the thorough research from our research team, and we generated a lot of ideas. As a bonus, everyone got to experience user testing first hand.

Most of the concepts centered around similar ideas drawn from the problem areas already established.

Concepts based on following ideas:
- Sharing knowledge from seniors to younger generations
- Simplifying interfaces to provide access to internet services
- Allowing the family to share multimedia content
It became clear that it would be sensible to make the solution look like or utilize technology the seniors already had, like a radio or TV. Our hypothesis was that the familiarity would make it easier to get started with. Below are a few of the solution sketches, some of which were refined into testable prototypes.
What we didn’t make

We divided into three smaller teams each working on their own prototype. The three prototypes varied in type and fidelity based on the technical complexity as well as skill set required to operate them. However, they were all focused on the core concept of connecting the family more closely with the seniors.

We user tested all three concepts on a group of 10 seniors at Curry Senior Center in Tenderloin, San Francisco.

The Window

**Prototyping method:**
Role play

**Concept:**
The Window is a digital window that helps keep informal contact and makes grandma the family’s point of contact.

- Family members have windows that are linked together
- Open the window’s curtains to see through another open window
- Close the window if you want privacy

**Feedback:**
The users found the solution extremely simple to interact with and liked that it required no passwords or log-in to use. They were, however, not sure if they would have available space to fit the Window, and made us aware that curtains could be problematic for seniors with asthma or respiratory challenges. They also found it problematic that the family needed windows themselves, as it could be quite expensive to purchase.

User testing The Window. Photo: No Isolation/Simon Oliver Ommundsen
The Phoenix

Prototyping method:
Low-fidelity\(^1\) Wizard of Oz\(^2\)

Concept:
The Phoenix is a radio which lets you make video calls through a well-known interface.

- Has built-in DAB radio
- Large turn buttons and limited possibility of error
- Camera which can track the user and zoom if they sit far away
- Family members connect through an app or website

Feedback:
The seniors liked that it looked and functioned like radio, and found that the core functionality addressed their basic IT needs. They did not find the navigation too intuitive, e.g., using the same button to navigate and select.

\(^1\) The fidelity of the prototype refers to how closely it matches the look-and-feel of the final system
\(^2\) A testing or iterative design methodology wherein an experimenter (the “wizard”), in a laboratory setting, simulates the behaviour of a theoretical intelligent computer application
Family Channel

Prototyping method:
Medium/High Fidelity Wizard of Oz + Role play

Concept:
Family Channel turns the TV into an interactive center for photo sharing and video calls with the senior’s family.

- TV is connected to a box/screen/robot that automatically switches input sources
- Interaction through a simple remote control with built-in microphone
- Family members connect through an app or website

Feedback:
The seniors liked that it was possible to do more with the solution and that they could utilize the TV to view content. They commented that the remote control and navigation easily would be perceived as too difficult and too much to handle and that it required significant simplification. During the test, a lot of the seniors “got lost” in the navigation.
Back to the drawing board

After the Design Sprint, we had to go back to the drawing board and refine the concept. All the concepts had different strengths and weaknesses. We had to, in some way, unify them to a simple and understandable concept.

The UX team conducted a workshop with employees from Norwegian Cancer Society, who could assess the three concepts from a professional/stakeholder point of view.

They were almost unanimous in ranking The Phoenix as the best solution.

The advantages of the Phoenix:

- recognisable
- easy to use
- manageable for people with cognitive or physical challenges
- had a purpose in addition to video calls and photos
- didn’t require family members to purchase a separate device
The UX team kept iterating on the concept and brought key learnings and feedback to a company-wide hackathon during a weekend. The goal of the prototype was to start building a working prototype that could be tested in real life with a senior and their family members.

During the hackathon, it was determined that the solution should only have an on/off-button and connect the family members to the device through an app, along with setup and all the “technical stuff”, thus hiding everything difficult from the senior.

We named the prototype “KIT” - Keep In Touch.
3D printing a case for the camera. Photo/Ramya Immadi

Testing the electronics and wiring. Photo/Matias Doyle

Text message on screen. Photo/Ramya Immadi

First button iteration. Photo/Ramya Immadi
The first working prototype, KIT

KIT consisted of a PC screen, an AV1 bottom with a loudspeaker, a switch-button drilled into the AV1 bottom, a 3D-printed casing for a camera and a microphone taped on the screen. We used a Raspberry Pi for the software and placed it on the back of the screen. In addition to the physical device, we made an app for the family members.

The family members used the app to upload pictures, take photos or send messages to the KIT. After a couple of weeks, we introduced video call functionality. However, this did not work properly for some of the users.

The seniors could turn the device on and off. When KIT is “on” content is shown in a continuous loop or slideshow. Video calls are automatically answered after 10 seconds. If new content is received while the KIT is “off”/in standby mode, an on-screen notification is displayed, prompting them to switch it on. New content is shown when they turn it back on. It is not possible to start a video call when the device is off.
Validating the concept

We recruited 5 seniors above 80 years and 17 family members, all living in the south of Norway, to help us validate the concept. The seniors all had old feature and/or landline phones, used mostly for receiving calls, but none of them had computers, tablets or smart phones. They were told to use KIT as much or little as they wanted during the time between June and July 2017. The seniors were interviewed about their current technology use, contact with their family and friends and their everyday life. The user test was extended to 5 months, as they didn’t want to hand in the prototypes after use.

User test of KIT

Seniors over 80 years

Family members ages between 17-65

Months of testing

<table>
<thead>
<tr>
<th>Living situation</th>
<th>Health</th>
<th>Hearing</th>
<th>Sight</th>
</tr>
</thead>
<tbody>
<tr>
<td>User 1</td>
<td>Home, Independent</td>
<td>Fine</td>
<td>Relatively fine</td>
</tr>
<tr>
<td>User 2</td>
<td>Home, Independent</td>
<td>Some back pain, hip replacement</td>
<td>Fine</td>
</tr>
<tr>
<td>User 3</td>
<td>Home, Independent</td>
<td>Mostly fine</td>
<td>Hearing aid</td>
</tr>
<tr>
<td>User 4</td>
<td>Municipality owned apartment, Independent</td>
<td>Reduced mobility, mostly fine</td>
<td>Fine</td>
</tr>
<tr>
<td>User 5</td>
<td>Nursing home</td>
<td>COPD, previously cancer, wheelchair</td>
<td>Hearing aid, doesn’t use it</td>
</tr>
</tbody>
</table>

Health overview of the five test participants
The seniors’ reactions to the prototype

All seniors were extremely sceptical prior to receiving KIT. Four of them explicitly expressed feeling worried, as they were afraid it was too difficult to use.

They were not familiar with social media and found it hard to see how the product would benefit them. However, when the first picture from their next of kin arrived, they drastically changed their mind:

“Now I’ll be having lots of visitors because everyone will want to see photos!”

“It is going to be a drag to not have this after the summer”

One of the users initially wanted the prototype placed in a corner far away. The same evening he called his daughter to ask if it was possible to move the KIT closer to his chair so he could look at the pictures while watching TV.

Did they understand how KIT works?

The simple on/off-button was easily understood. It was, however, unclear when and why KIT should be switched off. The unclarity was likely emphasised by the KIT not really “switching off” when the switch was turned to “off”. Several of the seniors said they were worried it would catch fire if it was left on. They also consider it natural to switch it all the way off when they leave home. One of the seniors pulled the plug after we installed it to make sure it was completely turned off. The on-screen notifications were well understood. The family members had to explain several times that content could be delivered while “off”.

Confirming our belief, none of the seniors wanted to interact with KIT (e.g. sending texts). During a setup, we had to use a mouse and keyboard to connect KIT to WiFi, as we had not done this in advance. The senior got quite stressed, believing this was something required for normal use, and it appeared difficult to learn and use.

Where did they place the KIT?

KIT was typically placed on a small coffee table with a tablecloth. All of the seniors reacted negatively to KIT’s bulky size and visible wiring. The black colour and plastic feel was an apparent mismatch to the general aesthetics of the senior’s homes. One of the users wanted it placed in a small workroom, even though she was excited to try it.
Did the concept work?

After 2 months of use, we conducted a mid-way evaluation through a questionnaire which was sent to the family members. The objective was to figure out if they used KIT, what they used it for and if KIT helped to connect the different generations.

Regarding the most positive things about KIT, several of the family members mentioned the possibility to send the senior pictures on a large screen, compared to showing photos from a small phone when they came to visit. It was also mentioned that the product is easy to use.

There was a general agreement that KIT improved the daily contact between family members and the senior.

90% of the family members agreed that KIT makes it easier to share moments from their everyday life.

83% of the family members agreed that sharing pictures from their everyday life gives them more to talk about when they meet.

90% of the family members agreed that KIT was tailored to the senior’s technological competence.

They also highlighted that by sending pictures, they kept the senior updated on their everyday life:

“Gives the user the opportunity to keep track of our daily lives even though (name) is not on social media. The user feels that we keep him/her in mind and feels "seen". “ - Family member

Between the end of June and August 4th, the 17 family members had shared 700 pictures and messages to the KITs!

The most valuable learning on the concept was that a motivated family was a key ingredient to make the solution appealing and fun to use. This is, however, a two-way situation. If the senior doesn’t use the product much, the family members are not motivated to send new content, which again makes the product less desirable to use. The senior that pulled the plug only had one grandson connected, as her other grandsons did not understand how to download the test app. Since his grandmother didn’t use it much, he stopped trying to get them onboard.
Improvements and adjustments needed

Nothing works perfectly from the start. Through supplementary phone interviews, we were able to collect information on how KIT could be improved, and what didn’t work as expected. Some key issues were reported from several of the users and directly influenced the further development.

Feedback from midway evaluation:

“The content is shown for too long”
Initially, the pictures were shown for one minute and messages for two minutes. This was way too long!

“I turn it on when I receive new pictures or messages”
When talking to the families, they mentioned that the prototype was often turned off. The seniors used the notification functionality and turned it on when they saw that they had received new content. Therefore, we focused on how to present new content in a way that allowed for checking out the new pictures and messages without having to spend a lot of time looking through the whole stream. We introduced a concept called “story mode”. When turning the device on, new pictures and messages are presented quickly before continuing to the regular feed.

“When it’s off, it should be off!”
One of the users stopped using the prototype after the initial weeks. Her grandson informed us that she didn’t like that the screen was on when she switched the device off, and therefore pulled the plug. As she had some trouble with her short-term memory, she forgot to put it back in again. We decided that the screen should not show any messages when it’s off.

“The sound is too loud”
One of the family members tried the video call function a few times. However, the sound was too loud and the senior jumped when they called. Therefore they only called when another family member visited her, so they could schedule and warn the user beforehand. They requested a possibility to adjust the sound.

The app must be really simple to use
KOMP is a product connecting generations, and we must take all age groups into account when designing the app. In our user test, the youngest app user was 12 years old and the oldest 65. Several of the users needed help installing and onboarding the app. The result was fewer connected app users than the senior wanted. Designing a simple onboarding process and an easy to use app was therefore crucial.
What did they think after a while?

The users continued using the product until the final version, KOMP, was ready. They didn't want to give it back until we had a replacement for them. In December 2017, we conducted the final interviews with the pilot users and delivered their KOMPs.

Feedback from final interviews:

**From sceptical to enthusiastic**
All the pilot users admitted that they were sceptical when we handed out the prototype in June. As the feedback from the family members during the mid-way evaluation indicated, they were all very satisfied with the product after they started using it. Instead of the typical first week's excitement, they used KIT continuously from June to December, even after we stopped doing software improvements and updates. They all said that they would miss the product if it was taken away, and talked about the new and improved product with excitement. One of them mentioned the video call functionality multiple times during the interview and looked forward to start using the KOMP. As soon as they received their first picture on the new device, they "adopted" the product, confirming our previous experience. Compared to the prototype, the final production-ready version had great design improvements. They were all happy with the new design. One of them mentioned several times that it looked "very nice".

**A product they all mastered**
We asked the users about the ease of use and if something was difficult or hard to understand. One of the users just laughed and said "no". He described the product in the following way:

"When you use your smartphone you have the same (functionality) there. But this is for us (technical) illiterates who only need to use one button to make it work. The ones that grew up in the stone age"

One of the users said that if you know the difference between right and left, you understand how to use the KOMP. None of them had trouble understanding the new rotational button.
Connecting generations

We asked the seniors and their families if the KIT had changed or influenced contact patterns. They mentioned having more contact, especially with the youngest members of the family. One of our goals was to improve the contact in general. Even though the user can’t reply to a photo or text message, all families mentioned that the senior had called them to talk about the pictures they sent.

“I really like sending you pictures, because you ask me questions about them when I visit”
- granddaughter of KIT user

The seniors got pictures from places they weren’t able to go anymore and from parts of the family living far away. One of them expressed great joy because one of her family members kept sending her fun pictures and self-written poems. As she said:

“A good thing is that you can get a good laugh, and that’s medicine as well”
- KIT test user
Industrial Design

KOMP separates itself from what we usually affiliate with TVs or computers. With its matte black colour, rounded off edges and speaker mesh in the front, KOMP is reminiscent of a crossover between a 1960 radio and a tablet screen.

One of the key ideas for making a crossover design is to imitate a user pattern that is familiar for most seniors. Radios from 1960 are usually quite simple, and in most cases, the radio can only do three things. Turn itself on or off, increase or decrease volume and find another radio channel. Usually, all it takes to engage these features is one button.

The stereotypical radio from 1960 is quite iconic, but we wanted to reinvent the 1960 style and put a modern touch in the mix.
The shape of KOMP leaves as little noise as possible when looking at the screen area. The two largest radiuses lead the user to understand where the button is. The white space and LED-indicator highlight that the user has found the location of the on and off switch. The on/off button is sized to accompany the average hand grip, and the white area behind the button increases the contrast from the front panel. The LED light strip indicates volume amplification and provides notification when new content is available. The torq resistance for rotating the button is low, but with enough resistance to make it turn smoothly. The matte black colour helps avoid that reflected light might distribute the visuals and make KOMP less visible.
Testing, testing, testing

In addition to testing the concept with five seniors for 5 months, we also did a number of usability tests on the app and the physical design of KOMP, in order to make sure it was all easy to use.

Guerilla test of buttons

The only interaction with the KOMP device is the button where the user can turn the KOMP ‘on/off’ and adjust the volume.

We went to a senior center at Sagene to guerilla test buttons and appearance. The test included four seniors. We tested a 3D-printed model of the KOMP with a range of different buttons: Four different rotational buttons and one sliding button.

We asked the users one simple question: “How do you turn on this product?”

All of the users understood the rotational button and turned it 90 degrees when asked how to turn on the product. The ones that tested the sliding button had some problems and used some time before they understood how it worked. All of them preferred the rotational button and mentioned that it was familiar from the radio.

The rotational button was tested in two different sizes (40mm/60mm) with no noticeable challenges on the sizes. Visual contrast was higher on the bigger buttons. Users mainly preferred the larger button, but the smaller one was not considered too small. They mostly rotated the button 90 degrees but felt the need for a specific stopping point or tactile feedback from the button. A key learning point was that the strength needed to rotate the button needs to be minimal so that every user can rotate it even without gripping strength.
Some of the users asked if the dotted lines indicated sound. The graphics were not an intended part of the test, but as they mentioned it without us asking, we learned that this was a familiar concept as well.

Key findings from testing buttons:
- round buttons most recognizable
- the 6 cm button was preferable, but the 4 cm button was also good
- 90 degrees is the natural rotation for turning on

Onboarding

The findings from the pilot test revealed that easy setup of the product was crucial to quickly start sending content to KOMP. We used test software for distribution of the app for the pilot test, and many of the users had trouble installing it and onboarding other family members. As seniors above 80 years often have children around 50-60 years, this was our target group. Our assumptions were that if we could design the onboarding in a way that the 50-60 years old understood, the more tech-savvy children would also understand it. We conducted two tests with five participants each.

In the first round, we used an InVision prototype of the app and used a computer to mock the KOMP screen. Our goal was to test the onboarding flow in the app, and not the whole setup of the KOMP device. Users generally managed to complete the onboarding, but it was obvious that they did not fully understand what they were doing. They rarely looked at the actual KOMP during setup, and we concluded that it should therefore not be used to display important information during the onboarding.

Main findings from the first onboarding test:

Invite via phone number instead of email
The user test revealed that it's probably easier and more inclusive to use phone numbers instead of email to invite people. Users can then invite from their contact list (which rarely includes e-mail addresses of family members). We therefore switched from email address to phone number in the second version.

Home feed
This famous illustration from the empty feed also created a lot of misunderstandings. The users thought that the illustration was the menu, and when asked where to click if they wanted to send a picture/message or make a video call they pointed at different parts of it. We obviously removed illustration.
In the second round, we tested the whole onboarding, from unboxing to sending your first picture. We used a working prototype of the KOMP device, a prototype of the user guide and the actual KOMP app. Technically, everything worked, except for the WiFi-configuration. This was a mock; they were not actually adding a network. The users looked mostly at the app during the onboarding. Some of them noticed that there were things going on on the KOMP. This supports the hypothesis that we shouldn’t put critical information during setup on the KOMP device. In general, the users were able to onboard without assistance from us. However, we found some usability issues that resulted in some changes.

Feedback from the second round of onboarding test:

**Bluetooth**
Four out of five users tested the flow with the Bluetooth turned “off”. This resulted in some problems when they had to go to phone settings to turn it on. The KOMP did not show up in the list, and it was hard for them to find the app again. This was changed, so the app connects to KOMP automatically when Bluetooth is on, and a video explaining how to turn on Bluetooth was added to the onboarding flow when it’s off.

**User profiles**
Some of the users were unsure if it was their profile or the KOMP user’s profile they were asked to make. We also experienced that if a step is optional, the users will skip it. E.g. none of the users added a profile picture. We, therefore, made this a mandatory step in the final version.
Introducing KOMP

KOMP is the one-button computer connecting generations. The device has a built-in camera, microphone, screen and loudspeakers, and requires no login or passwords after setup. Simply turn the device on to start using it.

The device is connected to WiFi, either through regular WLAN or a cellular modem, and can receive photos, text messages and video calls. The content is shown in a continuous loop. To communicate with KOMP, the family members/friends use an app on their smartphone or tablet. Most of the setup is also done from this app. In addition to pictures and messages from the family, KOMP also displays widgets. This is turned on/off from the settings. Our first widget is the weather forecast.

The family can start a video call from the app. If the KOMP is online, the call is automatically answered after 10 seconds. When calling, a picture and the name of the caller is shown on the screen. If the user doesn’t want to answer, they just turn off the KOMP.

Screenshots from the KOMP interface.
User scenario. Illustration/Sturla Rødstøl
The launch and future of KOMP

KOMP had its grand launch at Posthallen in Oslo, 30th November 2017. 250 people attended the event and keynotes were held by Kreftforeningen and No Isolation, guiding everyone through the process and the product.

Interest in KOMP is steadily growing, both in the consumer market, but also with public healthcare providers. The creation of a computer that seniors actually use and enjoy has opened up opportunities for other service providers wanting to provide content for KOMP. The future challenge will certainly be to say no and to stay true to the concept of connecting generations.
At the time of writing, we have started the process of expanding the possibility to interact with KOMP through additional products that can be layered on top of the existing product. In time, this will hopefully enable third parties to provide widgets for seniors who are willing and able to explore, and this will help them stay connected more than ever before.