

6-18-2022

## **CLAIM THE NAME: NAMES OF IT SOLUTIONS AND THE INFLUENCE ON OLDER ADULTS**

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### **Recommended Citation**

Kniepkamp, Sophie; Noeltner, Markus; and Kroenung, Julia Sarah, "CLAIM THE NAME: NAMES OF IT SOLUTIONS AND THE INFLUENCE ON OLDER ADULTS" (2022). *ECIS 2022 Research-in-Progress Papers*. 41.

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# CLAIM THE NAME: NAMES OF IT SOLUTIONS AND THE INFLUENCE ON OLDER ADULTS

*Research in Progress*

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## Abstract

*The number of older adults as Information Technology (IT) users is increasing. While attention is already being paid to the design of IT solutions for older adults, the names of IT solutions have received little attention. It is important that the name does not convey negative attributes. In the case of older adults, stereotypes pose a challenge since they can lead to rejection of potentially helpful IT solutions. In this paper, we therefore propose a model for a stereotype-free naming process in the conceptual background of sociotechnical systems. The model will be developed and tested according to a design science research approach. The final model will be adaptable for further target groups to name IT solutions free from stereotypes.*

*Keywords: Naming model, older adults, stereotypes, sociotechnical-design.*

## 1 Introduction

As the world is facing demographic changes, the developments in information systems (IS) are broadly influencing today's society. The use of Information Technology (IT) can be helpful for everyday life and some ITs are designed for specific target groups to fulfil this purpose. The focus on older adults, people aged 65 years and older (Brickman et al., 2014), is driven by the opening market of a financially stable generation of consumers who are simultaneously the fastest growing user group of IT (Dann, 2007; Laperche et al., 2019).

However, stereotypes towards older adults are challenging their use of IT (Mariano et al., 2021). As the name of a device is usually the first piece of information about it, it might affect people's responses and evaluations (Boersma, Poortvliet, et al., 2019). The relationship that the name creates between the user and the IT device can form various aspects like interdependence, self-connection, commitment or trust (Sikkel, 2013).

IS research has already focused on influences arising from product names in terms of what a consumer interprets in an IT solution. Current research in autonomous driving cars focuses on the impact of the name and the branding of vehicle systems (Abraham et al., 2017; Liu et al., 2021). Results show that in fact the name has an influence on the users expectation of responsibility (Abraham et al., 2017), as well as on trust and intention toward the use of it (Liu et al., 2021).

In the naming of IT solutions for older adults, different perspectives need to be considered. Older adults in western societies are facing stereotyping in their IT competencies (Noeltner et al., 2019). The content of IT-related stereotypes are reaching from older adults who are not successful using IT (Cuddy et al., 2016), to older adults who are afraid of (Flandorfer, 2012) and struggle to learn using IT (Lam & Lee, 2006), or showing only little interest in using IT (Arning & Ziefle, 2007). These stereotypes can trigger stereotype threats (i.e. the fear to confirm a stereotype) in the prospective IT user. IT devices which are addressing the target group of older adults often use references such as “Baby Boomer”, “Wrinklies” or “Silver surfer” (Baron, 2008; Femers, 2007). IT that triggers stereotypes will not be used despite potential benefits because the stereotypes lead to avoidance behaviour (Davies et al., 2005; Pethig et al., 2017). To claim the name of IT solutions for older adults, it is necessary to consider the influence of stereotypes and stereotype threats.

Through the conceptual background of sociotechnical systems (STS), it is important to consider the interrelations of the different components within such a system. The approach of STS states that technical and social factors within a system need to be considered equally (Trist & Bamforth, 1951). Within the framework of this research, we take a look at the name of IT products as one influencing factor for the investigated STS of older adults and IT.

Therefore, we follow the research question: How to design a stereotype-free naming process of IT solutions for older users?

This short paper introduces an approach for a naming model, in which common theories of IS research are considered. The proposed model “NameIT” is based on the conceptual background of STS and stereotype threat theory. A design science research approach is followed to develop, evaluate and iterate the model. Furthermore, the presented model and research aims to fill a gap in IS research on how to name IT solutions with the target group of older adults in a stereotype-free way. Since older adults are not the only group facing stereotypes in IT solution names, the model is a contribution in the naming process to reach further stereotype-sensitive target groups.

## **2 Related Work and Theoretical Foundations**

### **2.1 IT Use of Older Adults and Stereotype Threats**

Stereotypes are beliefs about a group of people. These beliefs attribute qualities to group members that are perceived as characteristic (Brauer et al., 2001). Since a stereotype is a view that is not necessarily true (Judd & Park, 1993), stereotypes are usually inaccurate (Brauer et al., 2001). Older adults are facing stereotyping when dealing with IT (Mariano et al., 2021). Two potential factors are identified, that can make older adults stop or not even start using IT. First, the use of IT is leading people to feel older and frailer than they are (Tsertsidis et al., 2019). Second, their social network will notice them as frail (Tsertsidis et al., 2019).

When an individual is confronted with a negative stereotype about a group with which they identify, they become vulnerable to a phenomenon known as stereotype threat (Steele, 1997; Steele & Aronson, 1995). In the case of IT use, stereotype threat theory (Steele & Aronson, 1995) suggests that negative stereotypes about IT skills of a group create an opportunity for them to confirm the stereotype. To minimize the risk of confirming the stereotype, an avoidance reaction is triggered (Davies et al., 2002, 2005). According to the recent study of Mariano et al. (2021), stereotype threats are leading to an underuse of IT among older adults. Further research identified stereotype threat in older adults as a predictor of less technology use (Mariano et al., 2020). Therefore, stereotype threats are identified as a possible barrier toward technology use and need to be considered within the STS for this scenario.

To prevent a stereotype threat in the first place, it is advisable to look at the names of IT devices for older adults and their possible stereotyping. The meaningfulness of this point of view becomes clear

when taking a closer look at stereotypical cues. The appearance of such stereotypical cues can draw attention to them and thus trigger stereotype threat (Murphy & Jones Taylor, 2012). An example of such a stereotypical cue is provided by "senior discounts". In this case, the stereotypical cue draws the attention towards age. It can cause rejection among older adults to prevent a reduction in self-esteem (Tepper, 1994).

In the sense of gerontology, age is a social construct (Riley, 1971). Since age contains more than just the calendrical age (i.e., societal age or biological age), it is even more important to consider the heterogeneity of older adults (Riley, 1971). This illustrates that names of IT solutions that are based on the perceptions and expectations of the IT designers do not necessarily match the self-perceptions of potential users. This perspective of stereotype threats and stereotypical cues support the suggestion that the name of technologies can have a significant influence. Avoiding stereotypes in the beginning results in a non-discriminatory name as consequence, since stereotypes are the source for discrimination (Murphy & Jones Taylor, 2012).

## **2.2 Framing and Naming**

In the process of decision making and getting in touch with a new technology, the name is very important. Next to the way people are thinking about IT, the mindset is also built on how they feel about it (Slovic et al., 2005).

Framing effects occur when people use frames in forms of information or names to construct meaning which leads to evaluations or decisions (Liu et al., 2021). A commonly known example for framing effects in the discipline of psychology and marketing are the names of colours (i.e. colours of make-up or cars) since the framing effects the way it is perceived (Skorinko et al., 2006). A product with a name associated with something positive will encourage people in their attitude toward the product. (Boersma, Poorvliet, et al., 2019).

A frame can be seen as the image, words and way of presentation that is used to communicate information about a subject (Chong & Druckman, 2007). The name and frame should be chosen to address the "actual self-image (the way one actually sees oneself)" (Skorinko et al., 2006, p. 977). As the effects show, the name is taking in a big part of the decision-making processes.

As the findings of naming and framing suggest, the name of a product carries an influence. If the group of older adults does not see the value of an IT solution and does feel stereotypically threatened, the IT will be rejected from the beginning. Therefore, a stereotype within the name of an IT should be avoided.

## **2.3 Sociotechnical Design in IS and Older Adults**

In the sense of the sociotechnical design, it is necessary to consider both subsystems (social and technical) with their goals and needs (Sarker et al., 2019). To achieve that goal, it is necessary to involve the prospective IT-user within the designing process through participative and democratic approaches (Mumford, 2006). The goals in this STS are on the one hand on the instrumental side with the increased economic profitability and the future usage of the investigated IT. On the other hand, the societal goal is aiming at the access of older adults and their use of IT. The STS approach states that the prospective user of the IT needs to be involved in the designing process. One possible way of fulfilling this participative and democratic approach is to use co-designing.

Co-designing aims at the impressions and visions of the prospective users that need to be considered (Joshi & Bratteteig, 2016) and therefore builds a suitable approach in terms of STS design. The Co-designing process is challenging through the heterogeneity of the group of older adults (Buffel, 2018). Within these workshops the older adults function as consultants and experts to help identifying the needs toward an IT device (Östlund et al., 2020).

It is known that adults in general tend to see themselves as younger versions of themselves (Moschis, 2003). To gain further perspectives within the process of co-designing, different approaches can be used to reach the goal, i.e. personas (Taffe et al., 2018). To develop a persona, different characteristics and individual features are developed for a hypothetical person in the target group, including demographics, competencies and needs (Seo & Kim, 2014). Information regarding the target group can be conducted by research or through surveys (Lindgren et al., 2007).

In the case of the proposed STS system, Figure 1 illustrates the introduced components of it. The blue boxes in the STS show the different components within the STS and the arrows show the interrelations. In this paper, the focus was put on the influences of stereotypes, stereotype threat and the effects of them. The ellipses show the methodological approaches that are involved in the conceptualization of the model “NameIT”, which will be in the next chapter.

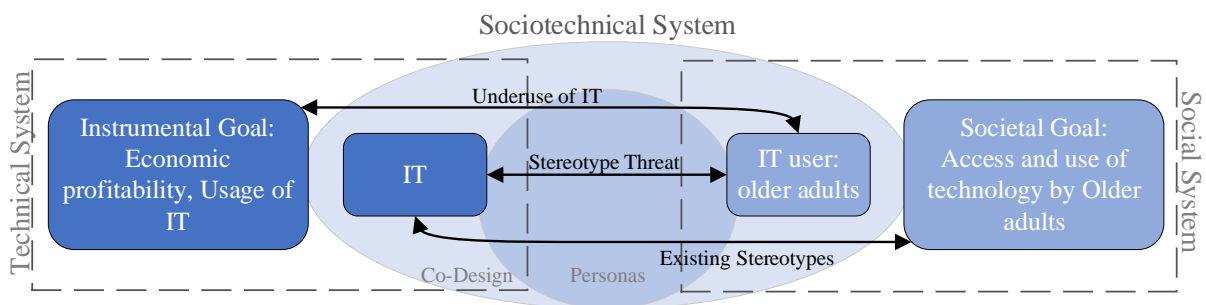


Figure 1. Sociotechnical system of older adults and stereotype threat theory.

### 3 Initial Design of the Naming Model “NameIT”

Based on the four steps of Joshi & Bratteteig (2016), extended by two steps, a naming model “NameIT” is proposed with the goal of a stereotype-free name. The model will be applied within a workshop by one or more people responsible for the IT (in the following IT-contact) and participants from the target group. The IT-contact is continuously available for the participants and will moderate the workshop.

*I. Preparation (before workshop):* Depending on the IT solution that should be named, the target group is identified beforehand. An investigation of stereotypes within the target group is performed afterwards.

Within the preparation, the methodological approach of personas is used. Based on the research of the target group, personas are created by the IT-contact. Adding personas to the naming model is bridging the gap of the potential discrepancy between the target group and the participants. This approach makes it possible for the IT-contact to include specific requirements for which the IT solution is designed. The created personas are aware of stereotypes and feel threatened by them. In this way it is possible to draw the attention to stereotypical cues.

*II. Generate (start of workshop):* As the first step in the workshop, the participants will be informed about the IT solution to be dealt with by the IT-contact. The IT or a prototype is presented to the participants so that they can interact with it. The participants are asked to collect their thoughts about possible names for the IT solution and factors that need to be considered for the naming in their point of view. The collection is captured through paper and pencil on cards. This part of the process will be held individually.

*III. Categorize (workshop):* The generated factors and name suggestions will be collected in an overview. The cards of the previous step will be pinned onto boards so that every participant can see everything. The group is asked to categorize them afterwards. Therefore, four categories are available:

name suggestions, No-go factors, Must-have factors, and Nice-to-have factors. The names of the categories enable a subjective categorization without further explanation of the categories.

*IV. Specify (workshop):* During specifying, potential occurring stereotypes that were identified earlier in the step of preparation are considered. For this purpose, the IT-contact introduces one or more personas that are aware of stereotypes and feel threatened by them. The participants are asked to discuss the categorized factors from the perspective of the personas and if they would agree to them. The plenary discussion here is a reasonable approach from the psychological phenomenon of social sharing of emotions (Rimé et al., 1998). Stereotypes that arise can trigger feelings and emotions in participants themselves as well as in the perspective of the personas, which can be discussed in the group. Further name suggestions and factors can be added to the cards on the board.

*V. Review (end of workshop):* As the last step, the participants are asked to rank the suggested names and factors democratically to the most important or favourable. Each participant gets five points per category to rank with their opinion (it is possible to give a maximum of three points to the same card within a category). The final result of the workshop for the IT-contact is a list of the democratic ranked name suggestions and factors that determine whether the IT would be considered based on the name or not.

*VI. Postprocessing (after workshop):* Afterwards, the IT-contact will use the results of the workshop to figure out a suitable name for the introduced IT. Through the results of the workshop, criteria are created which correspond to the target group and which they consider important in terms of stereotypes and the IT name. The participants of the workshop will be informed about postprocessing as soon as it is completed.

In Figure 2, the conceptualized naming model “NameIT” is illustrated with the steps explained beforehand.

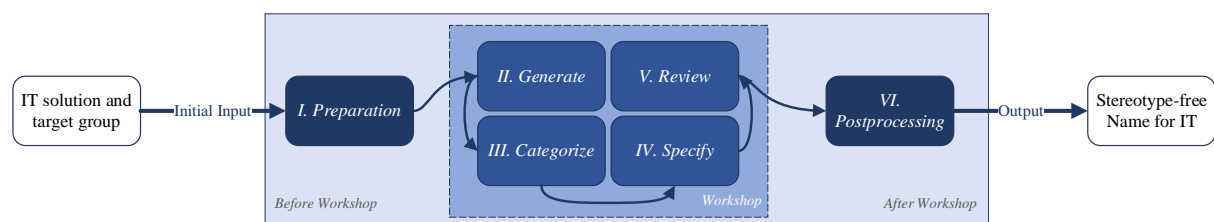


Figure 2. Naming model “NameIT”.

## 4 Methodology

The research approach is based on design science in IS. We are designing an innovative artifact to address the problem, in this case the model of a stereotype-free naming process. The model is going to be evaluated with iteration processes, until the final artifact is generated (Hevner et al., 2004). The following research approach is adapting the design science research model (DSRM) according to Peffers et al. (2007).

At first, the identification and motivation of the problem is summarized as the stereotype-free naming of IT solutions for older adults. The potential stereotype threats in the names of IT solutions can be a barrier toward using IT. The objective of defining a solution is based on the related work. The known information about naming, framing (Boersma, Poorvliet, et al., 2019; Liu et al., 2021), stereotypes (Steele & Aronson, 1995) and older adults and IT use (Mariano et al., 2021; Noeltner et al., 2019) lead to the fact that the topic should be addressed with the conceptualization of a naming process. The design and development of the artifact is introduced in the chapter of the initial design process (see chapter 3).

The demonstration step, the performance of the workshop, has been conducted two times within the framework of a research project about IS and older adults in Germany (workshop one (W1): n=4, 67-

73 years old, two female, two male; workshop two (W2): n=6, 65-81 years old, two female, four male). Within this project a tablet application is going to be used by older adults. The participants of the demonstration step are not going to be participants of the research project for the application. The recruitment of the participants for the first round took place through a panel of a partner university. For this research approach we are planning to perform the workshop until saturation is reached with each six to ten people and one IT-contact.

The target group information is collected by the IT-contacts, as well as the personas constructed. In the case of the so far conducted demonstration step it was older adults aged 65 and older. A timespan of two hours is aimed at. Participants are provided with sufficient materials for the active design processes as well as drinks and snacks for the break. The demonstration step is audio recorded and is used as focus-group. The focus group is organized and conducted following Krueger and Casey (2014). The results of the focus group are analysed following the coding of Corbin and Strauss (1990).

The goal of the evaluation within the DSRM is to measure how well the artifact supports the conceptualized naming model “NameIT”. For this purpose, two different areas are examined. Firstly, the results (the final lists) of the workshop are compared to the stereotype-free approach. This evaluation is conducted by the IT-contacts. The information of the workshops are analysed and used for iterations before the next workshop. A first impression of the so far conducted workshops is shown in chapters 5.1 and 5.2.

The communication of the DSRM will be a part of the complementation of a paper, so that the IS research community is informed. The participants will get information on their importance to the scientific contribution in general and about their contribution to the research project, where the tablet application is going to be used. Occurring information will be used for another iteration.

## 5 Preliminary Results

### 5.1 Stereotype-free Name

Table 1 shows the preliminary results of the two conducted demonstration steps. The results are separated into dimensions with subcategories and an example quote of one participant. Four dimensions were identified during the coding process following Corbin and Strauss (1990) in which the participants showed the most interest in the naming of IT. These dimensions were subdivided into the two subcategories each, that emerged within the dimensions.

Dimension	Subcategory	Example Quote
Age	Calendrical Age	“I am just thinking that all in all we are the same age group, I would say. And as I am looking at our age group, I see we are very different. Some people have a lot of experience with technology, others do not.” - Male, 70-years (W2)
	Subjective Age	You know how it works with fashion, you have fashion for people aged 50+ because no one was brave enough to advertise it as fashion for people aged 60+. And an 80-year old maybe looks at clothes for people aged 60+.” - Male, 70-years (W2)
Content	Descriptive	“We need to consider health“ - Female, 69-years (W1)
	Interpretative	“I will give three points to <i>pathfinder</i> , just because my opinion is that the elderly do not just sit at home. They inform themselves about what is happening in the world and want to participate in their live actively. Therefore, they inform themselves where they can go, that is why I chose: <i>pathfinder</i> “ – Female, 73-years (W2)
Language	Mother tongue	“I thought about the people living in Germany. There are also other nationalities, who are probably not capable of English. That is why

		I only came up with German names.” - Male, 70-years (W2)
	Anglism	“In my point of view, I would not mix English and German.“ – Female, 67-years (W2)
	German as a challenge	“The pronunciation would not work in German” – Female, 69-years (W1)
	Foreign words	“No foreign word as name“ – Male, 71-years (W1)
Message	Emotion	„It is not necessary to describe something, but it has to make you curious. You need to say: What’s that?“ – Female, 67-years (W1)
	Characteristics	„I would suggest to only use capital letters“ – Male, 71-years (W1)
Stereotypes	Stereotypical Content	“There is this nice satirical video where a daughter asks her father how he likes the tablet and then you see him cutting vegetables on it.” – Male, 71-years
	Stereotypical Cue	“We can all agree that “age” should not be named” – Female, 67-years (W1)
Extract of Ranked Name Suggestions	<u>Workshop 1</u>	<u>Workshop 2</u>
	1. LIFE (8 points) 2. ProLife (6 points) 3. MyApp (6 points) (Translated result) 4. Askme (3 points) (Translated result)	1. Roogle (7 points) 2. ToDo (5 points) 3. LOOK AROUND (5 points) (Translated result) 4. Pathfinder (3 points) (Translated result)

Table 1. Preliminary results

The findings listed in Table one were mentioned by different participants in both demonstration steps that were performed so far. The rankings of the different categories and names included factors and name suggestions which were mentioned in both workshops. Therefore, the results of the workshops are comparable to each other and will be used for further analyzation. Since the IT was introduced and available to try out, the participants discussed the IT itself as well.

## 5.2 First Iteration

Within the performance of the first two workshops, several factors occurred, which can already be used for refining the process before the next demonstration by completing the first iteration.

Regarding the different steps in the naming model “NameIT”, they will be improved as follows:

In the first step *I. Preparation (before the workshop)*, the personas should have more background information regarding their former lives, specifically the former job (“It would be helpful to know in which domain this man has worked since retired is not a job” – Female, 73-years). Nevertheless, the personas appear realistic and working since participants felt as if they know them from their daily lives („Okay, I know her“ – Female, 71-years). The iteration will be adding more information to the personas, as requested.

For the second step in the workshop *II. Generate* the IT-contacts have to clarify to use one card for one factor only. Participants wrote several factors (sometimes of different categories) and names on the same cards to save paper. Since every single factor is pinned and sorted on the board (*III. Categorize*) this caused some delay. It is as important for the ranking (*V. Review*) to have all contributions of the participants on separate cards, to stick the ranking points correctly.

As to this point of the workshops step *III. Categorize* and *IV. Specify* do not need iteration.

Another iteration needs to be made for step *V. Review*. The ranking only works if enough contributions are made in the different categories. In one of the workshops there were only two factors contributed in the no-go category. A ranking of two factors is not helping to fulfil the goal of a ranked list. Therefore, the ranking system needs a change. Since motivating the participants to add further factors will not be enough and the chance of doubling factors increases, this needs further research.

Another point that needs to be considered is how to deal with factors and names that may relate to political or societal sensitive topics. In one of the workshops, for example, “ProLife” was one of the high ranked choices for a name suggestion. The participants did not know about the interrelatedness to women’s health (anti-abortion movement) of this term. Other name suggestions were discussed and declined within the groups in terms of religious connotations. The problem in this situation was that it was not clear to what extent the IT-contact will step into the discussion to inform the participants about such interrelations. To tackle this problem a deeper research will take place on how to deal with this situation.

## **6 Next Steps and Expected Contributions**

After the completion of the first iteration, further runs of the demonstration step will be performed this year. The further demonstration steps will take place after the completion of the first iteration, so that these changes can already be incorporated. As next key steps and future research directions, the model will be tested to saturation by performing the demonstration step regarding the DSRM. The upcoming results will be evaluated with respect to further rounds of iteration.

A challenge of the research is to consider the complexity of age. The biological age is used as recruitment criterion. We will pay special attention which part subjective age takes within further data collection and analyzation.

Finally, the heterogeneity of the target group of older adults is a challenge that should be met. The growing group of older adults emphasizes the relevance to investigate this target group. Future research possibilities include the focus on influences of social and technical components in situations of first impressions of IT-devices (i.e., purchase decision in an app-store or search for suitable devices). From a STS perspective, we should take a closer look at whether the unequal consideration of these components may lead to lower IT use among older adults.

Another promising research stream seems to be positive stereotypes. Given that positive stereotypes are also attributed to older people, such as experiential wisdom or higher job titles (i.e., “Senior consultant”), it is interesting to observe whether positive associations with age are drawn from the older adults within the demonstration steps. Furthermore, an investigation regarding effects of positive stereotypes is useful as future direction of research.

The introduced model “NameIT” has the potential to add to IS research of name effects of technology (Boersma, Poortvliet, et al., 2019; Liu et al., 2021) toward older adults. The expected contribution of the conceptualization is to close a gap between IS design (Dodd et al., 2017; Ganor & Te’eni, 2016) and technology use of older adults in consideration of stereotypes by providing a model of how to proceed with a stereotype-free naming process for IT solutions in a STS context. Furthermore, the current paper contributes to IS research by enhancing stereotype threat research in the discipline. While Mariano et al. (2021) investigated stereotype threats regarding adoption and Noeltner et al. (2019) regarding performance intervention, this research adds a model for finding stereotype-free names for IT solutions that avoid stereotypical cuing in the first place.

All in all, it is important for IS research to claim the name of IT products that target specific audiences, because of occurring stereotypical cues and stereotype threats (Tepper, 1994). The model will be adaptable, not only toward older adults and potential stereotype threats, but also toward the naming of IT solutions for other stereotype sensitive target groups. Examples of stereotype sensitive groups from IS research include women who are stereotyped as mothers or victims (Andersson & Hatakka, 2017), men who are stereotyped as socially inadequate and isolated (Schott & Selwyn, 2000) or people with disabilities who are stereotyped to dependence on IT (Söderström, 2013).

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