

The User Value of Speech Recognition at Home

Benefits of Speech Recognition for the IKEA Customer

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Humans have interacted using speech for thousands of years. Since the 1950s, we have been able to interact with computers using speech. Recent investments in speech recognition have resulted in the technology making its way into the homes of mainstream consumers. We are trying to understand the benefits of this technology. This is done by identifying the perceived user values of speech recognition at home. In the study four user values are derived.

First, the study found that many people think of speech recognition as a tool for living an easier life. People want to use it for everyday tasks such as turning on the lights or setting a timer on the oven. These are already existing functions, but the users want to do it in an easier way that facilitate their living, hence the value of *facilitate daily life*.

Related to facilitating is the fact that speech recognition is seen as a possibility to complete tasks faster than today and to be more productive. As one user expresses it: *"It is great because I can do stuff in an automatic (or natural) way when it comes to my mind"*. Performing all of these everyday tasks in a more effective manner derives to the second value: *everyday efficiency*.

For most users, speech recognition is seen as a tool for improving their ability to relax and feel comfort. It is apparent that many people see speech recognition, not as something they need to have in their life, but as something that is nice to have. One user says *"I want to turn on or off the lights when I am sitting in the couch, to avoid getting up. This is important to me because I am lazy."* This is an example of the driving force behind the third value: *comfort*.

The fourth and last value of speech recognition at home is the value of *increased calmness*. This can be explained as the ability to feel safe and secure in their home environment. The user wants to feel less concern and stress in their daily life and thinks that speech recognition can help with that.

To complement the values this study also identifies several functions or properties (*attributes*) of speech recognition and benefits achieved by those attributes (*consequences*). The linkages between these attributes, consequences and values are presented in Figure 1. It illustrates, for example, that all attributes help the users to *simplify*, which leads to the values of *facilitate daily life* (C7), *increased calmness* (C10) and *comfort* (C9). Another example is where the attributes *security equipment* and *lighting* increase the feeling of *security* (C4) for the user, which leads to the value of *increased calmness* (C10).

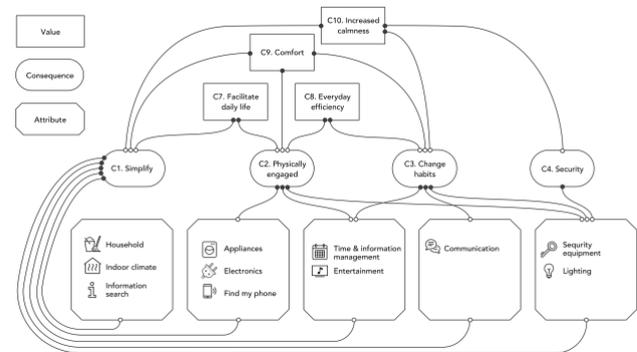


Fig. 1. A graphical map showing the connection between attributes, consequences and user values of speech recognition at home.

Speech recognition in the home environment is a phenomenon spreading throughout the world. But the perceived user value for the broader audience of it has not been studied before. Presumably, the insights from this study will bridge that knowledge gap and make it easier for people to understand the actual benefits and challenges with the technology. It can be used by creatives when developing products that utilizes speech recognition or as a starting point when digging deeper into the fairly unexplored area of speech recognition at home.

The study was conducted by collecting answers from more than 60 people of different demographics at IKEA in Malmö. Three questions were asked. The first one sought to answer the question of *what* the user would want to use speech recognition for, the second *why* he/she wanted to use it in that manner and the third *why* those reasons were important for the user. With this approach, it is possible to reach the abstract motivation that explain the user behavior, i.e. the user value.

Lastly, this study was conducted in collaboration with IKEA, providing the authors with information about their approach to speech recognition at their Home Smart department. This enabled giving the answer that speech recognition fulfils the product development criterions of *convenience*, *easy to understand*, *clear use case* and *solving a user need* at IKEA Home Smart. Therefore, speech recognition can contribute to the IKEA vision of *creating a better life for the many people*.