Healthcare going Online

Extending the Technology Acceptance Model for the Examination of German Seniors' E-commerce Adoption

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Summary

The growing ageing population of Germans offers compelling opportunities for the online expansion of healthcare retailers from all over the world. Entering a new market however requires extensive knowledge about a county's people, especially if companies aim to meet the unique online consumer needs of Internet users aged 60 and above. In extending the Technology Acceptance Model by significant issues that arise with an increasing age, this thesis sought to identify the drivers and barriers of German Silver Surfers E-commerce adoption. To tackle the research aims from an objectivist position, a methodological approach was applied that based its principles on an analytical view. The literature then was firstly reviewed regarding the applicability of the Technology Acceptance Model for a pertinent extension, resulting in a unique research model for this work. Besides relevant cultural, age- and health-related factors that were integrated to this model, the idea of an embarrassing product that presumably enhances online shopping intentions was scrutinised. The research design was set as a cross-sectional approach, in applying online survey method for the collection of quantitative data. Nineteen hypotheses were statistically tested on the significance of suggested relationships and differences between the extended model factors. The findings revealed that perceived self-efficacy, which is largely explained by German seniors' Internet experience, predicts their intention to shop online best, while perceived usefulness and chronological age too contribute to the explanation of online purchase intention. Significant findings were also detected in factors of physical decline, i.e., cognitive, manual and visual functions, which are related to the seniors' perceived self-efficacy of performing an online shopping task. The relevance of trust in the online environment in regard to purchase intentions was not as high as expected; nonetheless, mistrust in data security seem to be a major concern for German Silver Surfers. Unlike assumed, the individual-level measurement of Uncertainty Avoidance did not correlate with online trust. Similarly, Horizontal Individualism as second cultural dimension under study did not seem to reflect seniors' desire for independence in relation to outdoor immobility as supposed. Anticipated embarrassment that was elicited when imagining the purchase of incontinence products in a physical store revealed the expected higher propensity to buy these products online, however, the effect only applied to seniors that are unfamiliar with the situation. Among other consumer characteristics that were examined, higher education, occupational status and former online purchase frequency of Silver Surfers demonstrated higher intentions for online shopping. This thesis concludes with a unique conceptual model for the investigation of older adults' E-commerce adoption and offers managerial implications in regard to online marketing activities that can help to increase German Silver Surfers' self-efficacy, perceived usefulness and trust, by boosting their online experience whilst facilitating the use of web shops. Limitations of the research process and recommendations for future research eventually pay attention to how the findings could be enriched.

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List of Acronyms

AE	Anticipated Embarrassment
ANOVA	Analysis of Variance
AP	Actual Purchase
CHA	Chronological Age
DCMV	Decline of cognitive, manual and visual functions
H	Hypothesis
HIDV	Horizontal Individualism
IEX	Internet Experience
IP	Intention to Purchase Online
LSD	Least Significant Difference
M	Mean
N	Number of Cases
PEOU	Perceived Ease of Use
PSE	Perceived Self-efficacy
PU	Perceived Usefulness
OIM	Outdoor Immobility
RQ	Research Question
SD	Standard Deviation
SE	Standard Error
STAM	Senior Technology Acceptance & Adoption Model
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TR	Online Trust
TRA	Theory of Reasoned Action

1. Introduction

1.1. A Shift in Healthcare Marketing

In the era of demographic change, the growing aging population is worldwide driving health expenditures. In Western Europe, the generation of those over 65 years is expected to reach 21% of the total population (Deloitte, 2016). While this creates financial challenges for national health and pension systems (Elton & O'Riordan, 2016), healthcare industries benefit from a rising number of older consumers (IBIS World, 2016). Consequently, this offers vast opportunities for healthcare marketing. "Viewed broadly, healthcare marketing involves any activities that relate to the development, packaging, pricing and distribution of healthcare products and to any mechanisms used for promoting these products" (Thomas, 2008, p. 1).

Additionally, an increase in chronic diseases has boosted people's health consciousness (Elton & O'Riordan, 2016). While the rise of the internet fostered new digital delivery platforms for the distribution of health products, experienced E-commerce giants like Amazon have already been successfully entering healthcare markets (Brohan, 2016) by offering products such as over-the-counter medicines, incontinence pads or glucose monitors, thus creating challenges for traditional healthcare businesses. Worldwide, these businesses have realized that they need to invest heavily in building up their E-commerce infrastructure (Brohan, 2016).

As chronic diseases mostly affect the increasingly ageing population, knowing the drivers and barriers of this generation's E-commerce adoption are key success factors for healthcare retailers. Age- and health-related changes affect seniors' ability and motivation to use E-commerce sites; hence their intention to use this purchase channel depends on different factors than for younger generations (Smith, 2008). For example, while saving time is obviously highly relevant for the working population, for elderly shoppers, the alleviation of physical stress involved in traditional shopping is a major determinant of online shopping (McCloskey, 2006; Leppel & McCloskey, 2011). Older consumers also demonstrate greater security concerns about online shopping than younger consumers (Leppel & McCloskey, 2011), making the reduction of anxiety and an increase of trust important determinants of their E-commerce participation (Chattaraman et al., 2014). For the successful online marketing of health retailers, it is thus important to understand which factors foster or obstruct this consumer group's readiness to purchase online. Yet, both academia and business world mostly concentrate on younger online consumers (Lian & Yen, 2014), thus leaving the growing market potential of the so-called Silver Surfers, who are aged 60 and above, largely unexplored.

1.2. International Opportunities and Challenges of E-commerce

E-commerce offers a powerful channel to reach customers at low costs across national borders (Al-maghrabi, Dennis & Vaux Halliday, 2011). Moreover, a rapidly increasing number of consumers will use E-commerce alternatively to traditional shopping. Worldwide retail E-commerce sales are expected to account for 14,6% of total retail spending by 2020, compared to 8,7% in 2016 (eMarketer, 2016). With the rising number of older consumers inevitably

contributing to this growth, this offers vast opportunities for E-commerce endeavours on healthcare markets. In this growing market space, many companies seize the opportunity to expand internationally. However, there are certain barriers that may impede the success of a foreign online expansion. Besides shipping costs, duties and taxes, country-specific laws and regulations must be considered carefully (Tran, 2015). Especially on healthcare markets, structure and regulatory characteristics vary significantly (Glowik, 2015).

Moreover, in-depth knowledge about each country's social and cultural aspects is vital; since failing to meet local online behaviour patterns could lead the online store to fall flat on its face before even gaining a foothold in the market (Adie, 2016). Individual characteristics such as beliefs, values and norms differ between cultures and have an influence on the patterns in the adoption of E-commerce technologies (Ashraf, 2014). If not properly considering these complexities of international online expansion, consumers might not be well enough attracted to purchase from a retailer's web shop, e.g. if the shop's localisation efforts consist of mere webpage translation. The likelihood of success versus failure of E-Commerce is largely determined by promotion and website design that have been adapted to effectively meet the culturally varying needs of customers (Gong, 2009). However, there exists little guidance from academia on how such cultural factors affect E-commerce adoption. While research on online shopping intentions principally has been extensively conducted, many authors call for a closer investigation in specific countries (Lim & Ting, 2012).

International E-commerce endeavours of healthcare companies targeting a new market require a unique picture of the cultural factors that drive consumers' online shopping intention. Adding the aforesaid requirement of knowing the drivers and barriers of older consumers' online shopping behaviour, this study - to the best of the author's knowledge - is the first that examines the cultural context of E-commerce adoption on the generation of Silver Surfers.

1.3. Country of Interest

To gain in-depth understanding of the country-specific drivers and barriers of older consumers' intention to shop online, a promising market for international E-commerce endeavours of healthcare retailers has been selected.

With 11,3% of GDP in 2012, expenditures on healthcare in Germany were higher than most of the other European countries. After a major health reform in 2011 that resulted in greater co-payments, Germans have learned to pay out of pocket for their health products. While their high disposable income allows more health expenditures, they greatly value quality (Glowik, 2015).

Germany's E-commerce market accounted for almost 67 billion EUR annual online sales in 2016 and ranks fifth worldwide and second in Europe (Bhatia, 2017). With 51,6 million online shoppers, Germany has the greatest number of B2C E-commerce customers in Europe (Ecommerce News, 2016). The country's E-commerce sales of pharmacy & drugstore products are expected to grow from 2,3 million EUR in 2016 to 3,4 million EUR by 2021 (Statista, 2017c). Moreover, with an average of 45,9 years, Germany has the oldest population among EU member

states (Eurostat, 2016), while Germans aged 60 and above making up a share of 27% of the total population of the country (Destatis, 2016). Thus, healthcare companies benefit from a vast and growing amount of potential customers. Additionally, when comparing the age structure of E-commerce users worldwide, the proportion of adults older than 55 years is much greater in Germany (16%) than the global average (7%) (Statista, 2017b, 2017c).

This rising number of German Silver Surfers presents healthcare retailers worldwide with compelling conditions for international online expansion. However, to successfully compete with global E-commerce giants '*gone healthcare*' on the one hand and German healthcare companies '*gone online*' on the other hand (cf. Elton & O'Riordan, 2016), healthcare retailers entering this market ('*healthcare going online in Germany*') need to fully understand which factors drive or obstruct German Silver Surfers to shop online.

1.4. Problem Statement and Research Questions

Having elaborated on the industry, consumer segment, distribution channel and the country of interest for the present thesis, the ensuing problem formulation concretizes the research aim of this thesis.

Problem Statement: Traditional healthcare retailers worldwide are challenged by experienced online retail giants that have been entering healthcare markets. To ensure competitiveness and boost future growth of traditional retailers, compelling opportunities lie in 1) the increasingly ageing population and 2) international online expansion. However, to ensure success on foreign E-commerce markets, cultural factors and age- and health-related changes that influence Silver Surfers' online buying intentions must be considered. Since research examining the combination of these aspects has been sparse, healthcare marketers have little guidance in whether and how they need to develop specific online strategies when targeting their biggest consumer group across borders. A simple application of online marketing strategies that have well worked on a retailer's existing market entails the risk of failure if consumers on new markets are not attracted by these formerly successful online activities. Moreover, mature consumers may not be willing to adopt the Internet for health product purchases if their specific online needs are not met. With an aim of providing guidance for the expansion of healthcare retailers that intend to enter the German E-commerce market, this thesis investigates to what extent German Silver Surfers exhibit E-commerce readiness and explores factors that influence their intention to shop online.

To find appropriate answers to this problem, a well-known instrument has been selected. The Technology Acceptance Model (TAM) of Davis (1989) is a widely accepted and frequently applied technique to examine E-commerce adoption (Cho & Sagynov, 2015). The original model with its variables perceived ease of use, perceived usefulness and behavioural intention has been repeatedly extended by additional factors to adapt it to certain research aims (e.g. Gefen, Karahanna & Straub, 2003; Yulihasri, Islam & Daud, 2011; Hernández, Jiménez & José Martín, 2011). The online acceptance of older adults too has already been investigated by relevant additional variables (e.g. McCloskey, 2006; Pan & Jordan Marsh, 2010). Through the application

of such extensions, it was e.g. found that Internet experience and perceived self-efficacy have greater effects on E-commerce acceptance than chronological age (Hernández, Jiménez & José Martín, 2011). On the other hand, there are several age- and health related changes that may affect the intention to purchase online, such as cognitive, manual and visual decline (Smith, 2008). Apart from that, and to mind the international perspective of this work, cultural considerations play a major role for foreign E-commerce endeavours (Ashraf, Thongpapanl & Auh, 2014). Hofstede's (2001) cultural dimensions Uncertainty Avoidance and Individualism have seen the most attention in regard to online shopping behaviour (Gong, 2009). The fact that Germans score relatively high on both of these dimensions renders it important to know whether they are relevant determinants within the elderly's E-commerce adoption.

Furthermore, as healthcare products create needs that greatly differ from those of ordinary consumers (Mahoney, 2016), it is important to understand how these needs can be met online. To reflect the healthcare context in which this study is conducted, consumer embarrassment is introduced as experimental variable of Silver Surfers' E-commerce adoption of healthcare products. It has been found that products (e.g. incontinence pads) which lead to embarrassment in physical stores increase consumers' intention to purchase these products online (Sarkar & Sarkar, 2017). An imperative need for such healthcare products could thus possibly serve as door opener for E-commerce adoption.

Although some researchers have found that demographic characteristics (e.g. gender, income) that are typically applied as market segmentation criteria do not influence online shopping behaviour (e.g. Hernández, Jiménez & José Martín, 2011), others report differences in gender, income or education (Zhou, Dai & Zhang, 2007; Gong, Stump & Maddox, 2013). It must be noted that the segment of mature consumers is rather unexplored on the relevance of such aspects. Apart from factors supposedly contributing to an extension of the TAM, therefore, possible influences of demographics and former online shopping behaviour should always be a part of an empirical investigation.

To examine the relevance of cultural, age- and health-related aspects of German Silver Surfers' E-commerce adoption and to identify further possible determinants of these healthcare consumers' online shopping readiness, three questions will guide the research of this work:

RQ I	To what extent can the Technology Acceptance Model explain German Silver Surfers' E-commerce adoption if the original model was extended by cultural aspects and age- and health-related factors?
RQ II	Can the need for a certain healthcare product that potentially creates embarrassment in physical purchase settings help fostering these seniors' online purchase intention?
RQ III	Besides the aforesaid aspects, are there any other consumer characteristics, attitudes or purchase habits which possibly affect these consumers' online shopping behaviour?

1.5. Structure of this Thesis

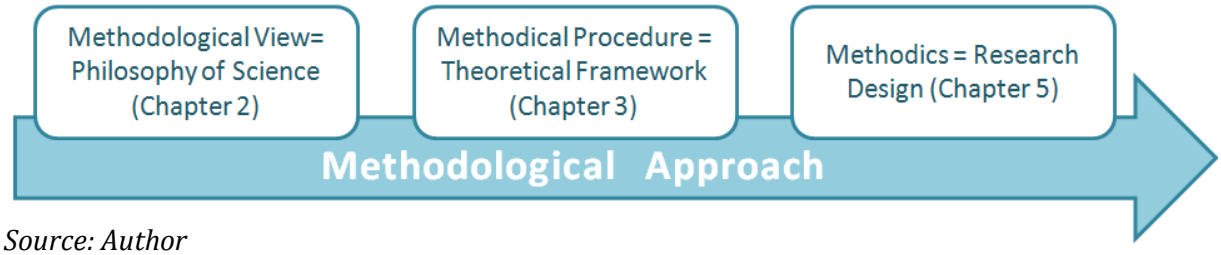
The thesis is organized as follows. First, reflections on philosophy of science and the resulting methodological approach of this study are presented in *Chapter 2*. The theoretical framework throughout *Chapter 2* then introduces academic literature on E-commerce adoption (*Section 3.1*), to identify relevant insights within online consumer literature and to select a suitable model for finding solutions to the problem statement at hand. The selected Technology Acceptance Model then further undergoes a methodical procedure (*Section 3.2*); i.e., it will be expanded by issues relevant for the examination of the ageing population as well as cultural aspects to meet the international perspective of the problem statement. The conceptual model of this thesis then depicts and summarises the result of the methodical procedure in *Section 3.3*. The empirical setting presented in *Chapter 4* provides a brief introduction of the German Healthcare and E-commerce market with an emphasis on the consumer group of older adults, as well as a cultural portrait of Germany. In *Chapter 5*, methodics of this thesis are explained by introducing the cross-sectional research design that has been selected, applying the methodological approach presented earlier and explaining the conditions of analyses which has been conducted to examine the gathered data. The presentation of research findings in *Chapter 6* then follows according to the research questions, completed by the discussion of findings in *Chapter 7*. *Chapter 8* concludes the thesis with a summary of research findings and implications for the marketing of international healthcare retailers and takes a critical reflection on research limitations and suggestions for future research.

2. Methodology

When conducting research within social science, firstly, a researcher's reflections on philosophy of science should be provided. It is important for the reader to know how a scientist perceives the social reality and how he or she believes it should be examined (Bryman & Bell, 2015), i.e., why he or she thinks certain methods are appropriate for achieving the particular research aim of a study. In the opinion of the author of this thesis, methodology however is two-fold and should therefore be presented in two separate parts instead of providing one cohesive chapter as recommended e.g. by Kuada (2010). Namely, whilst the paradigmatic positioning within philosophy of science, including its reflections on ontology, epistemology and methodological approach, should be discussed before approaching any theoretical considerations related to a study, the presentation of the research design, i.e., the methods applied in the study, should follow subsequent to the theoretical part.

That is, even though the paradigmatic positioning directly guides the research design of a study, the latter too is influenced by current academic knowledge, which can only been derived from pertinent theories. Therefore, a reader should be presented by the theoretical framework before reading the research design. The decision whether or not these theories have been regarded as being pertinent on the other hand is largely determined by the methodological view that has been initially selected as suitable for approaching the problem and the research question of a study. Following this logic, which is further explained at the end of *Section 2.4* and based on the work of Arbnor and Bjerke (2009), methodology in this thesis is constructed as depicted in *Figure 1* and starts with the author's reflections on Philosophy of Science in the next section.

Figure 1: Methodology of this thesis



Source: Author

2.1. General Positions within Philosophy of Science

A paradigmatic positioning in social science principally either follows an objective or a subjective approach, which have also been captured in exterior/outside or interior/inside worlds and perspectives (Kuada, 2010). The author of the present study regards herself as objectivist; however, instead of radically choosing between one of two discrete possibilities, she rather perceives the objective/subjective distinction as two ends of a continuum, which offers several degrees of both objectivism and subjectivism. She also combines different underlying assumptions and thus takes a more pragmatic position to using paradigms (Kuada, 2010).

A paradigm generally functions as ideological guideline how research should be conducted. According to Kuhn (1963), it is constituted by symbolic generalisations, models, judgment values, and examples of ideal solutions (Arbnor & Bjerke, 2009). Paradigmatic perspectives are

often defined along ontological, epistemological and methodological assumptions (Kuada, 2010), which are discussed in the following sections.

2.2. Reflections on Ontology

An ontological perspective of a researcher can be set either as *objectivist* or *constructivist* position, depending on whether social phenomena represent an external reality that social actors cannot influence or whether social phenomena are constructed by subjective perceptions and actions of individuals (Bryman & Bell, 2015). This distinction too can be referred to as *realism* and *nominalism*, respectively, and denotes how the researcher defines the reality he or she wants to examine (Kuada, 2010).

Thinking of the research aim at hand, the author of this thesis views the social world from an objectivism/realism perspective. In this view, human beings are subordinated to a social system. Even though they may principally act with free will, they are restrained by social norms, rules and regulations of their society. Their behaviour and attitudes too are predetermined by their culture. For the purpose of examining older people's E-commerce adoption, this perspective is well-suited because the internet principally exists beyond one's influence due to the large size of this social environment. An individual's willingness to adapt to given structures, standards and regulations determines whether one can participate in it or not. Furthermore, both online merchants and online consumers have to comply with general terms and conditions of trade. Yet, as stated above, the extent of the author's objectivism sort of varies along a scale, thus certain deviations from this radical view are implied. Pragmatically viewed, online consumers do have the power to alter given conditions. They are entitled to complain to an online merchant, write reviews about products or merchants on special websites, and they can indirectly influence laws that determine the regulations within the virtual world. However, a single individual cannot turn the whole system upside down, and the majority of people simply comply with what they perceive as a given.

Arbnor and Bjerke's (2009) *conception of reality* resembles the philosophical idea of ontology. Reality thus might be ordered, following a linear cause and effect relationship. It can also be disordered or chaotic, but it too might fluctuate between order and chaos. The conception of the internet as reality here is that it is basically a stable construction. When looking at the large group of a country's online consumers, they principally follow a linear relationship (e.g. the more safety mechanisms online merchants provide on their websites, the more consumers will trust these websites), whist single outliers present an exception from the basically stable norm.

Some scholars additionally distinguish the concept of *human nature* to describe how they see the relationship between individuals and their environment (Kuada, 2010). However, other authors (e.g. Arbnor & Bjerke, 2009; Bryman & Bell, 2015) do not have such a dimension but rather seem to integrate this concept in their explanation of *conception of reality* or *ontology*. This thesis does not further elaborate on *human nature* as a distinct concept, as the definition too much resembles that of Bryman & Bell's (2015) connotation of ontology, which also mirrors the understanding of the author of this thesis.

2.3. Epistemological Considerations

While the ontological discussion attempts to define reality and thus entails the strongest philosophical part within this chapter, the epistemological debate revolves much more around true knowledge. As Arbnor and Bjerke (2009) state, "Philosophy can be used as a basis for discussion, but it can never provide the truth" (p. 96).

Therefore, it must be determined what should be regarded as acceptable knowledge, i.e., *truth*, which raises the question whether social science can be conducted under the same premises than natural science (Bryman & Bell, 2015). That is, researchers who think it is possible to find the truth in observing the social world as a stranger take the position of *positivism*, whilst *anti-positivism* (or *interpretivism*) stands for an relativistic understanding of the social world that can only be gained by taking the standpoint of individuals that are involved in the social phenomenon under study (Kuada, 2010).

To find a solution of the problem formulation of this thesis, the author takes the *positivism* standpoint. She thus seeks to explain and predict what influences older consumers' propensity to shop online and attempts to find regularities and relationships between single determinants of this issue. She furthermore aims at objectively evaluating her observations about single factors to understand their contribution to the phenomenon of online shopping (cf. Kuada, 2010).

The positivist perspective offers an appropriate lens to view the knowledge-gaining process within this study, as it tries to *explain* and *predict* the behaviour of a rather large group of individuals (i.e., Silver Surfers), which have already demonstrated certain behavioural patterns in previous studies. These observed patterns are assumed to explain the behaviour of individuals in similar contexts and can be explained by a conceptual model (i.e., the TAM). As stated in the introduction (refer to *Section 1.4*), previous research has already identified factors (e.g. perceived self-efficacy) why older adults prove rather hesitative technology acceptance. There are also findings implying why these reasons matter (e.g. perceived ease of use of online shopping sites). This relationship is a logical phenomenon that can be tested when put into a new context (i.e. to Silver Surfers' E-Commerce acceptance in Germany). If findings gained within this context reveal that a sample of German individuals follows the expected behavioural pattern, then this logic too can be applied to the German population in general. Thus, *generalisability* and *objectivity* are major principles within the positivist epistemology. Research as per positivist perspective hence builds up on previous findings about older adults that have been gained by applying the TAM, with an aim of predicting the factors of E-commerce adoption of German Silver Surfers. The possibility of predicting such factors is highly relevant for an online expansion on this market, which makes generalisability of research findings vital when offering managerial implications.

According to Arbnor and Bjerke (2009), it too can be argued that the author's *conception of science* has been influenced by the basic knowledge she gained whilst initially reviewing pertinent literature to define the research purpose of this thesis. The fact that she found most

literature applying conceptual models to study online consumer behaviour created her *scientific ideal*, which represents the positivist standpoint mentioned above.

2.4. Methodological Approach

The methodological view of a study determines and justifies the strategy of the research undertaken. Since the author of this study takes an objectivist position, she adopts a rather *nomothetic* approach to examine the relationships of older consumers' opinions, attitudes and characteristics on regularities, by observing from an outside perspective. The opposing way would be the *ideographic* approach, where certain older individuals' interpretation of the online world would be under study, which could be explored by conducting research from an inside perspective. While this would be an *emic* practice, the current study adopts the *etic* way, i.e., observing the phenomenon from an outside view (Kuada, 2010).

The particular phenomenon under study here is the adoption of online shopping of older German adults. As noted above, from the standpoint of a positivist epistemology, an explanation and prediction of these individuals' propensity to shop online requires finding regularities between the components of this phenomenon. To achieve this research aim, a cross-sectional study offers both an effective and efficient research design. In contrast, a longitudinal analysis would exceed the time frame of a master thesis, whereas a well-elaborated comparative research design such as cross-cultural studies requires more than one researcher within the scope of such a work. Moreover, among the cross-sectional techniques, survey methodology best serves the *nomothetic* approach, i.e., it offers a picture from the outside, without any active participation of the researcher. What is more, since the amount of individuals that can be observed when applying a survey is much greater than e.g. by ethnographic analyses within an ideographic approach, presumed relationships and patterns can be validated on a quantitative basis. This fulfils the high degree of generalisability which has been found vital for identifying factors and behavioural patterns that determine the E-commerce adoption of German Silver Surfers.

A nomothetic approach too complies with the *analytical view* of Arbnor and Bjerke's (2009) *operative paradigm*. This paradigm provides a methodological framework that is more geared towards the concrete approach of a study (Kuada, 2010). In fact, it directly relates the methodological view from the beginning on to the study area at hand, i.e. online shopping behaviour of German Silver Surfers.

The *operative paradigm* entails three methodological views: the analytical view that is here applied, as well as the system and actors view. Since the present thesis does neither aim at investigating a particular *system* (e.g. the organisation of a healthcare company), nor are concepts within the online environment continuously reinterpreted by individuals as the *actors view* would imply, the *analytical view* is most appropriate to discover and explain conceptual relationships within the process of online purchasing behaviour of older adults. In fact, an analytical approach perfectly serves in answering the present research questions (refer to *Section 1.4*). That is, it allows testing well-established techniques and models (such as the TAM)

on certain concepts (such as purchase intention) and their interrelationship, in order to verify patterns that have either been observed within former consumer behaviour studies or to confirm assumptions that have emerged due to theoretically inspired reasoning. By taking this analytical perspective, the author expresses her assumption that the present context encompasses both objective facts (e.g. age or gender of consumers) and subjective facts (e.g. opinions and attitudes of consumers), which are equally treated as representing the truth and eligible of being tested on a quantitative basis, i.e., a survey (Arbnor & Bjerke, 2009).

The decision for taking the *analytical view* too is grounded in how previous studies approached similar problem statements, i.e. problems within the realm of E-commerce adoption of consumers. Namely, when the author of this thesis initially reviewed relevant literature, it early occurred to her that the majority of academic works applied the TAM as underlying framework for survey methodology, which is typical for an analytical approach. For the present problem statement, the analytical view hence provides the author with a 'paradigmatic lens' (Kuada, 2010) that enables the vision of possible relationships between concepts of the TAM, to explain and predict the factors and behavioural patterns that determine German Silver Surfers' E-commerce adoption on a quantitative basis. Only statistical measurements have the strength to confirm the truth and strength of relationships between single determinants of E-commerce adoption. This truth in turn is needed when aiming at suggesting certain activities that are supposed to foster Silver Surfers' use of online shopping. That is, while the TAM offers the basic machinery for explaining the general logic of E-commerce adoption, marketers need to know which screws need to be adjusted in which ways so that the machinery suits a certain market, i.e., Silver Surfers in Germany. The correct application of such an instrument cannot be explained by conducting other methods than quantitative ones, i.e., consumer surveys.

Case studies on the other hand perfectly suit the *system view* as they take into account the specific conditions of a certain organisation. This approach could have been appropriate if the problem statement revolved around the web site development process of a particular online store, and how this process could serve as role model for future endeavours. On the other hand, if a marketer wanted to know whether a new tool that has been adapted to a web shop succeeds in enhancing usability for older consumers, an experimental research approach might be suitable. Within this *actors approach*, researchers could observe how individuals use the new tool and ask why this is done in a certain way or which alterations would facilitate its usage.

The operative paradigm furthermore consists of two methodological parts which link the philosophical view of an author to the actual research area of a study (recall the methodological approach as depicted in *Figure 1*). That is, the *methodical procedure* describes how the researcher incorporates a previously given technique or theory in the methodological approach of a certain study and how he or she modifies this technique to suit the research aim. By following this procedure, the technique becomes a method, while the way it is applied in a study is called *methodics* (Arbnor & Bjerke, 2009).

Within the *analytical view*, this procedure typically follows a *deductive* reasoning, that is, relevant assumptions are derived from existing theories on online consumer shopping behaviour with an aim of analysing them within new contexts, thus testing the appropriateness or predictability of newly defined relationships. In the theoretical framework of this thesis that follows right after this section (refer to *Chapter 3*), the author firstly elaborates on different theories and models that have previously been developed to study online consumer behaviour. As a result, one theory (or model) is selected as technique to proceed further within this study. That is, the TAM will be modified and supplemented to become capable of finding solutions for the problem statement at hand, i.e. identifying determinants of German Silver Surfers' propensity to shop online. This process altogether constitutes the *methodical procedure* within this work and results in a unique model for the present thesis, presented in *Section 3.3*. After briefly introducing the empirical setting where the research takes place, the actual integration of this new model into the present study is described in *Chapter 5*, which delineates the research design of this thesis and thus represents the *methodics* that have been applied.

3. Theoretical Framework

3.1. The Theory of Online Consumer Behaviour

This section discusses the theoretical considerations that have been made to select a suitable model for this study. It first provides a quick overview of research in the field of online consumer behaviour before briefly outlining the most frequently applied models for studies in this field. The most influential theory, the Technology Acceptance Model (TAM), is then discussed in more depth to demonstrate the suitability for the context at hand.

It is important to note that, the concepts *adoption* and *acceptance* of online shopping have been explicitly distinguished by Renaud and Biljon (2008), who argued that *acceptance* is an attitude that comes before actual *adoption*. While there is surely some truth in this argument, the present study uses the concepts interchangeably, since E-commerce *adoption* is often referred to as a way of technology *acceptance*, so that a too strict distinction may even lead to confusion for a reader.

3.1.1. Research on Online Consumer Behaviour

Among the various possibilities offered by the World Wide Web, electronic commerce (E-commerce) encompasses "all aspects of business and market processes enabled by the Internet" (Fayad & Paper, 2015, p. 1001). Through fundamentally transforming traditional business models, the internet thus offers various opportunities for B2C E-Commerce (Chen & Tan, 2004). Moreover, the exponential growth of main industry players indicates that there remains enormous market potential for E-commerce (Lim et al., 2016). Intensified competition, however, renders it crucial for online retailers to understand what drives consumers to shop online (Zhou, Dai & Zhang, 2007).

As an attractive alternative to traditional shopping, which is often accompanied by crowded stores, traffic jam and limited parking space, E-commerce offers a way to shop that is independent of time, people and place (Yulihasri, Islam & Daud, 2011). While today's consumers have realized these benefits, factors such as security and privacy concerns as well as unfamiliarity with the technology of the medium still constitute impediments (Chen & Tan, 2004). From a marketing perspective, the success of electronic shopping thus requires studying the factors that influence the adoption of this medium (Ur Rehman et al., 2013). With the ongoing growth of the Internet, many researchers have investigated online consumer behaviour (Cho & Sagynov, 2015) and attempted to identify the factors that influence consumers' attitudes, decision-making and intention to shop online. In doing so, however, researchers have been applying different approaches and focus on different factors from different perspectives (Li & Zhang, 2002), which is why there is some lack of consistency between the empirical evidence of these factors (Ur Rehman et al., 2013).

In drawing upon existing literature for example, Zhou, Dai and Zhang (2007) identified nine factor types that seem to influence online shopping acceptance: demographics, Internet experience, normative beliefs, shopping orientation, shopping motivation, personal traits, online

experience, psychological perception, and online shopping experience. Keisidou, Sarigiannidis and Maditinos' (2011) literature review on the other hand revealed four main factors that determine acceptance of online shopping: consumer characteristics (e.g. personality traits, self–efficacy), personal perceived values (e.g. benefits, convenience), website design (e.g. security), and product characteristics.

The importance of demographics and socioeconomic characteristics for the study of online shopping behaviour has seen major controversy among researchers, which is why it is one purpose of this thesis to investigate these factors on German Silver Surfers. While there are authors (e.g. Venkatesh et al., 2003) e.g. strongly suggesting an examination of age and gender, Hernández, Jiménez and José Martín (2011) found that age, gender and income did not affect the behaviour of experienced online shoppers. The effects of gender differences too were not significant in the study of Lian and Yen, (2014). Zhou, Dai and Zhang (2007), however, claimed that most studies they reviewed found that men buy more often and spend more money online, whilst women are more skeptical when buying on the web. Moreover, while age and education revealed mixed results, income was found to be positively related to the tendency to shop online (Zhou, Dai & Zhang, 2007). Also, the fact that e.g. Lim and Ting (2012) found that Malaysian women were more inclined to buy online than men reinforces that different countries show different patterns of online shopping adoption. Gong, Stump and Maddox (2013) found that Chinese consumers' age, income, education and marital status are significant predictors of online shopping intention (Gong, Stump & Maddox, 2013), resembling the study of Chen and He (2003) who found that consumers with higher income and higher education had a higher intention to buy online.

Contradicting results were also found in terms of trust and security concerns. While according to Lian and Yen (2014), security is still a serious issue associated with online shopping for both younger and older consumers, this problem may be of higher importance for older adults. Similar results are reported by Leppel and McCloskey (2011), who additionally found that women seemed less concerned about security issues than men. However, in another study (McCloskey, 2006), older online consumers were not particularly more concerned regarding security or privacy than younger consumers.

In general, it can be noted that researchers have been trying to understand the phenomenon of consumers' adoption of E-commerce from two perspectives: the technology-oriented view and the customer-oriented view (Ur Rehman et al., 2013, Zavodnikova, 2017). While the *technology-oriented view* examines the technological features of an online store (e.g. user interface features, website design, system usability), the *consumer-oriented view* looks at personal factors enhancing online shopping adoption and consumers' salient beliefs about this purchase channel. These two views principally do not contradict but rather reinforce each other; however, since an online shop's success largely depends on consumers' willingness to accept the technology, this calls for an investigation from the consumer-oriented view (Ur Rehman et al., 2013; Zhou, Dai & Zhang, 2007). The present study hence applies the consumer-oriented view since it is guided by

the aim of explaining and predicting the factors that drive consumers to use online shopping sites.

3.1.2. Popular Theories and Models for the Study of Online Consumer Behaviour

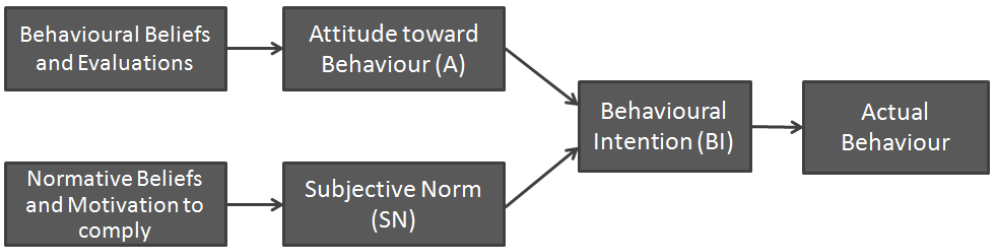
Trying to predict human behaviour is a complex matter. To explain adoption patterns of new and developing technology for example, for more than two decades researchers have been generating various models and theories of technology acceptance (Alomary & Woollard, 2015).

Cheung, Chan and Limayem's (2005) literature review of 355 articles revealed that Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1986), Theory of Planned Behaviour (TPB) (Ajzen, 1991), were most frequently used to study online consumer behaviour, thus appeared to be the dominant theories, while Expectation-Confirmation Theory (Oliver, 1980) and Innovation Diffusion Theory (Rogers, 1995) had been repeatedly applied, too.

Expectation-Confirmation Theory, when applied to E-commerce, focuses on post-purchase behaviour, i.e. it predominantly examines consumer satisfaction and repurchase intention, often too referred to as *continuance* (Cheung, Chan, & Limayem, 2005). Innovation Diffusion Theory on the other hand explains the innovation decision process, the determinants of the adoption rate, categories of adopters, and it helps to predict the likelihood and rate of an adopted innovation (Chen & Tan, 2004). This theory was found to be most appropriate in higher education environments (Al-Mamary et al., 2016).

A more recent literature review on online consumer behaviour research reemphasized the validation of TRA, TPB and TAM as suitable basis to examine online purchase behaviour (Hwang & Jeong, 2016). These three theories have a close interrelationship since both TAM and TPB are based on TRA, while later extensions of the TAM partially build upon TPB.

Figure 2: The Theory of Reasoned Action



Source: Author, based on Davis, Bagozzi and Warshaw (1989)

The basic premise of the Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) is that "behavioral intentions, which are the immediate antecedents to behavior, are a function of salient information or beliefs about the likelihood that performing a particular behavior will lead to a specific outcome" (Madden, Ellen & Ajzen, 1992, p. 3). Behavioural intention is the function of *attitude* and *subjective norm* (refer to *Figure 2*), each having further antecedents, i.e. *behavioural beliefs* and *normative beliefs*, respectively. *Normative beliefs* denote

individuals' beliefs about whether important others think they should perform a certain behaviour (Pookulangara, Hawley & Xiao, 2011).

Whilst offering an easy and parsimonious model, TRA has several limitations. Observing the work of Baraghani (2008) Davis, Bagozzi and Warshaw (1989), and Kurland (1995) Al-Mamary et al. (2016) conclude that TRA is too general and that its assumption that actions are fully under volitional control disregards behaviour which is directed by systemic constraints. In the light of physical constraints that come with ageing for example, the author of this thesis agrees with this limitation since physical decline may compromise volitional control.

With the intention to improve upon the weaknesses of the TRA, Ajzen (1985, 1991) extended the model to the Theory of Planned Behaviour (TPB) by adding the antecedent *perceived behavioural control*, which presents an individual's subjective belief about whether performing the behaviour in question is easy or difficult (Alomary & Woollard, 2015; Hansen, Jensen & Solgaard, 2004). Alike TRA, TPB adopts a cognitive approach to explain behaviour that centres on the attitudes and beliefs of individuals (Morris et al., 2012) but TPB too "account[s] for conditions where individuals do not have complete control over their behavior" since perceived behavioural control "reflects perceptions of internal and external constraints on behavior" (Taylor & Todd, 1995, p. 149).

While both TRA and TPB represent valuable instruments for the study of consumer behaviour, the most influential theory for the research of online consumer behaviour - the Technology Acceptance Model – was selected as most suitable basis for indentifying factors determining older adults' Ecommerce adoption. Besides the fact that it explicitly focuses on tech-relevant variables, it also offers more extant literature dealing with similar research aims (i.e., technology acceptance of older adults, E-commerce adoption from a cultural perspective), thus provides a greater theoretical foundation for the deductive approach of the present study. Another reason why the TAM was selected is the fact that the basic model already entails valuable factors for the study of older adults' online shopping acceptance such as *perceived ease of use* and *usefulness*, while it too offers the possibility of being expanded due to its general parsimony. To further justify the appropriateness of the TAM for this research, the model is therefore comprehensively discussed in the next subsection.

3.1.3. The Technology Acceptance Model (TAM)

As an adaptation of the TRA, the Technology Acceptance Model (TAM) was developed by Davis (1986) and focuses on the factors that lead to users' acceptance or rejection of information systems (Alomary & Woolard, 2015; Barkhi, Belanger & Hicks, 2008). Davis (1986) developed the model within his doctoral dissertation to test system users' acceptance in a work-related context. Recalling that at that time PC usage at home was still in its infancy, it becomes obvious that research in this area was scarce. Meanwhile, as home computers are a part of our daily life, the TAM has been applied in and adapted to various other fields, including the realm of online consumer behaviour.

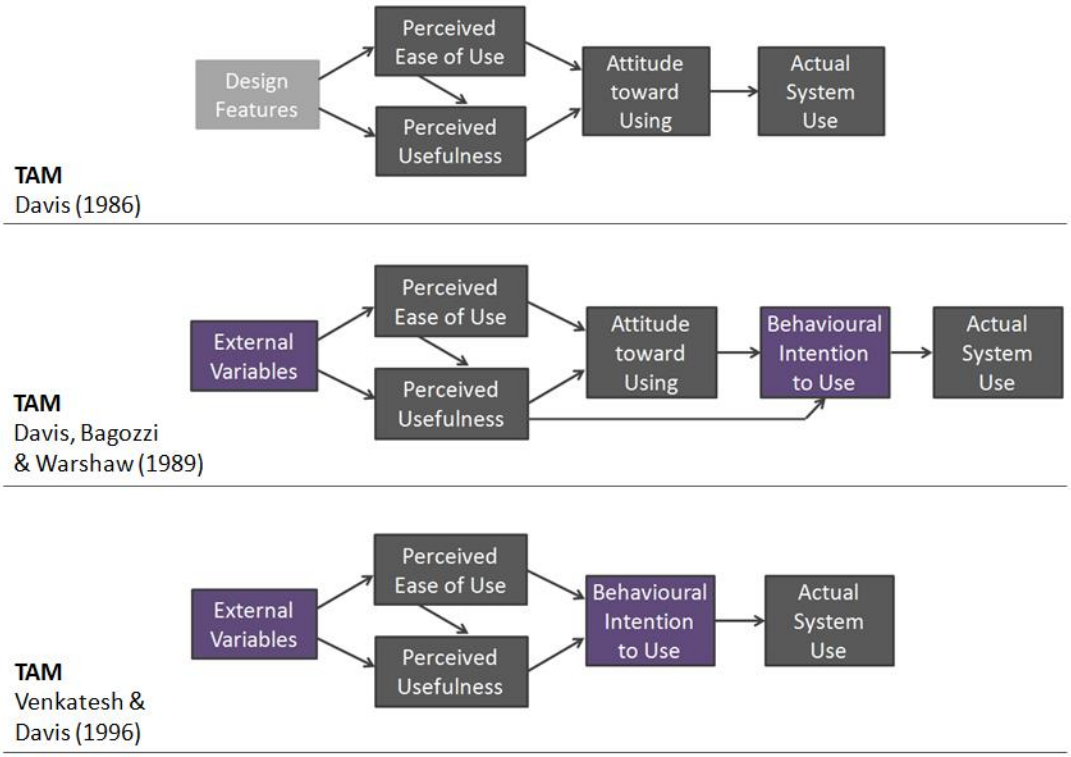
The TAM offers a set of validated measurement scales that have been proven to effectively explain and predict user behaviour on new information technologies (Wu & Ke, 2015). It is therefore one of the most influential extensions of the TRA (Cho & Sagynov, 2015) and remains the "most prominent and extensively used model to understand the process of electronic shopping" (Ur Rehman et al., 2013, p. 179) from the consumer-oriented view. An extensive literature review revealed that the TAM e.g. appeared valid in studies testing acceptance of the world-wide-web, E-commerce, mobile devices, and telemedicine, and it has also proven effectiveness when being applied to older adults (Chen & Chan, 2011).

The reason why so many studies have been adopting TAM to understand users' adoption of new technologies is assumed to be its parsimony (Ur Rehman et al., 2013). TAM postulates that the fundamental determinants of system use are *perceived usefulness* (PU) and *perceived ease of use* (PEOU) (Davis, 1989). PU is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance", whilst PEOU refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). These two beliefs about the system are determinants of intention to use the system, which in turn determines actual system use (Venkatesh & Davis, 1996). PEOU is furthermore regarded as having both a direct effect on intention as well as affecting it indirectly through PU. Applying the two variables to an online shopping context, PU thus stands for the degree to which the Internet is believed to improve a consumer's shopping experience through factors such as convenience and 24h-accessibility, while PEOU refers to whether the process of online shopping is perceived as being easy by consumers (Cho & Sagynov, 2015).

The TAM went through several modifications, of which those that still carry the original name are briefly outlined in *Figure 3*. The first version consisted of the variables PU, PEOU, *attitude* and *actual usage* (Davis, 1986). In the first modification of the model (Davis, Bagozzi & Warshaw, 1989), the component *behavioural intention* was added, suggested as being both indirectly affected by PU and PEOU through *attitude*, as well as directly affected by PU (Chutter, 2009). At the same time *design features* were replaced by *external variables,* providing the possibility to integrate surrounding factors such as education, training or user characteristics (Davis, Bagozzi & Warshaw, 1989). In another modification (Venkatesh & Davis, 1996), the component *attitude* then was removed since the authors found that both PU and PEOU have a direct effect on *intention*, which made the mediating component *attitude* redundant (Chutter, 2009).

By removing the *attitude* variable, any unexplained direct influence from the system characteristics too was eliminated (Chutter, 2009). The component has yet been integrated in later applications of the TAM, which unsurprisingly led to controversial results. To provide an example from the online shopping context, the results of Lim and Ting (2012) showed that consumers' positive attitude positively influence the intention to shop online, while Smith (2008) found that this is not true for older consumers. Note that the present study adopts the third version of the model developed by Venkatesh and Davis (1996), i.e. the model without the attitude variable constitutes the basis for the here developed research model.

Figure 3: The Evolution of TAM 1986 - 1996



Source: Author

On the other hand, while *intention* has been regarded as the mediating variable that explains the relationship between *attitude* and *actual behaviour* (Malik & Guptha, 2013), it too is the mediating variable between PEOU/PU and *actual behaviour* in cases where *attitude* is not integrated. The question whether intention to purchase online automatically leads to actual purchase action too has been subject to controversy (Lim et al., 2016). Whilst most authors applying TRA, TPB or TAM rely on the logic that intention eventually leads to actual behaviour, Smith (2008) e.g. found that older adults' intention to use a web store did not significantly affect actual purchase. However it must be noted that actual purchase in this study was measured by the number of times participants *had* purchased online before, which does not reflect whether they actually complied with their stated intention to use a web store, i.e. whether they truly performed the intended behaviour *afterwards*. The hereto required before-after longitudinal analysis surely exceeds the scope of many studies, though. For the same reason, the present research adopts the assumption of a positive and strong effect of *intention to purchase* on *actual purchase*.

Generally, popular models such as the TAM are often subject to criticism and discussion among researchers. A fact that has been largely criticized was that the TAM does not include *subjective norm* (Alomary & Woolard, 2015). Davis (1986) argued that users being tested on system acceptance have usually never seen the system before and therefore haven't been able to draw normative beliefs from cues of their important others. Additionally, he suggested that even Fishbein and Ajzen (1975) acknowledged that the *subjective norm* concept was the aspect of TRA that was at least understood and of uncertain theoretical status (Chutter, 2009). Nonetheless,

reacting on the criticism, *subjective norm* was later added within TAM2 (Venkatesh & Davis, 2000), an updated version of the TAM (Holden & Karsh, 2010), which, however, has never seen as much application as the original version.

Another of the many discussions evolving around the TAM is the directness of the effect of PEOU. Davis (1989) figured out that the relationship between PEOU and usage was substantially diminished compared to the effect of PU on usage. He explained this difference with the conceptual logic by saying that "users are driven to adopt an application primarily because of the functions it performs for them, and secondarily for how easy or hard it is to get the system to perform those functions" (Davis, 1989, p. 333). Observing the work of Venkatesh (2000), Dabholkar (1996) and Davis, Bagozzi, and Warshaw (1989), Cho and Sagynov (2015) conclude that PEOU has a dual effect on consumers' intention to shop online; that is, besides the direct effect on *intention* there is also an indirect effect through PU since usefulness of a technology partly depends on its ease of use. Both direct and indirect positive effects were supported in their own research (Cho & Sagynov, 2015). However, as Lu and Jin (2009) observed, research has also revealed results where PEOU did not directly affect *intention*. For example, the work of Lin and Lu (2000) as well as that of Yousafzai, Foxall and Pallister (2010) showed that PEOU did not have any direct effect on *intention*, whilst Gefen and Straub (2000) found that PEOU directly affected *intention to inquire* but did not directly affect *intention to purchase* (Lu & Jin, 2009). For older people though, PU is often lower, whilst the interrelation between PEOU and actual usage is much stronger (Dogruel, Joeckel & Bowman, 2015). Smith (2008) consequently found that the effect of senior's PEOU on PU was not significant. For reasons of parsimony, the present study thus assumes that PEOU is a direct predictor of Silver Surfers' intention to purchase online.

The TAM has also been discussed regarding its general applicability to E-commerce. Chen and Tan (2004) e.g. criticized that virtual stores already have a high level of user acceptance but nonetheless struggle with obstacles that prevent the motivation of consumers to shop online, for which TAM provides little assistance. Moreover, the adoption of E-commerce obviously differs from new technology adoption in a work-related context. That is, shopping online is voluntary and one choice among alternative purchasing channels, whereas usage of new software at work is usually mandatory and without any choice regarding the software or system (Fayad & Paper, 2015). As to the validity of these critics for the context of Silver Surfers, firstly, it could be argued that here, there is not that high a level of acceptance among older consumers as it is among younger people, which is why the TAM and its variable PEOU are particularly appropriate. Secondly, while shopping principally is a voluntary act, choice in purchasing channels might become limited once a consumer cannot manage the physical burden of a shopping task in traditional settings anymore.

Nevertheless, the author of this thesis considered the alternatives carefully before deciding for the TAM. Alike some researchers discuss, it was frequently deliberated whether TRA or TPB may provide better solutions for investigating E-Commerce adoption. Supporting the decision for TAM, Yousafzai, Foxall and Pallister (2010) offered a comprehensive theoretical comparison of TRA, TPB and TAM, outlined in *Table 1*. They investigated the models within an Internet banking

context and found that TAM is superior to both TRA and TPB in that it explained more variance in actual behaviour and offered a better model fit. At the same time and in relation to the outcome, the parsimony of the TAM was highly emphasised.

Table 1: Comparison of TRA, TPB and TAM

Model	TRA	TPB	TAM
Degree of Generality	situation-specific, elicited beliefs	situation-specific, elicited beliefs	consistent, general beliefs
Social Variables	incorporates social norm	incorporates social norm	n/a
Behavioural Control	n/a	perceived behavioural control of external and internal factors	perceived ease of use as internal control factor
Explanatory power within internet banking	explained 47% of variance in intention, 37% in actual usage	explained 60% of variance in intention, 39% in actual usage	explained 57% of variance in intention, 51% in actual usage
Measurement Instruments	difficult to operationalise, requires pilot studies to identify relevant outcomes	difficult to operationalise, requires pilot studies to identify relevant outcomes	sound instruments, simplifies comparison of results across studies, supports cumulative theoretical development
Parsimony	6 variables	8 variables	5 variables

Source: Author, based on Yousafzai, Foxall and Pallister (2010)

In general, the parsimony of the original TAM has been regarded both as its strength and its Achilles' heel (Bagozzi, 2007). "It is unreasonable to expect that one model, and one so simple, would explain decisions and behavior fully across a wide range of technologies, adoption situations, and differences in decision making and decision makers" (Bagozzi, 2007, p. 244). On the other hand, the parsimony makes the model flexible in adapting it to a variety of contexts by individually determined expansion. Namely, because of independent choices and varying contexts, other factors besides PU and PEOU must be integrated in an online consumer study; therefore researchers have continuously been enriching TAM by additional variables (Lu & Jin, 2009). For example, concepts such as *social norms, trust, perceived risk, cost, playfulness, voluntariness of use, compatibility,* and *self-efficacy* have been repeatedly incorporated (Chen & Chan, 2011). Ingham, Cadieux and Mekki Berrada (2015) recently found that *trust, perceived risk, enjoyment* and *social influence* were mostly used when studying online shopping behaviour.

The possibility to add further variables to the original TAM hence makes it a flexible and powerful framework (Alomary & Woollard, 2015). The following subsection will therefore first summarise how applicable the TAM is for the study of older Germans' E-commerce adoption, before *Section 3.2* discusses in more depth the factors that influence this consumer group.

3.1.4. Extending the TAM for the Study of Older Adults

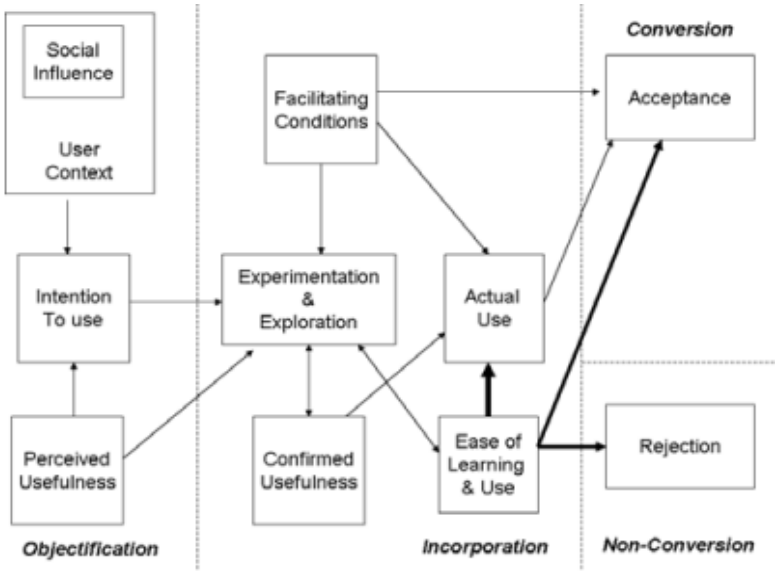
Catching a glimpse on the samples of the aforementioned empirical works, it can easily be argued that the majority of research on technology acceptance investigated younger people or at least had a fairly low average age. Confirming this, a literature review on older adults'

technology acceptance done by Chen and Chan (2011) found that most discussions revolving around technology usage are directed to young adults, while older people are mostly neglected. Therefore, the authors questioned the applicability of the TAM to older people. Their systematic review of 19 published studies revealed that the TAM is a useful model; however, the authors suggest that additional variables that investigate age-specific factors should be included (Chen & Chan, 2011). Smith (2008) e.g. found that TAM accurately reflects the effects of age factors after integrating the variables *website usability, internet usability* and the influence of certain *products and services* offered.

For reasons of completeness, it must be noted that there exist such a specific TAM extension for the study of older adults' technology acceptance. Renaud and Biljon (2008) called for a need of investigating different phases of technology adoption and developed the Senior Technology Acceptance & Adoption Model (STAM) to explain older adults' mobile phone adoption. Their model suggests that older adults go through three procedural phases when making a decision whether a new technology is accepted or rejected (refer to *Figure 4*).

While the name of their model initially appeared promising, it has not been assessed as being appropriate for the present context. First of all, E-commerce acceptance cannot be that easily triggered through experimentation as mobile phones can. The whole process of buying a product online involves a financial transaction and thus a certain risk, while experimenting with a mobile phone rather offers opportunities to gain hands-on experience. Secondly, while the strength of the TAM is its parsimony, the STAM is very complex and involve longitudinal data collection. Lastly, as Chen and Chan (2011) suggest, additional variables of TAM for the context of older adults should rather be related to biophysical and psychosocial factors as well as abilities and problems experienced by the elderly.

Figure 4: Senior Technology Acceptance & Adoption Model (STAM)



Source: Renaud and Biljon (2008)

It has therefore been decided that the aforesaid TAM version of Venkatesh and Davis (1996) serves as appropriate basis for a unique expansion of the study of older adults. That is, while the basic model is relatively consistent and parsimonious and its variables are much easier to operationalise than TRA or TPB (refer back to *Table 1*), it offers room for individual extension by factors that are relevant for the unique purpose of studying Silver Surfers' E-commerce adoption. Also, it entails PEOU as behavioural control variable, thus compensates for deficiencies which the TRA e.g. entails. Moreover, *social norm* within the TAM is not a predetermined component but rather an additional option, which leaves the researcher of this study free in her decision whether this factor plays a role for the present context or not. Lastly, even though research on older consumers' online shopping behaviour has been sparse, the TAM has been repeatedly tested within the context which is why previous findings offer a profound starting point for this thesis.

3.1.5. Conclusion of the Theory of Online Consumer Behaviour

After a brief review of relevant theoretical models in *Subsection 3.1.2*, an appropriate technique for this study was selected and comprehensively discussed. That is, the TAM has been found to offer the most suitable model if being expanded to reflect a specific context, i.e. for the investigation of older adults from a cultural perspective. In detail, the modified TAM from 1996 was selected for this thesis as it excludes the *attitude* variable but includes *intention*, thus exploiting the model's parsimony but using the greatest possibility to predict *actual purchase*. This TAM version will now undergo a methodical procedure as predicted in *Section 2.4*, in order to adjust it to the present research aim. Consequently, the following *Section 3.2* presents important additional variables for the study of older consumers, supplemented by adding culturally relevant variables in *Subsection 3.2.2*. and *Subsection 3.2.4*. These measures finally result in a unique TAM that serves as conceptual model of this study, presented in *Section 3.3*.

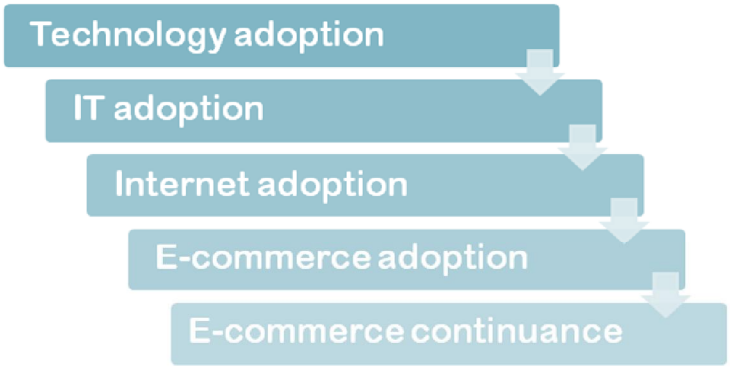
3.2. E-commerce Adoption of Silver Surfers

This section concentrates the theoretical debate to the population of older adults, which in this work too are referred to as older people, seniors, elderly or, if suitable, Silver Surfers. In drawing back on literature revolving around whether and why this generation adopts technology or why they do not, valuable insights for the research aim of the present work are presented. These insights are discussed and aligned with the TAM concepts that have emerged as crucial in online shopping acceptance – perceived usefulness (PU), perceived ease of use (PEOU) and intention to purchase (IP).

Thus, this section describes the methodological procedure that has been performed within this thesis. As decided in *Subsection 3.1.5*, the latest version of the original TAM (Venkatesh & Davis, 1996) is used as technical basis for the procedure. Relevant age- and health-related factors that are deducted whilst reviewing relevant literature are stepwise added to forge a novel and unique conceptual model for the study of Silver Surfers' E-commerce adoption. In addition to that, the international perspective of this thesis is discussed by incorporating culturally relevant variables into the model.

The following subsections hence elaborate on the most prevalent individual, social and cultural issues that may affect the online purchase intention of older people. In detail, ***chronological age (CHA), internet experience (IEX), outdoor immobility (OIM), horizontal individualism (HIDV), declined cognitive, manual and visual functions (DCMV), perceived self-efficacy (PSE), uncertainty avoidance (UAI)*** **and** ***online trust (TR)*** are presented as additional concepts to the two variables PU and PEOU. Additionally, *Subsection 3.2.5* introduces the concept of *embarrassment* as experimental determinant of E-Commerce acceptance within a particular healthcare context. The final model is presented in *Section 3.3.*

Figure 5: Five Research levels on older adults' technology adoption



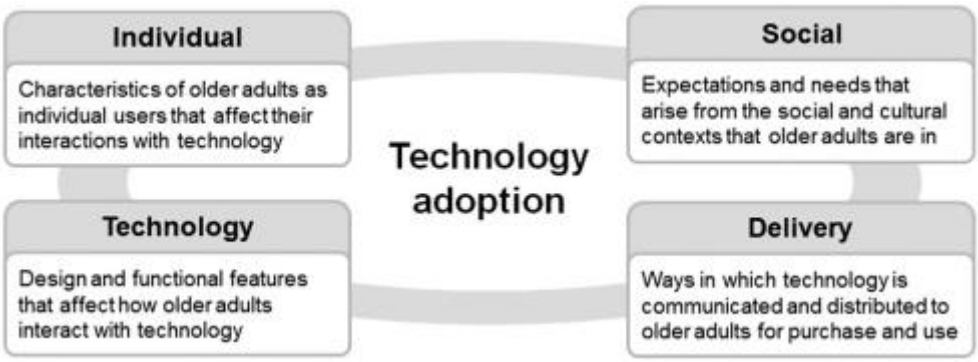
Source: Author

As this section partly draws back on a broader view of technology acceptance of older adults, *Figure 5* offers a short overview of the literature realm reviewed. Leaving aside the more recent mobile innovations such as wearables and health apps (Kim et al., 2016), it could be argued that the literature predominantly revolves around five levels of technology acceptance that stepwise concentrate towards online shopping. The broadest stream examines adoption of new technology in general (e.g. Tacken et. al. 2005; Chen & Chan, 2011; Lee & Coughlin, 2015), followed by IT adoption (e.g. Czara et al., 1989; McMellon & Schiffman, 2000) after which research on Internet usage (e.g. Trocchia & Janda, 2000; Adams, Stubbs & Woods, 2005; Wang, Rau & Salvendy, 2011) focuses on this medium's acceptance. Hereafter, literature narrows down to online shopping (e.g. McCloskey, 2006; Wan, Nakayama & Sutcliffe, 2012; Shen, Zhou & Lin, 2014) and, lastly, to continuance of online shopping (e.g. Al-maghrabi, Dennis & Vaux Halliday, 2011; Fang et al. 2016). It is important to note that the present thesis regards both IT and Internet adoption as precondition to online shopping adoption of older adults, which means that an adoption of these prerequisites are principally beyond the scope of the empirical research conducted in this study. However, all steps of older adults' technology acceptance offer valuable insights for a better understanding of what drives and what curbs Silver Surfers' online shopping behaviour, therefore literature has been reviewed throughout all levels.

As Lee and Coughlin (2015) suggest, senior' adoption of technology is not purely dependent on technical factors, but rather offers a complex issue that incorporates multiple aspects (refer to *Figure 6*). Apart from physical design and delivery channels of the technology, individual characteristics and social settings are crucial when investigating the elderly. For example,

knowledge about existence and individual experience with the technology as well as emotional and psychological factors are individually determined, while the desire of remaining independent is influenced by social and cultural contexts.

Figure 6: Four aspects of older adults' technology



Source: Lee and Coughlin (2015)

This framework reminds on the distinction between *technology-oriented* and *consumer-oriented view* discussed in *Subsection 3.1.1*. Again, the technology-oriented view here is predominantly ignored, as this study is done from the perspective of older consumers.

3.2.1. Chronological Age and Internet Experience

One of the most compelling questions when investigating Silver Surfers is whether chronological age or Internet experience determine their web usage in general and their online shopping behaviour in particular.

Firstly, when looking at how researchers define "old" in their definitions of older adults shows that the interpretation of this age greatly varies. For example, Shen, Zhou and Lin's (2014) sample representing older adults was aged between 50 and 65, while Wang, Rau and Salvendy (2011) argued that their sample of people ranging from 60 to 75 meet the definition of older adults. Frequently, researchers define senior citizens aged 65 and above as the elderly (e.g. Iyer & Eastman, 2006; Reisenwitz et al., 2007). Others use 60 as the boundary to counting as old (e.g. Kim et al., 2016) or even argue that lower development stages of countries justify naming older adults as of the age of 50 (Lian & Yen, 2014). The United Nations (2015a, p. 2) define population aged 60 years or over as "older persons", and people aged 80 years or over as the "oldest-old" persons.

Internet users aged 65 years and older have been referred to as *Silver Surfers* (Tame, 2015), however there are also sources that use this concept to define internet users aged 50 and above (e.g. Curtis, 2014) or as of 55 years (e.g. Dapp & Berscheid, 2013). For the purpose of the present thesis, *Silver Surfers* are defined as Internet users aged 60 and over.

However defined exactly, the population of the aging generation is very heterogeneous, which is why it has been argued that chronological age can only be regarded as an index for potentially occurring physical and behavioural changes in the course of adulthood (Czaja & Lee, 2007). Namely, from the perspective of online consumer research, older people greatly differ in terms

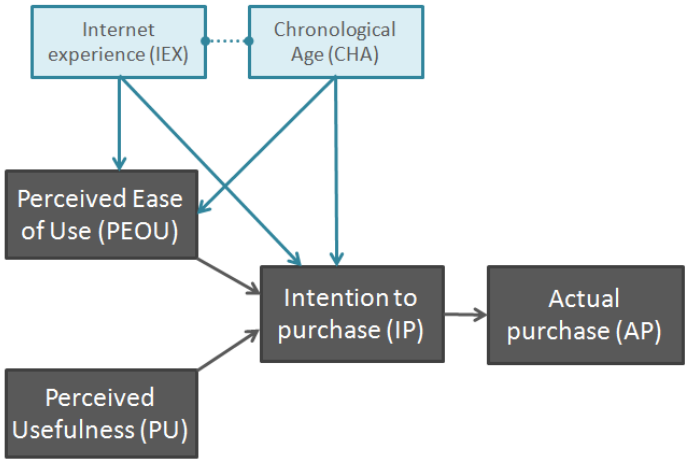
of two important aspects; that is, whether they possess a certain experience with the internet and how their physical capabilities influence its usage.

In general, former research revealed that older people possess less Internet experience, perceive greater risks and regard self-efficacy as an important aspect for going online, so that age has been widely included as important variable into online shopping behaviour studies (Hernández, Jiménez & José Martín, 2011). Principal obstacles to the evolution of E-commerce, which explain why older consumers are more averse to online shopping, are that they may lack IT experience and do not feel a need to learn how to shop online, that they are often resistant to change and that they may dislike the impersonal action of purchasing a product that they have neither seen nor touched before (Trocchia & Janda, 2000; Hernández, Jiménez & José Martín, 2011). Kim et al. (2016) who studied older peoples' acceptance of mobile technology found that conversion readiness is low for this generation since they resisted converting current practices into something that involves technology use. Often they are satisfied with their familiar ways of doing things, so they simply do not see the point of figuring out what new technologies have to offer (Kim et al., 2016). Also, seniors prefer to continue with the habits they have developed in order to avoid environmental uncertainty, e.g. sticking to the habit of having human contact when obtaining a service (Phang et al., 2006).

From another perspective one can argue that due to their lack of experience with the internet they are hindered from evaluating the shopping advantages that this medium has to offer (Trocchia & Janda, 2000; Hernández, Jiménez & José Martín, 2011). They probably lived many decades without ever touching a computer, Tablet or mobile phone and got well along without. Whilst *digital natives* have grown up in the digital world and are automatically largely experienced with IT, *digital immigrants* tend to have more trouble in accepting new technology (Ingham, Cadieux & Mekki Berrada, 2015). "Thus, there is a natural confound of age and experience, since today's older adults are exposed to the Web at a different point in their lives than today's young adults. In terms of their approach to new technology, there is undeniably a difference in the novice 5-year-old user and the novice 65-year-old user" (Hanson, 2011, p. 444). On the other hand, Hernández, Jiménez and José Martín (2011) found that after initial barriers of E-shopping are surmounted, age does not significantly affect consumers' subsequent online shopping behaviour anymore.

The above discussion shows that further investigation on the competing interrelationship between *chronological age* (CHA) and *internet experience* (IEX) as to their effect on E-commerce adoption is needed. Hence, these factors are regarded as the first external variables of the proposed conceptual model of this thesis. With the assumption that these two factors, while being in a competing relationship, affect both PEOU and online shopping intention (IP), the first step of the model development is depicted in *Figure 7*. Note that the depiction of the model serves for illustrating the presumed cause-and-effect paths between the variables, while respective hypotheses are merely testing the relationships between the variables.

Figure 7: TAM extended by Internet experience and chronological age



Source: Author

Accordingly, the hypotheses of this subsection are as follows:

H1: There is a negative relationship between chronological age and Internet experience
H2: There is a negative relationship between chronological age and PEOU
H3: There is a negative relationship between chronological age and IP
H4: There is a positive relationship between Internet experience and PEOU
H5: There is a positive relationship between Internet experience and IP
H6: There is a positive relationship between PEOU and IP

3.2.2. The Possible Effects of Outdoor Immobility and the Cultural Dimension Individualism

Besides experience-related aspects impeding online technology adoption, there are several age- and health-related issues, which do not only affect current older generations' E-commerce usage but also that of future older populations (Hanson, 2011). As physical decline of the elderly often comes along with limited outdoor mobility, the internet provides a valuable tool to compensate for physical and social deterioration as it "offers the user opportunities to substitute activities that may normally be diminished due to aging" (McMellon & Schiffman, 2000, p. 139). For example, physically less mobile people often lose social activities and interactions which results in psychosocial changes such as loneliness and isolation (Nadler, Damis & Richardson, 1997; Lee & Coughlin, 2015), where the Internet can help by enabling online communication with family and friends (Czaja & Lee, 2007).

Moreover, Internet usage facilitates the performance of shopping activities (Czaja & Lee, 2007), which is why poor health conditions direct older consumers' purchase orientation towards this more comfortable shopping environment (Lim & Kim, 2011). Letting alone whether operating a car is possible at all, crowded shopping centres and parking problems exacerbate carrying heavy items; hence the alternative of purchasing online has reinforced the concept of *convenience* in academia, which firstly appeared in the marketing literature in 1932 (Cho & Sagynov, 2015). Referring to prior research (Zeithaml & Gilly, 1987; Smither & Braun, 1994), McCloskey (2006) concludes that convenience is a central factor in older adults' technology adoption. Cho and Sagynov (2015) found that perceived convenience positively influences PU, which in turn is

widely recognized as the most important predictor of technology acceptance (Wang, Rau & Salvendy, 2011) and, together with PEOU, the most critical factor for older adults (Chen & Chan, 2011). As opposed to 'enhancing job performance' (Davis, 1989) in the original TAM, however, PU for older people encompasses how a technology supports activities of their daily life, enhances convenience, improves quality of life and satisfies their needs of remaining independent (Chen & Chan, 2011), thus *convenience* here is regarded as a central part of PU instead of being treated as separate variable.

In general, while older people are often said to be stubborn and unwilling to change, they also strive for remaining independent, thus they are likely to accept technology that helps them keeping their autonomy (Lee & Coughlin, 2015). Progressed restriction of the abovementioned outdoor mobility (henceforth referred to as *outdoor immobility*) makes it hard for the elderly to maintain their independence. As online shopping alleviates the physical burden involved in traditional shopping (McCloskey, 2006; Leppel & McCloskey, 2011), it offers an attractive solution for those who wish to take care of themselves.

The desire for independence and its presumed effect on online shopping behaviour might be based in one's culturally defined norms and values. Culture can be defined "as the collective mental programming of the people in an environment [...] who were conditioned by the same education and life experience" (Hofstede, 1980, p. 224). The cultural framework of Hofstede (1980, 2001, 2010) is the most frequent one used in business and marketing research (Alcántara-Pilar & Del Barrio-García, 2015), and has also been applied in combination with the TAM (e.g. McCoy, Galletta & King, 2007; Kim, Urunov, & Kim, 2016). Hofstede's (2001) cultural dimensions *Individualism* and *Uncertainty Avoidance* (refer to *Section 3.2.4*) have seen the most attention in regard to online shopping behaviour (Gong, 2009) and are also promising for the study of older adults. Of special interest in regard to independence is that Hofstede (1980) includes this concept in his description of an individualistic mindset: "There is emotional independence of individual from organizations or institutions" (p. 229). The cultural dimension *Individualism/Collectivism* is defined as follows:

> *"Individualism implies a loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only, while collectivism is characterized by a tight social framework in which people distinguish between in-groups and out-groups; they expect their in-group (relatives, clan, organizations) to look after them [...]"* (Hofstede, 1980, p. 229).

Following this definition, the aforesaid desire of older people to remain independent thus might not be true in collectivistic cultures. As Germany is a rather individualistic society (refer to *Section 4.4*), it would be interesting to know whether the extent of older Germans' need for independence in the context of online shopping intention can be measured by the culturally defined extent of Individualism. Although factors such as consumer values and culture have mostly been ignored in online consumer behaviour studies applying TAM (Gong, 2009), the influence of Individualism has been investigated in relation to E-commerce (e.g. De Angeli & Kyriakoullis, 2006; Stylianou, Kyriakoullis & Savva, 2012). For example, observing the works of

Park (2002) and Joines, Scherer and Scheufele (2003), Zhou, Dai and Zhang (2007) inferred that entertainment rather drives collectivistic cultures' online buying intention whilst variety seeking and convenience drive individualistic consumers.

However, as this thesis does not conduct a cross-country comparison, the original scale and items of Hofstede (2013) do not offer an appropriate instrument for measuring cultural dimensions. "Measuring individual respondents on scales based on aggregate data is an ecological fallacy" (De Mooij & Hofstede, 2010, p. 102). Because Hofstede's (1980) scores are aggregated data that represent patterns of national associations, they cannot be equated with individual associations that are based on psychological logic (De Mooij & Hofstede, 2010).

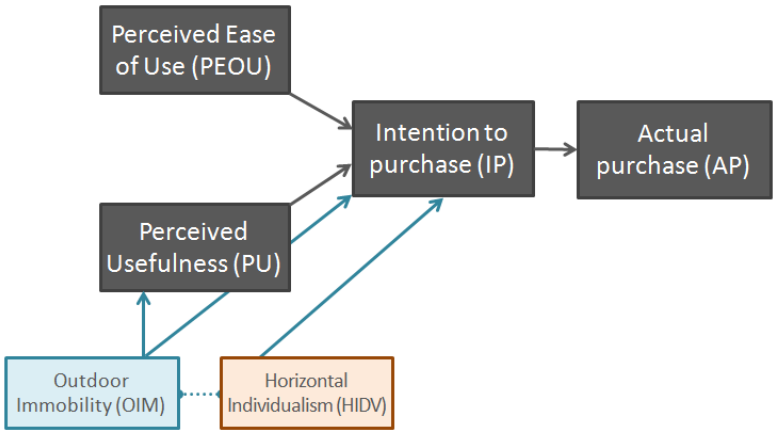
An alternative approach is it therefore to adopt items for measuring the individual-level of culture. "Collective culture and individual-level cultural values are neither theoretically irreconcilable nor mutually exclusive" (Hwang & Lee, 2012, p. 171). Observing the work of Srite and Karahanna (2006), Hwang and Lee (2012) inferred that technology acceptance is a concern at the individual level, and if individuals espouse values of national culture to different degrees, then individual-level behaviour can only be predicted by assessing the cultural values of individuals. Kim, Urunov and Kim (2016) too argue that, as opposed to national culture being a macro-level phenomenon, technology acceptance happens at the individual-level. Sohaib and Kang (2015) applied individual-level scales for measuring the Hofstede dimensions *Individualism* and *Uncertainty Avoidance* after observing that other researchers have repeatedly found them acceptable in information system and E-commerce research (e.g. Dorfman & Howell, 1988; Hwang & Lee, 2012; McCoy, Galetta & King, 2005; Srite & Karahanna, 2006; Yoon, 2009).

A promising scale for measuring Individualism within the context of independence was found in the work of Triandis and Gelfand (1998), who integrated the horizontal and vertical perspective into the Individualism and Collectivism dimension, to be able to distinguish different sub-dimensions each. Especially interesting for the context of older consumers' desire for independence is the *Horizontal Individualism* sub-dimension, as it implies that people are highly self-reliant, yet they do not seek to become distinguished or acquire status in competition with others (as Vertical Individualism would imply). The extent of Horizontal Individualism is measured on wording such as *I rather depend on myself/I rarely rely on others* (refer to *Table 2* in *Section 5.3*). This sub-dimension thus offers a suitable instrument to measure Individualism as one possible cultural determinant of online purchase intention. For reasons of parsimony, the other sub-dimensions are not included in the conceptual model of this thesis.

Horizontal Individualism (HIDV) and *Outdoor Immobility* (OIM) are hence presumed to affect Silver Surfers' online purchase intention (IP), while their extent may depend on each other (refer to *Figure 8*). That is, the more immobile older people are, the less independent they obviously are, but at the same time the stronger their desire for independence may be. On the other hand, the more independent a person seeks to be, the worse it is if outdoor immobility becomes an issue. However, predominantly, OIM is proposed to influence PU, which entails

convenience as key attribute and is supposed to predict IP, while both OIM and HIDV may be directly related to IP.

Figure 8: TAM extended by Horizontal Individualism and Outdoor Immobility



Source: Author

Accordingly, the hypotheses about these relationships are as follows:

H7: There is a positive relationship between PU and IP
H8: There is a positive relationship between Outdoor Immobility and PU
H9: There is a positive relationship between Outdoor Immobility and IP
H10: There is a positive relationship between Horizontal Individualism and IP

3.2.3. The Possible Effects of Physical Deterioration and Self-Efficacy

The growth of the ageing population, together with the disabilities resulting from the aging process and the desire to use new technologies, presents, as opposed to the aforesaid opportunities, also challenges for B2C E-commerce (Smith, 2008). Namely, whilst physical deterioration may enhance the PU of and intention to shopping online (refer to *Subsection 3.2.2*), this coin has two sides, of which the other creates barriers to the adoption of E-commerce (cf. Iyer & Eastman, 2006).

Bandura (1977, 1982) introduced the concept of *self-efficacy* and supported its validity by extensive research (Davis, 1989; Ajzen, 2002). Whilst efficacy "involves a generative capability in which component cognitive, social, and behavioral skills must be organized into integrated courses of action to serve innumerable purposes", the concept of "[p]erceived self-efficacy is concerned with judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p. 122). In other words, *perceived self-efficacy* (PSE) is the self-evaluation about one's capability of effectively performing a desired action. Applied to the context of seniors' E-commerce adoption, it can be derived *that perceived self-efficacy is* the seniors' self-evaluation about his or her cognitive and behavioural capabilities of effectively performing an online shopping task.

Self-efficacy relates to the concept of *perceived behavioural control* in TPB (Taylor & Todd, 1995). Ajzen (2002) states "Perceived behavioral control owes its greatest debt, however, to Bandura's work on self-efficacy" (p. 667). Consumers who perceive their behavioural control or

self-efficacy as high are more likely to feel having control over their choices (Barkhi, Belanger & Hicks, 2008), which too significantly affects decisions and motivations towards computer usage, internet usage and E-commerce adoption (Yulihasri, Islam & Daud, 2011). Self-efficacy and personal control of technology usage have been argued to be the underlying factors of PEOU (Davis, Bagozzi & Warshaw, 1989; Chen & Chan, 2011). Davis (1989) himself initially regarded Bandura's (1982, 1986) concept of self-efficacy as being similar to PEOU. Later, self-efficacy has been proven to be a direct determinant of PEOU both before and after experience with a system (Ventkatesh & Davis, 1996). Ur Rehman et al. (2013) applied the concept to E-commerce and referred it to as "E-Self efficacy", which "is the user's perception of being effective, efficient and satisfactory during the process of electronic shopping" (p. 181).

Age-related constraints that fundamentally affect *E-self efficacy* could be related to cognitive, motor and visual deterioration. In their literature review of technology acceptance of older adults, Chen and Chan (2011) elaborate on personal characteristics of seniors, including decline of several physical conditions, cognition and loss of control and self-efficacy, which together with personal control too are regarded as underlying factors of PEOU. Therefore researchers sometimes examine such physical declines on their influence on PEOU. When Phang et al. (2006) examined the direct effect of declining physiological conditions on PEOU, they did not find any significant results. McCloskey (2006) on the other hand regarded factors such as reduced manual dexterity and vision difficulties as important to be included into ease of use measures when their item operationalisation of PEOU did not indicate that it is a predictor of E-commerce participation of older adults.

However, as Ur Rehmann et al. (2013) state, "E-PEOU explain[s] the simplicity of the new electronic medium that make[s] the purchase an easy task for the customer" (p. 180), while the above defined *E-Self efficacy* clearly denotes the user's perceived self-effectiveness and self-efficiency when performing online shopping. Also, Laguna and Babcock (2000) relate lower *cognitive self-efficacy* that occurs with increased age to *computer self-efficacy*, which is "defined as judgment of one's capability to use a computer" (Laguna & Babcock, 2000, p. 232). To find out whether age-related cognitive, motor and visual changes affect perceived self-efficacy or PEOU, age-related changes thus require a closer consideration.

Cognitive changes such as slower information processing speed, lower attention and ability to learn, especially in combination with little internet experience, may prevent seniors from benefitting from the convenience the Internet has to offer (Adams, Stubbs & Woods, 2005; Chattaraman et al., 2014). According to Tacken et al. (2005) and Ziefle and Röcker (2010), self-rated cognitive abilities play a major role in the use of different technologies (Chen & Chan, 2011). Van Gerven et al. (2003) distinguished three cognitive declines that older adults may experience, namely decrease in working-memory capacity, which often includes short-term memory loss, declined information processing and reduced ability to ignore irrelevant information (Smith, 2008).

Diseases such as arthritis often result in declined motor functions and *reduced manual dexterity*, which compromises seniors' use of mouse, trackball and keyboard (Rogers & Fisk, 2002; Smith, 2008). Finally, *vision impairments* through lens-clouding cataracts, loss of sharp vision due to retina degeneration or glaucoma, which affects the optical nerve of the eye, hampers any reading on the PC screen (Smith, 2008).

Hereinafter, the entirety of the aforesaid declined physical conditions may be abbreviated as DCMV (**D**ecline of **C**ognitive, **M**anual and **V**isual capabilities). These factors contribute both to loss of older adults' self-confidence in their IT capabilities as well as anxiety of using the Internet for shopping or other activities (Pan & Jordan Marsh, 2010; Wang, Rau & Salvendy, 2011). Lee and Coughlin (2015) observe age-related studies of anxiety and self-efficacy (e.g. Czaja et al., 2006) and conclude that older people are less self-confident and more anxious when they use technology. Dogruel, Joeckel and Bowman (2015) even refer to this anxiety to as *technophobia* after observing the work of Wagner, Hassanein and Head (2010) who concluded that such anxiety-related concepts are main barriers for elderly's usage of computers. Moreover, Leppel and McCloskey (2011) found that compared to younger people, Silver Surfers were more likely to be frustrated and less likely to be successful when searching for information in the web.

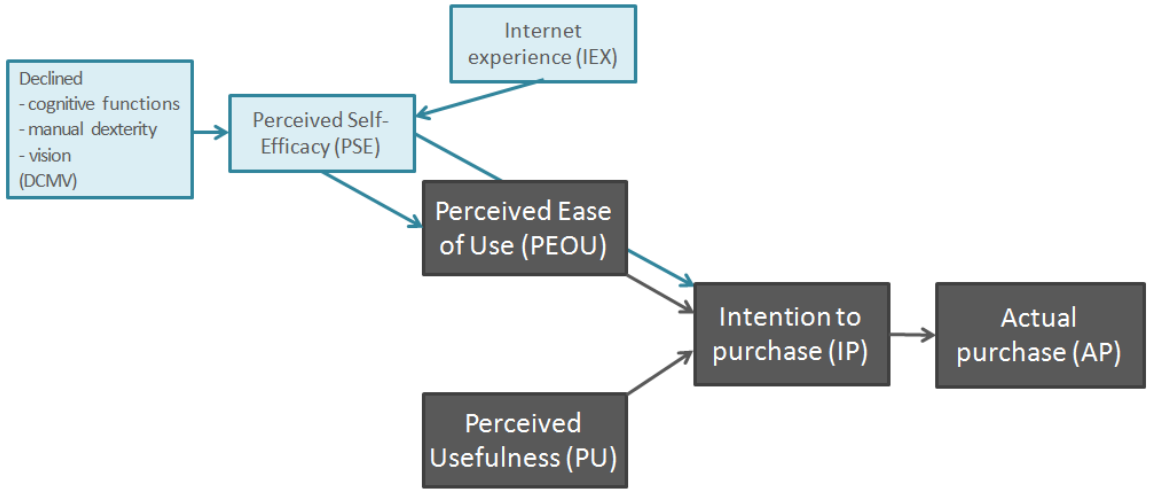
When older people evaluate their self-efficacy as low, i.e. when they perceive themselves as incapable of learning a new technology, they are more likely to refuse learning it. Reasons for anxiety have been found to stem from the fear of looking foolish when making mistakes, thus they do not even try to use the technology. Also, they rather blame themselves if a technology does not work properly instead of thinking about a technical glitch and searching for a solution (Kim et al., 2016).

Thus, no matter how easy the process of online shopping is generally perceived (PEOU), DCMV intensify anxiety and may hinder the attempt of purchasing online. This reinforces the aforesaid necessity for a distinction of physical deterioration as being an issue of self-efficacy instead of an issue of PEOU. Furthermore, in agreement with Hernández, Jiménez and José Martín (2011) and Venkatesh and Davis (1996), it is here proposed that perceived self-efficacy and PEOU are two distinct variables, with perceived self-efficacy being an antecedent of PEOU. However, in addition to that, a possible direct effect of perceived self-efficacy on IP is to be tested as e.g. Taylor and Todd (1995) suggest that perceived self-efficacy and PEOU have an effect on IP that is independent from each other. Again, to clearly define the concepts for the purpose of this study, perceived self-efficacy focuses on the self-evaluated capability of an older consumer to perform an online shopping task, which may depend on factors of physical decline (DCMV), while PEOU examines the Silver Surfer's perceived simplicity of the process of online shopping as such.

Combining the above elaborated considerations regarding physical consequences of ageing and their effects on Silver Surfer's capabilities and perceptions of online shopping performance, the concepts of DCMV, *perceived self-efficacy* and PEOU are assumed to extend the TAM as depicted

in *Figure 9*, while *Internet experience* additionally is proposed to be related with perceived self-efficacy.

Figure 9: TAM extended by declined physical functions and perceived self-efficacy



Source: Author

The hypotheses of these relationships are:

H11: There is a positive relationship between Internet experience and perceived self-efficacy
H12: There is a negative relationship between DCMV factors and perceived self-efficacy
H13: There is a positive relationship between perceived self-efficacy and PEOU
H14: There is a positive relationship between perceived self-efficacy and IP

3.2.4. The Role of Online Trust and Uncertainty Avoidance

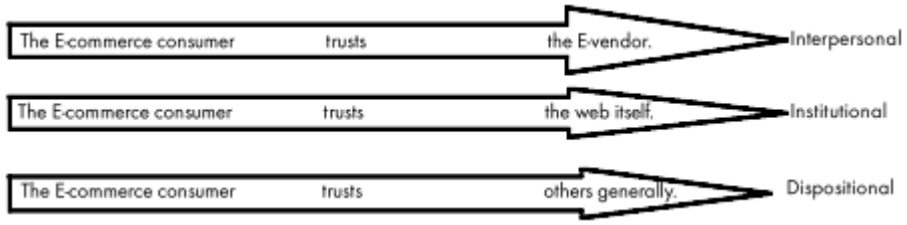
The abovementioned anxiety (refer to *Subsection 3.2.3*) of using the Internet for shopping can also be related to the fact that Silver Surfers are more likely to lack familiarity and experience with the medium (refer to *Subsection 3.2.1*), which in turn can result in distrust and higher risk perception (Reisenwitz et al., 2007; Chattaraman et al., 2014). Consequently, they probably show less willingness to adopt the Web as purchase channel (Hernández, Jiménez & José Martín, 2011), which renders it vital to have a closer look at the conceptualisations of *online trust* and *online risk*.

"Trust can be defined as feeling secure or insecure about relying on an entity" (Chen & Tan, 2004, p. 77). The concept has been widely examined when adapting the TAM to online shopping (Ingham et al., 2015) and has proven to be an important antecedent of the intention to buy online (e.g. Gefen, Karahann & Straub, 2003). Likewise, lack of trust was found to be a major reason that prevents consumers from online shopping (Reisenwitz et al., 2007). Yousafzai, Foxall and Pallister (2010) found that through integrating trust together with *perceived privacy* and *perceived security* as antecedents, the explanatory power of the TAM could be significantly increased. Trust too has been suggested to have great impact on the online shopping behaviour of older consumers (McCloskey, 2006; Leppel & McCloskey, 2011). Following up on the earlier mentioned fact that older people are likely to stick to their habit of valuing personal contact in a traditional purchase setting (refer to *Subsection 3.2.1*), it can be added that the physical nature of

a salesperson and the inherent possibility to gain an impression of the salesperson's competence creates a basis of trust that is absent in an online purchase setting (cf. Cho & Sagynov, 2015).

Silver Surfers display more doubts regarding online security than younger people and therefore generally tend to be more cautious when going online (Iyer & Eastman, 2006; Reisenwitz et al., 2007; Chattaraman et al., 2014). Leppel and McCloskey (2011) found that respondents aged 50-69 were more likely than young respondents aged 18-25 to worry about providing financial and personal information when shopping online. In another work, McCloskey (2006) "hypothesized that the elderly, aware of the potential for fraud and abuse on the Internet, will view online shopping more skeptically and will have less trust concerning online purchases" (p. 52). Even though this hypothesis was not supported, the author assumed the operationalisation of the trust items to be responsible for the unexpected results. Gefen, Karahann and Straub (2003) too discussed the conceptualization of trust and called for more research on the underlying beliefs of trust (i.e., believed integrity, benevolence and ability of another party), recalling that different views of trust have fostered confusion about the concept. Their operationalisation of the three trust dimensions (Gefen, 2002), was related to certain online vendors, which are, however, not the focus of this study. Instead, a more general kind of trust is to be examined.

Figure 10: The three levels of E-commerce trust



Source: McKnight & Chervany (2001, p. 43)

McKnight and Chervany (2001) too argued that a clearer understanding of the trust concept is required before theories on it are tested; otherwise misinterpretations are likely to occur. The authors therefore suggest that E-commerce consumers exhibit trust on three levels, namely towards the E-vendor, the web itself and towards others in general, constituting *interpersonal, institutional* and *dispositional trust*, respectively (refer to *Figure 10*). For the purpose of the present study, where no investigation about a certain E-vendor is given, *institutional trust* as more general kind of trust thus would be applicable.

Trust is interwoven with risk (Jarvenpaa, Tractinsky & Vitale, 2000). Bianchi and Andrews (2012) regard *institutional risk* as equal to perceived *online risk* in that they relate both to general technological, financial, product and time risks. While perceived trust is the believed likelihood that other parties will not engage in opportunistic behaviour, perceived risk could be regarded as the believed likelihood that they will. Perceived trust at the same time reduces perceived risk. Lian and Yen (2014) found evidence that perceived risk negatively influences older adults' intention to shop online.

Apart from that, it has been found that trust beliefs largely depend on culture. There is a two-sided interconnection between trust and culture in that trust factors are determined by culture, whilst culture is also displayed through different aspects of trust (Gefen & Heart, 2006). Hofstede's (1980) cultural dimension Uncertainty Avoidance (UAI) has been repeatedly found to impact consumer trust within E-commerce studies (e.g. Hwang, 2009; Yoon, 2009; Faisal et al., 2016). De Angeli & Kyriakoullis (2006) and Stylianou, Kyriakoullis and Savva (2012) too related UAI to trust and anxiety when buying online. "[…] Uncertainty Avoidance, indicates the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations […]" (Hofstede, 1980, p. 228), e.g. by searching for ultimate, absolute truths and by establishing written rules and regulations. Societies with high UAI greatly worry about security and are characterised by a higher degree of anxiety due to a continuous threat in life (Hofstede, 1980).

Caution must be taken when relating UAI to risk, as De Mooij and Hofstede (2010) point out that UAI happens to be confused with risk avoidance. In fact, "[a]s Hofstede (2001) pointed out, uncertainty is to risk as anxiety is to fear" (Merkin, 2006, p. 222), thus it could be wrong if risk was related to UAI. Moreover, "[u]ncertainty is a diffuse feeling with no probability attached to it as in the case of risk" (Merkin, 2006, p. 215) and instead "refers to the extent to which people are made nervous by situations they consider to be unstructured, unclear, or unpredictable […]" (p. 214).

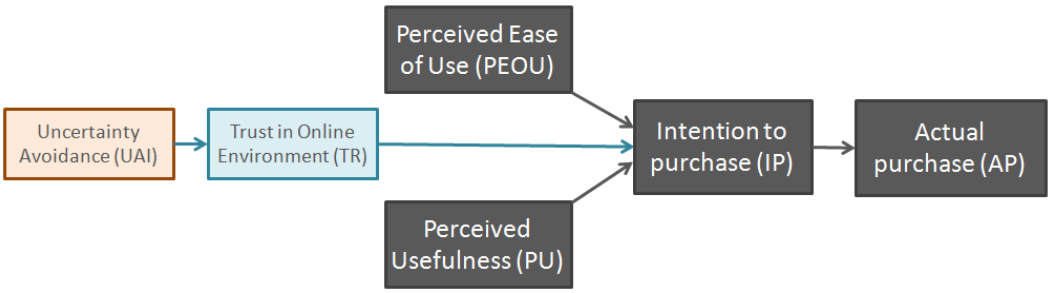
For the context at hand, it can be noted that, as opposed to risk in engaging with a certain party, i.e., a particular online retailer, the online environment as such rather relates to uncertainty than to risk. That is, risk implies a certain amount of knowledge available when aiming at "calculating" the amount or probability of risk, which is not regarded as matching the process of Silver Surfers' general evaluation of the Web. The barriers of initial online purchases rather lie in uncertainty than in risk; mirrored by rather vague concerns about possible but principally unknown consequences, which have arisen from common sense but which cannot be estimated before specific knowledge has been gained.

Hence, in this study, online risk is ignored while UAI is regarded as influencing online trust (TR). Alike innovation adoption being lower in cultures with high UAI (De Mooij & Hofstede, 2010), online shopping intention too might negatively correlate with UAI. However, in accordance with Cho and Sagynov (2015), trust is first of all assumed to be an antecedent of online purchase intention, whilst UAI is proposed to influence the extent of trust in the online environment.

Accordingly, these additional variables are integrated to the TAM as depicted in Figure 11 and formulate the following hypotheses:

H15: There is a negative relationship between Uncertainty Avoidance and Online Trust
H16: There is a positive relationship between Online Trust and IP

Figure 11: TAM extended by Uncertainty Avoidance and Trust



Source: Author

For the same reasons as with Individualism (refer to *Subsection 3.2.2*), UAI will be measured on the individual-level. Hwang (2009) and Hwang and Lee (2012) too modified individual-level UAI scales from former works (Srite & Karahanna, 2006 and Dorfman & Howell, 1988, respectively) to measure UAI in relation to trust on online buying intentions.

3.2.5. The Role of Social Influence and Consumer Embarrassment in E-commerce Adoption

Another key aspect of E-commerce adoption of Silver Surfers is *social influence*. Lian and Yen (2014) found that *social influence* is a major driver for older adults' online shopping as it positively affected their intention to shop online. "Social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system. Social influence as a direct determinant of behavioral intention is represented as subjective norm in TRA, TAM2, [and] TPB […]" (Venkatesh et al., 2003, p. 451).

However, the concept of *subjective norm* seems to be erratic. Recalling that social norm is a key determinant within the TRA and the TPB, Ajzen (1991) himself noted that "the results for subjective norms were mixed, with no clearly discernible pattern. This finding suggests that, for the behaviors considered, personal considerations tended to overshadow the influence of perceived social pressure" (p. 189). Lim et al. (2016) further investigated the effect of social norm on actual online purchase behaviour and found, in accordance with Jamil and Mat (2011), that social norm does not have a significant effect on actual online purchase even though it did influence intention significantly. Lim et al. (2016) also observed that most studies apply intention as mediator between subjective norm and actual buying behaviour and reemphasise that the intention to purchase does not automatically translate into actual purchase (Kim & Jones, 2009). Going back to the abovementioned work of Lian and Yen (2014), who found that social influence significantly affects older adults' online shopping intention, it was observed that the relationship between social influence and actual purchase indeed was not tested, as was not the effect of intention on actual purchase. Alsajjan and Dennis (2010) suggest that there should be more research that addresses the relative neglect of social norm.

Nonetheless, at first sight, social norm appears to be essential for Silver Surfers. After all, social contacts, such as children and grandchildren, are an important source for advice and support for older people, which influences their general acceptance of technology (Renaud & Van Biljon, 2008). However, it could be argued that this influence rather affects the adoption of computer and Internet usage, whilst the decision to participate in online shopping may happen more

independently when Silver Surfers may become experienced. Moreover, recalling that social norm initially was not a part of the TAM (refer to Subsection 3.1.3), the concept will not be included in the present study as such. Instead, an experimental approach from a certain healthcare perspective is undertaken, wherein this thesis takes a different view on the social component of E-commerce adoption. That is, it is here suggested that the nature of social norm depends on a particular situation, which is why one aspect of social influence is determined by *social presence*.

Apart from the conceptualization of normative beliefs about important others that has been suggested within TRA and TPB and that has been neglected within the original TAM, social norm in particular purchase settings may play a completely different role than typically applied in consumer behaviour studies; namely, the influence on consumers' E-commerce adoption due to the influence of '*un*important others'. That is, when a desired product creates an embarrassing situation in a traditional purchase setting, this feeling predominantly arises because of the salesperson or other customers that are coincidentally around.

To avoid embarrassment during shopping in a physical store, consumers were found to develop a greater intention of purchasing embarrassing products in an online store (Sarkar & Sarkar, 2017). The public nature of a physical store has been argued to influence consumers' purchase intentions through social presence, which renders it important to capture the influence of social norm (Londono, Davies & Elms, 2017), although from a different perspective as usually done within consumer behaviour studies. "Embarrassment has been defined as a social emotion that occurs due to the violation of a social norm in public, which is appraised by others" (Krishna, Herd & Aydınoğlu, 2015, p. 473).

The concept of social norm thus could also be related to the actually "*un*important others" present in a physical purchase setting. The simple awareness of others in close proximity within a particular situation, and the concern about how these others may perceive a consumer, can sharply affect his or her sense of adequacy (Modigliani 1968). Moreover, social influence in physical purchase settings occurs in interactive and noninteractive social situations; that is, both an interaction with a salesperson or the mere physical presence of other consumers may have an influence on a consumer (Argo, Dahl & Manchanda, 2005). Dahl, Manchanda and Argo (2001) even found that, besides real physical presence of others, *imagined social presence* too can be a motivating factor in creating embarrassment during purchase selection. As noted by Nichols (2015), Brackett (2004) reported that people buying an embarrassing product in a store are concerned of being watched or judged by others, therefore they seek to reduce attention from others by actions such as monitoring other people, waiting them to leave the aisle, avoid asking for help or even avoid eye contact with other people altogether. This implies that consumers avoid any interaction with others to retain their privacy in delicate purchasing situations, while even the presence of a salesperson would violate their privacy (Sarkar & Sarkar, 2017).

Social Impact Theory (Latané, 1981) suggests that the mere presence of others significantly impacts the emotion and self-presentation of an individual (Sarkar & Sarkar, 2017). The

awareness of potentially having failed to demonstrate appropriate behaviour within a particular social interaction connotes a threat to an individual's presented self, i.e. one's public image, and may be reflected by symptoms such as blushing, sweating or stuttering (Modigliani, 1968). Embarrassing situations like the public violation of social norm thus directly threaten an individual's public identity (Leary et al., 1992, cited in Blair & Roese, 2013). As common experience driven by concerns about what '*un*important others' think of us (cf. Dahl, Manchanda and Argo, 2001), embarrassment reflects exposure, inadequacy and awkward self-consciousness (Modigliani 1968). Drawing on previous conceptualizations, Dahl, Manchanda and Argo (2001) "define embarrassment during purchase as an aversive and awkward emotional state following events that increase the threat of unwanted evaluation from a real or imagined social audience" (p. 474).

Embarrassment is not only a widely occurring emotion, it too can occur in a variety of situations. Consumers are generally subject to three consumption stages: during a purchase, during usage of a product and during disposition (Dahl, Manchanda & Argo, 2001), of which the actual purchase is likely to create the highest level of embarrassment (Sarkar & Sarkar, 2017). Experienced or *anticipated embarrassment* has the power to change a consumer's buying habits or even prevent him from consuming a product (Krishna, Herd & Aydınoğlu, 2015). The former has been found to become apparent in coping strategies such as increasing the basket size with additional product to "mask the embarrassing product by luring attention away from it" (Blair & Roese, 2013, p. 678). Also, some products have been found to be replaced to avoid embarrassment. For example, instead of specifically designed adult diapers or incontinence pads, consumers have purchased sanitary napkins, tissues, paper towels, or toilet paper (Thompson, 2015). Consumers may even take risks such as engaging in shoplifting to avoid embarrassing purchase situations (Hoyer & MacInnis 1998, Dahl, Manchanda & Argo, 2001).

While normally occurring in public, Krishna, Herd and Aydınoğlu (2015) proved that embarrassment can also happen when one's social norm is violated in a private setting and that the offered alternative of online purchasing was not a full solution to avoid embarrassment. Nevertheless, study participants reported comparably higher physiological reactions and increased tendency to escape the situation when purchasing in a physical store (Krishna, Herd & Aydınoğlu, 2015). Londono, Davies and Elms' (2017) study in fact revealed that anticipated negative emotions were significantly higher when purchasing an embarrassing product in a drugstore compared to shopping online, which decreased the intention to shop in the drugstore. The same authors derived from the work of Wolfinbarger and Gilly (2001) "that the internet creates an emotional relief from embarrassment" (Londono, Davies & Elms, 2017, p. 9).

It might be worth noting that there is an ongoing debate about whether *embarrassment* is different from *shame* or not. To some extent, experiences of embarrassment resemble those of shame, however, they have also been argued to differ from each other. While embarrassment results from behaviour that is inconsistent with one's desired self, shame revolves around the desire to live according to general standards and working towards ideals that makes one a worthy person (Babcock & Sabini, 1990). "Whereas embarrassment resulted from surprising,

relatively trivial accidents, shame occurred when foreseeable events revealed one's deep-seated flaws both to oneself and to others" (Miller & Tangney, 1994, p. 273). Compared to circumstances that place one in the unpleasant state of embarrassment, shame thus is a much darker, painful and devastating experience (Miller & Tangney, 1994). It may be argued that the type of product purchased and the underlying need behind decides whether embarrassment or shame is prevalent. When thinking of the purchase of a pornographic magazine (in order to enjoy oneself) as opposed to buying adult diapers (in order to deal with one's bladder control loss), it can be argued that the lines between the concepts may blur due to deviating degrees of voluntariness. Moreover, as incontinence has been regarded as stigma (Newman, 2014), it can by no means be regarded as 'trivial'.

Following up on different products, extant literature shows that researchers have been studying embarrassment on condoms (Dahl, Manchanda & Argo, 2001; Moore et al. 2006; Blair & Roese, 2013), pornographic DVDs (Sarkar & Sarkar, 2017), anti-odor foot powder, anti-diarrheal medicine (Blair & Roese, 2013), anti-gas medicine (Lau-Gesk & Drolet, 2008; Blair & Roese, 2013), hemorrhoid and vaginal itch cream (Nichols, Raska & Flint, 2015), incontinence drugs and Viagra (Krishna, Herd & Aydınoğlu, 2015), as well as on a hair loss product (Londono, Davies, & Elms, 2017). Adult diapers were also repeatedly mentioned (e.g. Dahl, Manchanda & Argo, 2001; Lau-Gesk & Drolet, 2008; Nichols, 2015; Nichols, Raska & Flint, 2015), but were not found to be included in investigations, presumably because most studies were conducted on students. However, among 33 potentially embarrassing products, incontinence pads ranked first when degree of embarrassment was anticipated by students within a study of Nichols, Raska and Flint (2015).

Furthermore, the extent of experienced embarrassment depends on one's proneness to embarrassment, called *embarrassability* (Modigliani 1968). Individuals who fear negative social evaluation and are rather sensitive to social norms will feel embarrassment more intensely (Miller & Tangney 1994), while others are able to pass through awkward situations without much discomfort (Modigliani 1968) or may lack concern altogether (Nichols, Raska & Flint, 2015). Embarrassability has been argued to be a relatively enduring characteristic and the result of more or less stable personality traits of a person (Modigliani 1968); however, some researcher found that the more familiar consumers became with the purchase of an embarrassing product the less embarrassed they feel (Dahl, Manchanda & Argo, 2001). This is important to be investigated for incontinence products, as it is often a chronic health condition.

Research has also shown that younger people are more likely to feel embarrassed than older people (e.g. Holzer et al., 2005), which too goes for consumption settings (Nichols, Raska & Flint, 2015; Sarkar & Sarkar, 2017). This makes it important to examine if identified consumption patterns of younger people are true for older peoples as well. In recalling that incontinence has been regarded as presenting a more severe facet of embarrassment, related products are presumed to present an embarrassing condition regardless of age.

In general, embarrassment has seen sparse attention in consumer research (Dahl, Manchanda & Argo, 2001; Krishna, Herd & Aydınoğlu, 2015; Nichols, 2015). Within the literature review of this work, only three studies were found that combined embarrassment with investigations on online shopping intention (Krishna, Herd & Aydınoğlu, 2015, Londono, Davies & Elms, 2017; Sarkar & Sarkar, 2017). To the best of the authors' knowledge, the present research is the first that applies TAM to the examination of embarrassment and that explicitly focuses on Silver Surfers. Because the growing ageing population and related adult incontinence have created an increasing market that cannot be ignored (Hymowitz & Coleman-Lochner, 2016), marketers need to help customers in coping with embarrassment (Sarkar & Sarkar, 2017). Some decades ago, such products were labelled 'unmentionalbles' that required specialized techniques to overcome the resistance threshold (Wilson & West, 1981). Nowadays, they are openly presented in the media and fortunately receive more and more attention and acceptability (cf. Katsanis, 1994).

Figure 12: Underwareness campaigns

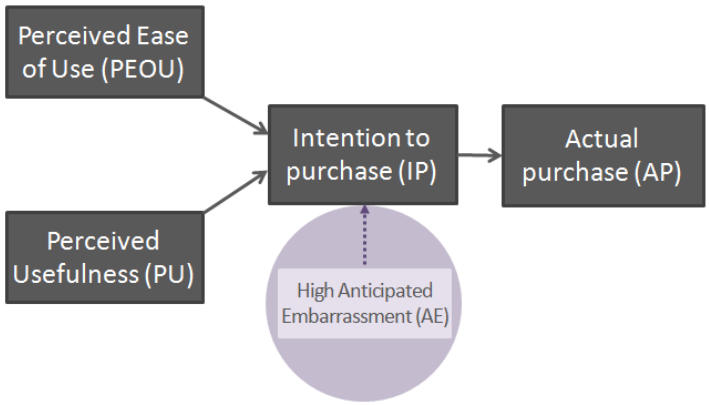
Sources: CT Boom (2014), Dipardo (2014), Motherhood defined (2015), assembled by author.

However, no matter if campaigns like Kimberly-Clark's "Underwareness" (refer to *Figure 12*) aim at reducing the stigma that bladder incontinence generates – here by promoting that wearing Depend underwear is no big deal (Newman, 2014) – adult consumers surely still feel embarrassed when purchasing diapers for themselves, at least if they do it for the first time. It may therefore be important to actively promote the alternative to traditional shopping environments where they are exposed to social presence, and emphasize the privacy of the online shopping possibility.

Having in mind the lack of experience that may prevent Silver Surfers from E-commerce adoption (refer to *Subsection 3.2.1*), this lack may stand in direct competition to the potential benefits of the privacy that online shops offer for delicate product needs, i.e. PU. "If an older individual overcomes the barrier of the initial purchase [in the new channel], it is probable that the perception of the benefits obtained becomes more immediate and that his or her purchasing behaviour is similar to that of any other purchaser, independently of age" (Hernández, Jiménez & José Martín, 2011, p.117). Anticipated embarrassment (AE) is suggested to be a possible

determinant of IP within a special purchase context. Nonetheless, it is added for illustrative purposes to the conceptual model as presented in *Figure 13*.

Figure 13: TAM extended by anticipated embarrassment



Source: Author

Accordingly, the last hypotheses of this model are:

H17: There is no difference of anticipated embarrassment between different age groups

H18: The level of embarrassment will be lower for consumers who are familiar with the purchase of an embarrassing product than for those who have not experienced this condition yet

H19: Online purchase intention for an embarrassing product will be higher for greater degrees of anticipated embarrassment than for smaller degrees

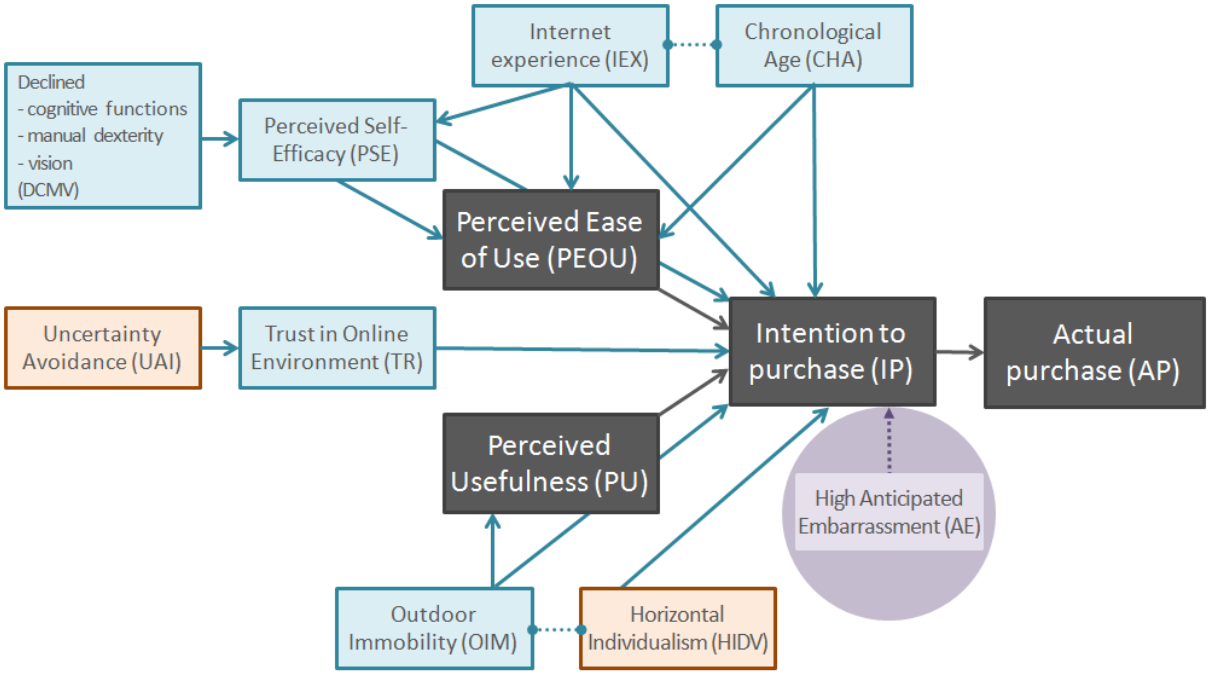
3.3. Summary and Final Conceptual Model

The literature review on older adults' online shopping acceptance together with cultural implications for the studies of E-commerce adoption has step by step developed the conceptual model of the current thesis. 19 hypotheses were presented for the empirical research of this work. To graphically illustrate the methodical procedure done within this thesis, the proposed relationships of single variables have been presented by extracted figures of the final model throughout *Section 3.2*. It is now time to briefly review the entire model. *Figure 14* therefore compiles all proposed relationships as a whole. Recall that while the model serves for illustrating the presumed cause-and-effect paths between the variables, hypotheses testing will be done on the mere relationships (i.e., correlations) between the variables.

Reflecting on the problem statement of the present thesis, the conceptual model at the same time summarises the content of this chapter. That is, after thoroughly elaborating on different models for examining E-commerce adoption, the TAM has been selected as most suitable basis for the here suggested research model. The literature review on technology acceptance of older adults together with cultural considerations then formed the model in a stepwise manner. Among major factors supposedly influencing older peoples' online shopping intention, chronological age (CHA), Internet experience (IEX), Uncertainty Avoidance (UAI) and online trust (TR) have been integrated in the TAM. Furthermore, physical decline of cognitive, manual and visual functions were abbreviated by DCMV, which are assumed to influence perceived self-

efficacy (PSE). Lastly, the combination of outdoor immobility (OIM) and desired independence as component of Horizontal Individualism (HIDV) might drive Silver Surfers' and intention to purchase (IP). As experimental variable in regard to a specific purchase context, the concept of Anticipated Embarrassment (AE) will be examined on its possible influence on the intention to purchase the particular product online.

Figure 14: Extended TAM as final research model



Source: Author

The suggested model presented in *Figure 14* thus summarises the result of the methodical procedure performed in this thesis. The technique of TAM has undergone a unique adaptation to fit the unique context of Silver Surfers in Germany. The next chapter briefly introduces some facts around this empirical setting, before the methodics of this work are described in *Chapter 5.*

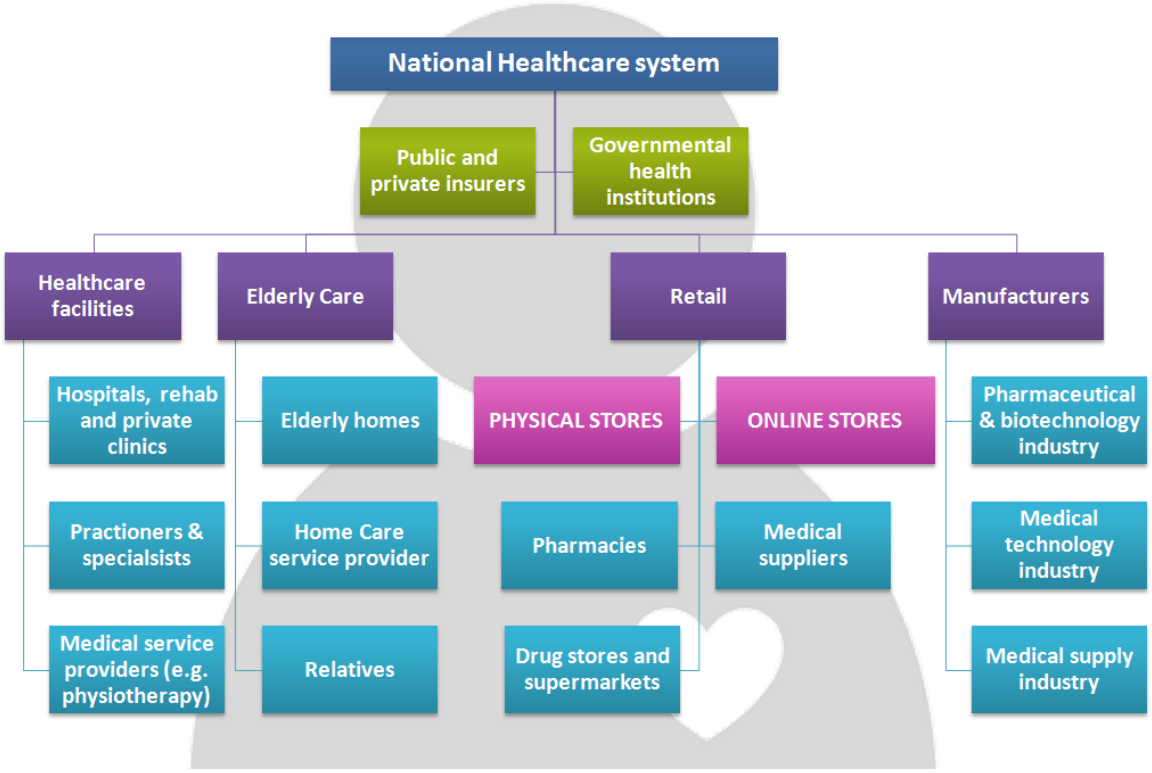
4. Empirical Setting

This following sections briefly present the empirical setting of this study. After defining healthcare marketing, the German healthcare system will be outlined. Furthermore, an introduction of Germany's older population, its internet usage and cultural characteristics provides a concise portrait of the consumers studied in this work.

4.1. Opportunities for Healthcare Marketing in Germany

At a first glance, Healthcare Marketing could be regarded as similar to Marketing in other industries. "Viewed broadly, healthcare marketing involves any activities that relate to the development, packaging, pricing and distribution of healthcare products and to any mechanisms used for promoting these products" (Thomas, 2008, p. 1). However, there are substantial differences in the marketing of healthcare products. The industry is highly regulated and politicized, has many different participants (refer to *Figure 15*), and while the person that selects a healthcare product is not necessarily the one that consumes it, there may be a totally other party paying for it (Gee, 2016).

Figure 15: A nation's healthcare system



Source: Author

The German healthcare system encompasses one of the densest provider structures worldwide, with an utilisation rate being the highest of the world. The statutory health insurance is mandatory and covers almost 90% of the population, leaving the remaining citizens privately insured. The fee for the statutory insurance is usually shared between employer and employee and currently accounts for 14,6% of the employee's gross wage. Within the statutory system

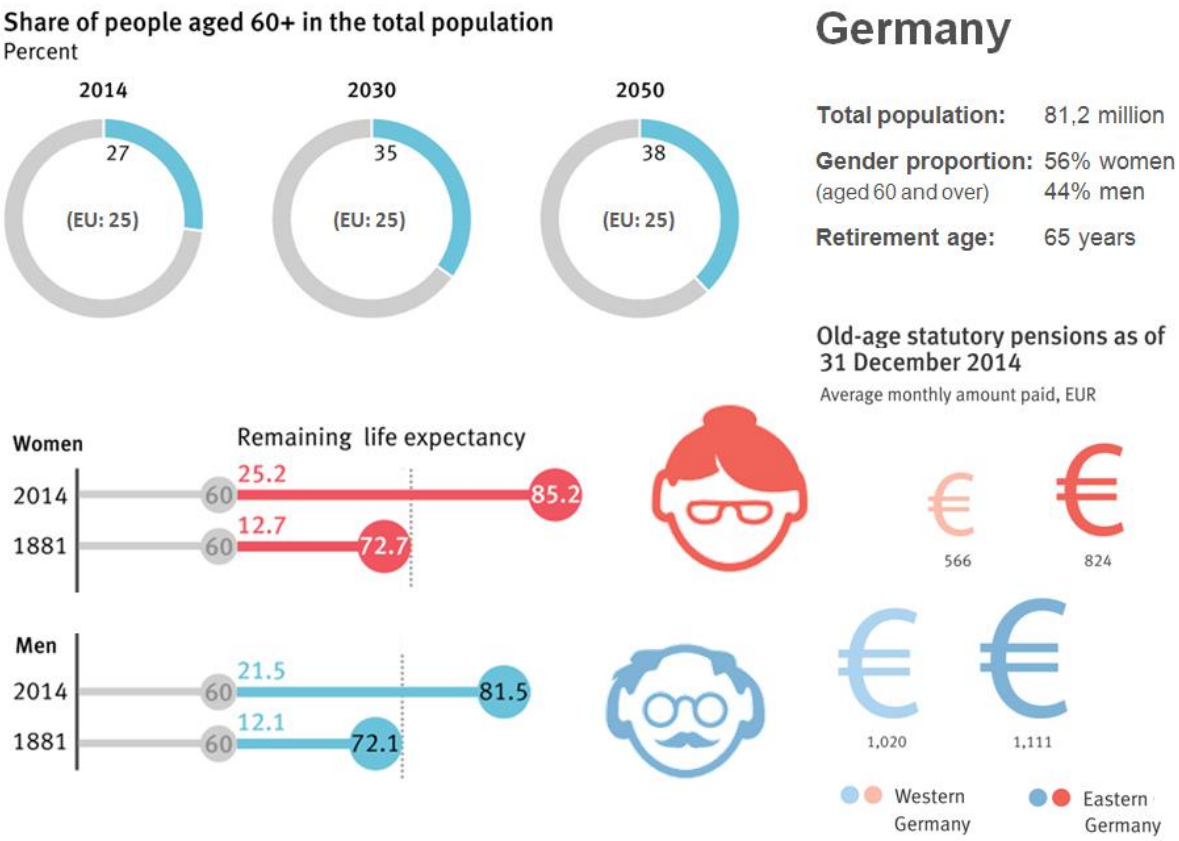
alone, citizens can chose between more than 100 health insurance companies, all covering the same basic services. These basic health services can be complemented by voluntary services, which are either paid out of pocket or by additionally contracted private insurances. Thus, within the German healthcare sector the focus too has been changing from costs to market orientation (GTMHC, 2015).

In 2011, major insurance and pharmaceutical reforms have leveraged competition of health providers and decisional power of insurers (Elton & O'Riordan, 2016), resulting in cost cuttings and increased co-payments by patients. Consequently, Germans have been learning to pay more and more out of pocket for their health, whilst greatly valuing quality (Glowik, 2015). However, Germans too trust the quality of private label products from discounters like Aldi and Lidl, while being attracted by the low prices of these health products (Euromonitor International, 2016). Also, the enhanced empowerment of patients together with new IT technologies (e.g. Tablets) has significantly altered their shopping behaviour (Whitler, 2015), providing an attractive market for the E-commerce of health products.

4.2. Ageing Population in Germany

In addition to the market attractiveness lying in the healthcare sector as such, the ageing population too contributes to this trend. Germany belongs to those countries of the EU where demographic change sees the most advancement. Due to better living conditions, life expectancy

Figure 16: Key facts of Germany's older population



Source: Author, adapted from Destatis (2016)

has been constantly increasing over the years. With a doubling since the 19th century it today stands at 78 years for newborn boys and 83 years for girls. These numbers become even higher when looking at the age group from 60 years onwards. Since persons at this age have already surpassed certain death risks relevant for those aged 0 to 59, they now face the risks of adults at the same age or older. As a consequence, figures for the life expectancy of Germans aged 60+ are even higher, today standing at 85,2 and 81,5 for women and men, respectively (refer to *Figure 16*). As these numbers too have been increasing over the years, more than a quarter of Germans are aged 60 and above today, whilst by 2050, this group will have risen to more than a third (Destatis, 2016).

90 % of Germans mainly depend on monthly income from their retirement or pension fund, while 25% of wives predominantly rely on their husband's income. Also, different working patterns of this generation are responsible for women being financially more dependent on their spouses, since they were either not employed at all or at least took some time out in order to raise their children. This trend of course can be found in many countries, however, within Germany, a clear difference can be seen between the eastern and western part of Germany (refer to *Figure 16*), indicating the prevalent working patterns within communism regimes. Due to higher female employment rates in the former German Democratic Republic (GDR), the average statutory pensions paid in Eastern Germany are around 46 % higher for women than they were in Western Germany (Destatis, 2016).

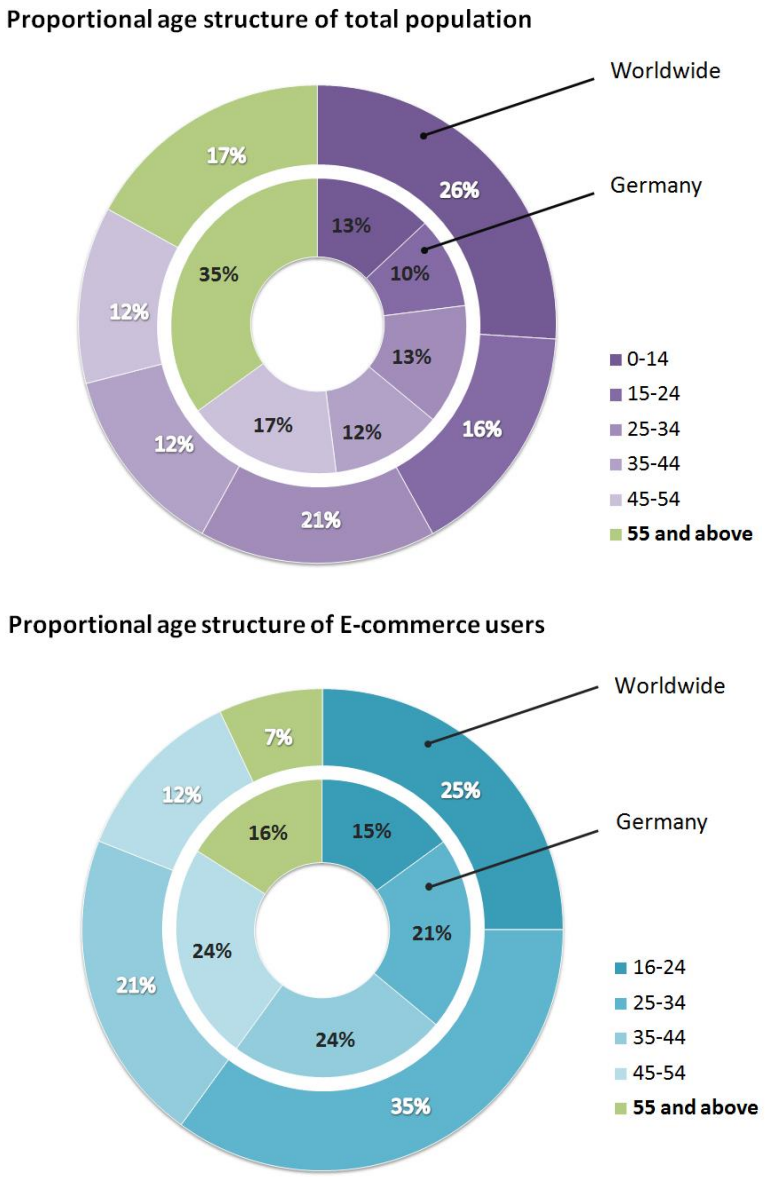
4.3. Key Figures of the German E-commerce Market

Good living conditions have fostered that Germans are much older than most other nations. Comparing the proportional age structures of the population (United Nations, 2015b) (refer to *Figure 17*), it immediately becomes obvious that the age group of those aged 55 and above substantially differs between Germany (35%) and the global average (17%). Likewise, percentages of E-commerce users aged 55 years or more accounted for 16% in Germany (Statista, 2017b) and 7% worldwide (Statista, 2017a), thus showing a markedly higher E-commerce participation of older Germans than the global average. *Figure 17* depicts these differences between Germany and the global average.

In Germany, 89,6% of households have a broadband connection (Eurostat, 2015). Also, with 51,6 million online shoppers, Germany has the greatest number of B2C E-commerce customers in Europe (Ecommerce News, 2016). Moreover, Germany ranks second both among other European countries in annual B2C E-commerce sales and worldwide in digital buyer penetration, where 83% of internet users bought at least once online in 2016 (eMarketer, 2013).

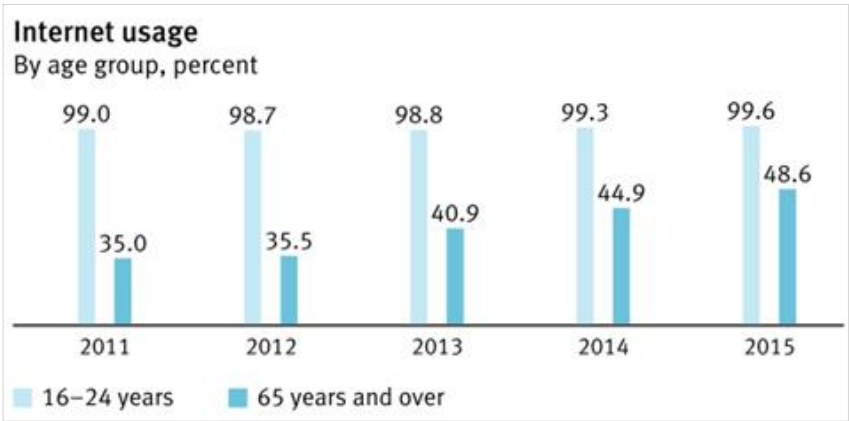
Older Germans increasingly contribute to these numbers. As *Figure 18* presents, while more or less all younger surfers go online, the number of so-called *Silver Surfers* has steadily grown over the years, accounting for 48,6% of Germans 65 and above which used the Internet in 2015 Destatis (2016).

Figure 17: Age structure of total population and E-commerce users



Source: Author, based on data of United Nations (2015b) and Statista (2017a, 2017b)

Figure 18: Evolution of Internet usage in Germany

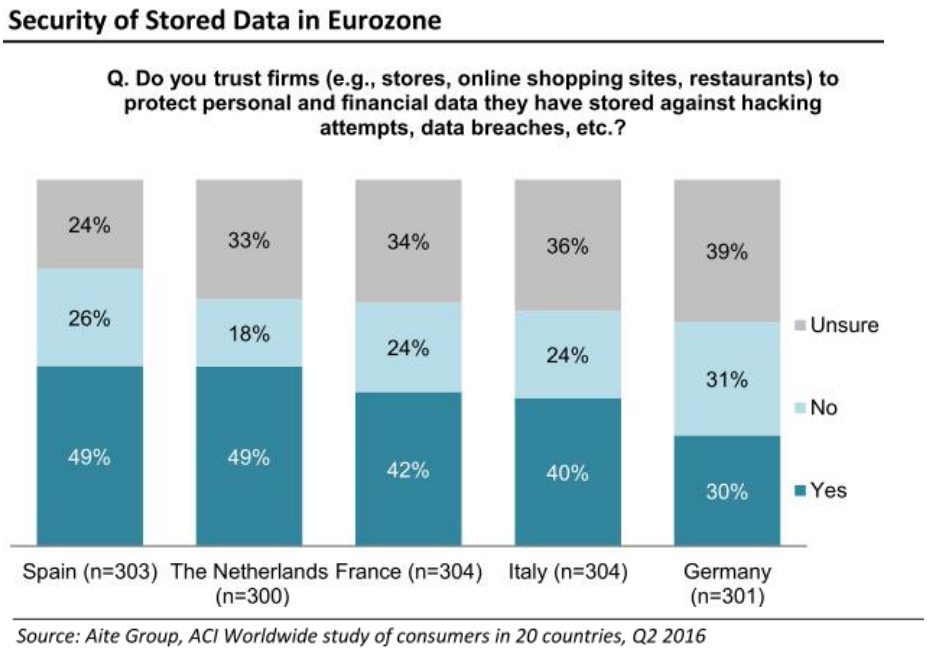


Source: Destatis (2016), adapted by author

According to a cross-country study of webgears.de, 51 % of German Silver Surfers that shop online are male, while those from the US at older ages only contribute with 39%. Shopping prime time too differs between Silver Surfers of the two countries. German prefer Mondays for online shopping, while Americans mostly shop from Friday to Sunday. Germans furthermore rather shop between 7 and 8 p.m., while US Silver Surfers prefer the time between 1 and 3 p.m. (Rönisch, 2016).

Furthermore, as per cross-generational study of ECC Köln (2015), who already denote those aged 50+ as Silver Surfers, differences between age groups of German internet users lie in frequency and Smartphone usage of online shopping. That is, whilst 73% of young internet users below 29 shop online at least once per month, only 68% of surfers 50+ do so. Shopping out of boredom has already been a reason for 25% of the younger surfers, whereas merely 3% of Silver Surfers felt such a need. Also, only 60% of those aged 50 and above own a Smartphone (compared to as good as 100% of young surfers), of which only 4% (compared to 22% of younger users) have already bought something online with the device. 7% (compared to 34% of younger users) used their Smartphone for information search before product purchases. Reasons for these differences seem to lie in presumed lack of data security.

Figure 19: Europeans' trust in data protection of firms



Source: Inscoe (2017)

This last fact is not surprising when looking at the low confidence Germans generally have about data security. In a global consumer study of 20 countries (Inscoe, 2017), Germany had the lowest trust in firms in general when it comes to protecting stored personal and financial data against hacking attempts, data breaches or the like; both within the European countries studied (refer to *Figure 19*) as well as among other regions of the world. The country too stood out with 45% thinking that theft by computer hackers presents the greatest fraud risk for consumers. Surprisingly, 66% of Germans think that most online shopping sites where they shop online use

security systems, which makes up quite the same rate as other European countries when leaving out UK with 79%.

Nonetheless, Germans too don't believe that much in credit cards as other countries. An estimation of the German central bank reveals that 79% of financial transactions in Germany are done in cash, while that figure both in Britain and the US is below 50%. Possible reasons may lie in the fact that Germans believe that using cash helps to better keep track of one's finances and to avoid debt, against which Germans have an intense aversion. Instead, when paying in stores or restaurants, cash is king, whilst it is common to transfer money from one bank account to another for paying monthly bills (WordPress, 2016).

4.4. German Culture

A brief portrait of the German culture can be found when looking at the cultural dimensions offered by Hofstede (2001). Within Hofstede's framework, the low trust in data security and the preference for cash may be related to Germany's relatively high *Uncertainty Avoidance*. For Germans, details are important in order to create certainty that something is well thought-out. They too strongly rely on expertise to compensate for their uncertainty, which also relates to their rather low *Power Distance*. German people thus do neither expect nor accept that power is distributed unequally among individuals. Another dimension of Hofstede is Individualism/Collectivism, which addresses the degree of interdependence among the members of a society. Germans are *individualistic* and tend to look only after themselves and their direct family. They strongly belief in an ideal self-actualisation and base loyalty rather on personal preferences than on more distant family ties. Duty and responsibility is defined in contracts, e.g. between employer and employee. The German communication is quite direct and honest, to give the counterpart the chance to learn from mistakes. Furthermore, as Germans score relatively high on *Masculinity*, which indicates what motivates people, i.e., whether they want to be the best or rather like what they do. Germans highly value performance and draw much of their self-esteem from successfully performing tasks. If a certain status has been achieved, it is shown by tangible items such as technical devices, cars or watches. Another dimension of Hofstede is *Long term orientation*, in which Germany scores high, meaning that it is a pragmatic country, where people adapt traditions to current situations and contexts. They too have a strong propensity for thriftiness and perseverance when it comes to achieving something. The last dimension, *indulgence*, indicates to what extent people attempt to control impulses or desires. As Germany scores low on indulgence, it is a rather restrained culture and therefore people tend to cynicism and pessimism and put lesser emphasis on leisure time. The social norms that restrain Germans are responsible for that many of them would feel somewhat wrong if indulging themselves (Hofstede, 2001; Hofstede, Hofstede & Minkov, 2010).

This chapter presented the empirical setting of this thesis. After healthcare marketing was defined, Germany's healthcare system, older population, E-commerce facts and cultural characteristics provided a brief outline for this work. The next chapter now describes the methodics of this thesis, i.e. it presents how the method that has been evolving throughout the methodological procedure described in *Chapter 3* has been applied in the present research.

5. Methodics

After elaborating on the methodical procedure that resulted in a unique TAM for the study of German Silver Surfers (refer to *Chapter 3*) and subsequent to a brief presentation of the empirical setting (refer to *Chapter 4*), the following sections present how the method has been applied to answer the research questions of this thesis.

5.1. Research Design

In compliance with the analytical approach that has been chosen within the operative paradigm (Arbnor & Bjerke, 2009) to investigate the problem of the present study, a cross-sectional research design was applied. As opposed to experimental, longitudinal, case study or comparative design, cross-sectional design examines 1) variation of data that consists of more than one case and 2) has been gathered more or less at a single point in time, 3) by applying quantitative methods, 4) in order to find patterns of association between two or more variables (Bryman & Bell, 2015). Among the methods available under this design, survey method collects the data for cross-sectional research by conducting structured questionnaires.

For the present study, the questionnaire was created as web-based online survey because 1) it did not involve (m)any costs and it was very efficient regarding creation, participation and data extraction, 2) questions could be set mandatory so that the likelihood of missing responses was excluded, and 3) the sample almost automatically excluded non-Internet users (recall that this study did not investigate Internet adoption) as it is spread out to an online population. However, survey method also brings with it certain disadvantages, which are explained in more depth at later point (refer to *Section 8.3*). In the case of older adults, difficulty in concentrating on answering a survey that is too long was avoided by suggesting breaks, i.e., respondents were advised to simply halt their participation by leaving the survey window open and continue at a later time.

The following sections will now describe the content of the online questionnaire. While *Section 5.2* presents the general sequence and surrounding questions, *Section 5.3* summarizes all TAM concepts and their corresponding items in *Table 2*.

5.2. Survey Design

Before the survey participants were exposed by any questions, an introducing text welcomed them to the survey and thanked for their participation. The purpose of the questionnaire was explained and statements regarding data security, anonymity and expected time needed to participate were made.

Subsequently to the introductory text, respondents were then asked about their level of experience with the Internet (refer to *Table 2:* IEX I), to be able to exclude those that actually do not use the Internet and participate through the help of a third person. For those who stated that they have no own experience, a confirmation question ensured a second chance in case people accidentally mistyped; otherwise, the survey window was closed and no further data were collected. Two further questions then completed the measurement of Internet experience (refer

to *Table 2:* IEX II + IEX III). Additionally, one question checked whether respondents have ever used the Internet at work, to potentially provide further explanation for their level of Internet experience. Level of agreement to these statements was indicated on a 5-point Likert scale.

Questions then asked what respondents use the Internet for (e.g. reading news, stay in touch with friends, etc.) and whether they ever shopped something online. Note that this question later serves for separating groups of purchase frequency (refer to *Section 6.4*). Those that never or seldom (once, 2-3 times, 5-6 times) performed an online shopping task were subsequently asked why they have not purchased anything (or more often) online. Possible reasons such as preferred personal sales contact, anxiety of doing something wrong or concerns about data security etc. were provided.

Physical decline was ascertained by the statements "Due to reduced visual capability/manual dexterity/cognitive capability, I have difficulties in using the Internet", again measured on levels of agreement via 5-point-Likert scale.

After further item questions presented in *Table 2*, respondents then were asked to imagine a purchase context that was assumed to elicit anticipated embarrassment, based on a similar approach done by Krishna, Herd and Aydınoğlu (2015). In detail, participants should think of a situation in which they recently noticed they lost bladder control. Since there are helpful products available to deal with this matter (incontinence pads or diapers), they were asked to imagine going to a physical drug store, pharmacy or medical supplier and demand these kinds of products. Following this, they had to indicate their anticipated level of embarrassment as per suggested scale of Dahl, Manchanda and Argo (2001) (refer to *Table 2*). In addition to that, they were offered with the possibility to state whether they indeed went through such an experience before, which would result in some questions about the location of the purchase and about criteria they regard as important for these products. Either way, subsequently to the imagined situation, all respondents were asked how possible it is that they would buy incontinence products online to test whether they differ in their online purchase intention according to their level of embarrassment stated.

Requested personal data included age, gender, size of settlement where respondents reside, education, occupational status, living arrangement, and income. The first two numbers of the postal code too were requested to control for sufficient geographic distribution within Germany. The survey ended with the possibility to contact the author for the case respondents had questions about the research or were interested in the findings.

Before actual data collection (refer to *Section 5.4*), a pre-test with 5 volunteers was conducted to check for understanding and usability of the survey. After gaining feedback from the participants, only few adjustments had to be made so that clarity of all questions was ensured.

5.3. Scale Development

The main instrument for investigating the proposed model of this study entailed a scale of 10 concepts with 3 items each, as presented in *Table 2*. These concepts are the variables of the

research model presented in *Section 3.3*. Additionally, chronological age presents the 11th variable of the model, while factors of cognitive, manual and visual decline (DCMV) were examined separately, thus did not build a mutual construct. As implied earlier (refer to *Section 5.2*), all items were measured on a 5-point Likert scale, ranging from *strongly disagree* to *strongly agree* (German: *stimme überhaupt nicht zu – stimme eher nicht zu – teils/teils – stimme eher zu – stimme voll und ganz zu*). This was done in accordance with other studies on older adults such as those of Iyer and Eastman (2006), McCloskey (2006), Pan and Jordan Marsh (2010) or Leppel and McCloskey (2011), even though some authors regard a 7-point scale as more effective (e.g. Hernandez et al., 2011). The decision for 5 items was made in accordance with the general attempt to keep the survey as easy as possible to not overwhelm older participants.

Table 2: Scale development

Concept	Modified /own item	Original Item	Source
Internet experience: IEX I		How would you rate your level of experience with the internet? (not any/others do/novice/ experienced/expert.	Iyer & Eastman (2006)
IEX II	I know how to use a search engine for searching for information on the Internet (e.g. Google).		Author
IEX III	When using a search engine (e.g. Google), I usually find the information that I was searching.		Author
Perceived ease of use (PEOU)	Learning to use the Internet to buy a product was (would be) easy for me, even for the first time.	Learning to use the Internet to buy a product would be easy for me, even for the first time.	Hernández, Jiménez & José Martín, (2011)
	The internet is (would be) easy to use to do my shopping.	The internet would be easy to use to do my shopping.	Hernández, Jiménez & José Martín, (2011)
	Using the internet to buy a product is (would be) easy to do for me.	Using the internet to buy a product would be easy to do for me.	Hernández, Jiménez & José Martín, (2011)
Perceived usefulness (PU)	With Internet shopping I can (could) make my life more comfortable.	Internet shopping makes my life easier.	McCloskey (2006)
	Buying products over the Internet is (would be) more comfortable than purchasing them from a store.	Buying products over the Internet is easier than purchasing them from a store.	McCloskey (2006)
	Buying things over the Internet is (would be) more convenient than normal shopping.	Buying things over the Internet is more convenient.	McCloskey (2006)
Outdoor Immobility (OIM)		Activities (e.g. transportation, walking in stores, waiting in line) involved in shopping are difficult for me.	Lim & Kim (2011)
	Due to physical limitations, I can barley go more than just around the next corner.		Author, based on Bullinger & Kirchberger (1998)
	Carrying shopping bags from a store to my home is not possible for me (anymore).		Author, based on Bullinger & Kirchberger (1998)

Concept	Modified /own item	Original Item	Source
Perceived self-efficacy (PSE)		I feel capable of buying a product on the Internet.	Hernández, Jiménez & José Martín, (2011)
	I am capable of navigating through shopping sites on the Internet.	I feel capable of finding shopping sites on the Internet.	Hernández, Jiménez & José Martín, (2011)
	I am convinced that I possess the capability to find information about a product on the internet	I feel comfortable looking for information about a product on the internet	Hernández, Jiménez & José Martín, (2011)
Intention to purchase(IP)	It is likely that I will purchase products from Internet vendors in the future.	It is likely that I will continue to purchase products from online retailers in the future.	Lim & Ting (2012)
	I intend to purchase products on in Internet in the future.	I intend to continue purchase products from the Internet in the future.	Lim & Ting (2012)
		There is a substantial chance that I would purchase different products from an online retailer.	Lim & Ting (2012)
Anticipated Embarrass-ment (AE)	Please indicate how you would feel in this situation (fully agree – fully disagree) I would feel: - embarrassed - awkward - uncomfortable	Please indicate your level of embarrassment you experienced (not at all – very) - embarrassed - awkward - uncomfortable	Dahl, Manchanda & Argo (2001)
Institutional Trust (TR)	The Internet has enough safeguards to make me feel comfortable using it for shopping.	The Internet has enough safeguards to make me feel comfortable using it to transact personal business.	McKnight, Choudhury & Kacmar (2002)
	I feel assured that legal structures and technological advances adequately protect me from problems on the Internet.	I feel assured that legal and technological structures adequately protect me from problems on the Internet.	McKnight, Choudhury & Kacmar (2002)
	In general, the Internet is now a robust and safe environment to do shopping tasks.	In general, the Internet is now a robust and safe environment in which to transact business.	McKnight, Choudhury & Kacmar (2002)
Uncertainty Avoidance (UAI)		It is important to have instructions spelled out in detail so that I always know what I'm expected to do.	Yoo, Donthu & Lenartowicz (2011)
		It is important to closely follow instructions and procedures.	Yoo, Donthu & Lenartowicz (2011)
		Rules and regulations are important because they inform me of what is expected of me.	Yoo, Donthu & Lenartowicz (2011)
Horizontal Individualism (HIDV)	I rather depend on myself than on others.	I'd rather depend on myself than others.	Triandis & Gelfand (1998)
		I rely on myself most of the time; I rarely rely on others.	Triandis & Gelfand (1998)
	It is very important to me to be independent of others.	My personal identity, independent of others, is very important of me.	Triandis & Gelfand (1998)

Selection of sources for the items was based on suitability for the present research aim. As there was a plethora of different scales available in the literature, only those matching the context of

online purchase behaviour of older adults were chosen and, if necessary, slightly adjusted as delineated in *Table 2*. An exemption are the two cultural variables Uncertainty Avoidance and Horizontal Individualism, which were regarded as fitting the research purpose best when capturing a general degree of the cultural dimensions instead of particularly wording them in relation to online buying.

As the items were derived from English literature, they were translated into German by the native speaking author. To check for construct validity, they were back translated by another German native. This translation was compared with the original items by an English native speaker, which resulted in few adjustments. The items and their corresponding concepts are presented in *Table 2*, while the final version of the German survey can be found in the *Appendix*.

5.4. Data Collection

The survey was created in *Google forms*, a fully cost-free application for online-questionnaires. The tool offered sufficient functionality for the present research aim, as it allowed the author to create follow-up questions (such as requesting reasons why respondents have not purchased online yet or more often) to predetermined answers. Responses gathered on the *Google forms* platform can be reviewed at all time and after closure exported into an Excel file.

The online survey was distributed by approaching several German senior online communities (e.g. seniorentreff.de, Feierabend.de) and relevant senior groups on Facebook (e.g. Ratgeber Wohnen und Leben im Alter, Wohngemeinschaften im Alter). It too was spread in applying a snowball approach via the private and professional network of the author as well as in student groups on Facebook. The survey was clearly stated as requiring participants aged 60+ only. Data were collected from April 22 to May 14, 2017.

It must be noted that the data collection involved remarkable issues insofar that mistrust of some individuals seemed to obstruct participation, which at the same time may have influenced the analysis. This was assumed due to the feedback the author received when some people expressed concerns about anonymity, misuse of private data or anxiety of catching a virus. Also, one senior group on Facebook blocked the request because of allegedly hidden sales pitches behind those kinds of surveys. While these issues even occurred when acquaintances of the author helped spreading the word, similar reactions to posts in online communities were assumed to occur even more frequently without any knowledge of the author. Altogether, it can hence be derived that anxiety as well as privacy and data security concerns of older Germans already hampered the research as such.

5.5. Data Management and Sample Distribution

The data collection resulted in a data set of 125 cases, which was initially saved in an Excel file for the purpose of data cleaning and management. 5 cases had to be removed since the participants in the beginning stated that they had no experience in using the Internet (recall that they were automatically excluded from finishing the survey). Another 3 cases were deleted due their nationality not being German. Thanks to mandatory questions offered by *Google forms*, there were no missing data, thus the final sample consisted of 117 cases.

Answers were then converted into numerical scales for data analysis. Likert scale scores represent a 1 for strongly disagree and a 5 for strongly agree, meaning that higher means indicate higher levels of agreement. The data set then was uploaded to SPSS for further management, i.e. items were ordered, back-translated and labelled, and multiple answer questions were set accordingly. To control for accidental mistakes during that procedure, two random cases were compared between numerical scores of the final SPSS file and original answers of the survey output.

Table 3: Demographics of Data Set

Variables	Categories	Frequency	Percent
Age	60-64 years	47	40%
(average 67,5 years)	65-69 years	34	29%
	70-74 years	15	13%
	75-79 years	14	12%
	> 80 years	7	6%
Gender	Female	66	56%
	Male	51	44%
Region	North (Schleswig Holstein, Hamburg, Bremen, Niedersachsen, Nordrhein-Westfalen)	38	32%
	West (Rheinland-Pfalz, Hessen, Saarland)	53	45%
	East (Mecklenburg-Vorpommern, Brandenburg, Berlin, Sachsen-Anhalt, Thüringen, Sachsen)	6	5%
	South (Baden-Württemberg, Bayern)	20	17%
Settlement	Village or small town with less than 5.000 inhabitants	50	43%
	Town (appr. 5.000 - 20.000 inhabitants)	20	17%
	Small city (appr. 20.000 - 100.000 inhabitants)	21	18%
	Big city (appr. 100.000 - 500.000 inhabitants)	17	15%
	Metropolitan city with more than 500.000 inhabitants	9	8%
Education	9-10 years of school	28	24%
	12-13 years of school	20	17%
	Apprenticeship	33	28%
	Higher professional education	15	13%
	University degree	21	18%
Occupational status	Housewife	5	4%
	Retired (but still working part-time)	19	16%
	Retired (not working at all)	60	51%
	Self-employed	6	5%
	Working full-time	15	13%
	Working part-time (not retired yet)	12	10%
Living arrangement	Living alone	22	19%
	Living together with spouse	84	72%
	Living together with spouse and/or children or grandchildren	9	8%
	Shared living arrangement/elderly home	2	2%
Income	< 1.000€	9	8%
	1.000€ - 2.000€	37	32%
	2.000€ - 3.000€	26	22%
	> 3.000€	15	13%
	I absolutely don't want to state my income	30	26%
Total		**117**	**100%**

The final sample of 117 presented a good demographic distribution, as presented in *Table 3*. To test for geographic distribution, postal codes were allocated to federal states and converted into North, West, East and South. As a limitation of representativeness, it must be noted that the Eastern region is geographically underrepresented in the sample.

5.6. Reflections on Reliability and Validity

Based on Bryman and Bell's (2015) suggestions on research quality, issue of reliability and validity are reflected upon within this section.

The present study applies established concepts of the TAM as well as from its application in studies investigating older adults. To match different contexts, though, previous adaptations have resulted in a plethora of items measuring the same concepts. That is, the original items of PU, PEOU and behavioural intention have been replaced by more suitable formulations depending on the uniqueness of research aims. This is understandable since Davis (1986) examined the acceptance of a work-related software by factors such as users' increase in productivity, which do not necessarily meet online shopping behaviour of consumers. However, the ongoing generation of various items has resulted in too many ways to measure the same phenomenon, presenting researchers with a severe issue regarding *reliability* of scales, i.e., while concept measurements are not consistent, comparisons between findings of different studies are deemed appropriate.

Although the author of this thesis applied items from previous works, she combined several sources to suit the context of Silver Surfers and thus created a unique, blended scale (refer to *Table 2*). This was done after thorough consideration on whether items matched the present research aim. For example, the concept of *trust* is quite complex, thus has been very differently operationalised in previous works. In selecting items that test general *trust* in the online environment, the author of this thesis tried to meet the concerns both of those that already shopped and of those that have never or rarely performed an online shopping task. However, as this does not meet the requirement of consistency of scales, caution is suggested when interpreting findings. Comparing the causal relationship between *trust* (TR) and *intention to purchase* (IP) with other works, where *trust* in certain online vendors has been measured, might lead to completely different findings. The same goes for the items measuring *perceived self-efficacy* (PSE), PU and PEOU. As *Subsection 3.1.3* and *Subsection 3.2.3* discussed, previous results often dissent from each other, which partly lies in the variety of measurements taken.

It is therefore important that researchers clearly state which measurements have been used to examine a concept, which is offered in *Table 2* by stating original items as well as their sources and the adjustments that have been made. In this regard, another issue that must be considered is *replicability*. In order to provide other researchers with the possibility of re-examining this study, the author explicitly delineated the scale development including item modification and sources in *Table 2*.

The second realm of identifying the quality of a study is *validity*. In this study, *construct validity*, i.e., whether an item truly measures a concept, was primarily ensured by applying established concepts from peer-reviewed articles or even repeatedly replicated and proven scales. As mentioned earlier (refer to *Section 5.3*), construct validity was further ensured by the translation approach of items from English to German and back to English.

External validity stands for the representativeness of a sample. As described in *Section 5.4*, although being a classic convenience sample, the author approached a variety of online communities and senior websites, and too controlled for sufficient geographic distribution by the postal code that had to be stated among other personal data within the survey. Due to the abovementioned concerns reported by respondents who refused participation, however, certain findings (e.g. regarding online trust) must be evaluated with caution.

Specific statistical measurements that have been conducted to additionally ensure reliability and validity are discussed in the following section, in line with the analyses that were conducted in this work.

5.7. Data Analysis

This section explains the statistical measurements that were computed to reveal findings according to the research questions of this thesis. It also describes the requirements that had to be met for each analysis that was done or considered. Analysis of data was conducted by using SPSS version 23. It must be noted that within this work, items that were measured on a 5-point-Likert scales were treated as continuous variables, thus they are principally regarded as fulfilling this initial requirement of a parametric analyses. Recall that higher means indicate higher levels of agreement.

Sophisticated measurements such as factor analysis, which tests the quality of scales and compresses several item into fewer dimensions, had to be omitted due to the relatively small sample size (117 cases). As Pallant (2007) noted, to evaluate whether data is eligible for factor analysis, sample size should exceed 300 cases (Tabachnick & Fidell, 2007), or at least 5 times the number of items within a scale. With 10 constructs having 3 items each (refer to *Table 2*), the resulting minimum requirements of 150 cases thus was not met. The same applied to structural equation modelling, a common method to test for quality and fitness of conceptual research models (e.g. Chen & Tan, 2004; Cho & Sagynov, 2015; Lim et al. 2016). As noted by McCloskey (2006) and in accordance with Kelloway (1998), structural equation modelling is not advisable if a sample size is smaller than 200 cases.

Instead, to test for the requirement of *internal reliability* of the concepts, Cronbach's Alpha was computed as criteria of coherence between related items. Since suggestions of minimum Alpha value vary among authors, a score here was regarded as adequate when exceeding 0,8 (Bryman & Bell, 2015) and still acceptable when surpassing 0,7 (Pallant, 2007). *Table 6* in *Section 6.1* provides the Cronbach's Alpha values of the present scale.

Recalling that the research model serves for illustrating the presumed path directions between the variables, hypotheses testing will be done on the mere relationships (i.e., correlations) between the variables. Note that these relationships are not tested on a cause-effect basis, therefore, statements such as 'the higher X, the lower is Y' must be regarded as suggestion. Correlation analyses were conducted by computing Spearman's rho correlation coefficients, since data were not fully eligible for a Pearson correlation due to slight unnormalities in the distribution of some variables. The strength of a relationship between two variables was decided

according to suggestions of Cohen (1988), as noted by Pallant (2007). That it, a correlation is deemed as small if correlation coefficient is r= 0,10 to 0,29, medium if r= 0,30 to 0,49 and large if r= 0,50 to 1,00. Correlation results were assessed for RQ I, in order to determine whether the hypothesised relationships were supported by the data. Correlations too were reviewed to decide whether the proposed relationships within the research model were eligible to be processed by a regression analysis. *Table 8* depicts this decisional approach.

Multiple regression analysis offers a well-established measurement that analyses whether one or more independent variables are able to predict a dependent variable (Pallant, 2007). Like correlation analysis, the analysis does not allow causal relations; however, it shows a researcher the respective contribution of each of the correlating independent variables with a dependent variable. That is, it allows a conclusion about which assumed predictor had the greatest power in predicting an outcome variable. Multiple regression analysis thus checks for *internal validity*, as it examines "whether a conclusion that incorporates a causal relationship between two or more variables holds water" (Bryman & Bell, 2015, p. 50). At the same time, integrated tests for multicollinearity determine *discriminant validity* between independent variables. Other authors (e.g. Chismar & Wiley-Patton, 2002; McCloskey, 2006; Pan & Jordan Marsh, 2010) too tested their conceptual TAM adaptations by conducting multiple regression. In this thesis, standard multiple regression (entry method) was used to find answers to RQ I.

Requirements on sample size for regression analysis vary between authors. According to Tabachnick and Fidell (2007), as noted in Pallant (2007), the required sample size can be calculated by adding 50 to 8 times the number of independent variables, i.e., predictors. The present study applied not more than 4 independent variables per analysis, which resulted in a required sample size of 95, far lower than the 117 cases at hand. According to Cohen (1992), the suggested minimum sample size (assuming a medium effect size of $p<0,05$) for 2 independent variables is 97, while for 3 independent variables it is 108, which are both fulfilled. For 4 independent variables the required size is 118, which can still be regarded as acceptably fulfilled by the data set at hand as there is only one case missing.

For the procedure of multiple regression analysis, the present study applied the entry method or standard multiple regression, meaning that all independent variables were integrated at once into one model. However, different models were tested based both on theoretical implications and fulfilment of preceding requirements suggested by Pallant (2007). That is, while the dependent variable is suppose to correlate with the independent variables on at least r = 0,3, *multicollinearity* should be avoided by firstly ensuring that correlation coefficients between independent variables being under r = 0,7. Also, *Tolerance* (>0,10) and *Variance inflation factor* (<10) are to be computed to eliminate the possibility of multicollinearity. Finally, screen plots were assessed to check for *outliers, normal distribution* and *linearity* of the residuals (i.e., the deviations from estimated values), and *homoscedasticity* of the variance of the residuals. Outliers too were checked by computing their Cook's and Mahalanobis distances.

The second set of measurements used for answering RQ II and III by comparing sample groups included Pearson Chi-Square and Analysis of variance (ANOVA). Chi-Square tests for independence between two categorical variables. A Chi-Square value that is below $p<0,05$ indicates a significant relationship. The purpose of ANOVA is it to find statistical differences in the variance of scores of the dependent variable between two or more groups of an independent variable. The main requirement for this measurement was computed by Levene's Test of Homogeneity of Variances. That is, if variances are not significantly different ($p>0.05$), ANOVA Table and LSD (least significant difference) Post Hoc tests were used to identify significant relationships between the mean scores of the groups; otherwise ($p>0.05$) Welch's Robust Test of Equality of Means and Tamhane Post Hoc tests were used. For results, the significance level of $p<0,05$ here too indicated significant differences between the groups, which were the presented as relevant results (Pallant, 2007).

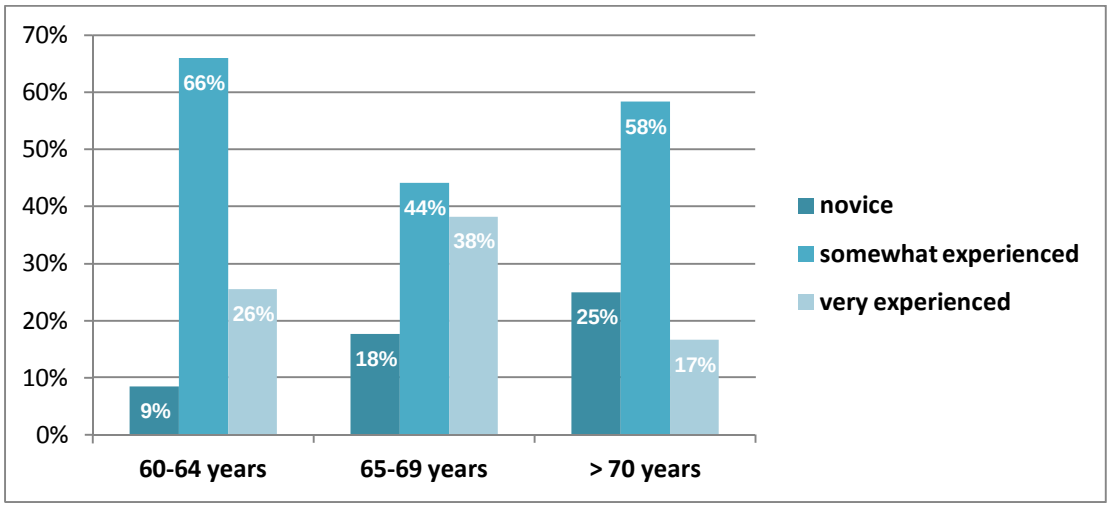
After having elaborated on the research and survey design, the scale development as well as data collection, management, quality and analysis, the findings of the empirical research are now exposed in *Chapter 6.*

6. Research Findings

This chapter presents the findings that have been gained by analysing the sample of German Silver Surfers, as introduced in *Section 5.5*. Before the results according to the research questions are unveiled, some general findings are outlined. Also, as preliminary step for the analysis of TAM concepts, means and Cronbach's Alpha values of scale items are presented in this section.

6.1. Introductory Findings

Figure 20: Age groups and their corresponding level of Internet experience



Catching a first glimpse on age groups and online experience levels of German Silver Surfers, *Figure 20* shows the percentages of respondents' self-reported Internet experience levels (IEX I) within age groups. While *somewhat experienced* Silver Surfers exist to the highest degree throughout all age groups, the amount of *novice* Internet users demonstrates a mounting pattern with increasing age. Unsurprisingly, Silver Surfers rating themselves as *very experienced* can be found at least in the highest age group, whereas the peak of this level was made up by those aged 65-69.

Table 4: PC usage at work and Internet experience

		How would you rate your level of experience with the internet?			
		novice	somewhat experienced	very experienced	Total
Have you ever used a computer at work?	Never	8	7	1	16
	Very rarely	2	7	0	9
	Occasionally	6	9	1	16
	Frequently	2	26	10	38
	Majority of work done with PC	1	18	19	38
	Total	**19**	**67**	**31**	**117**

Pearson Chi-Square: p= 0,000

An important part of the analyses revealed around the level of experience respondents had with the Internet. Besides the effects of Internet experience on E-commerce adoption, which is later examined in more depth, it was interesting to see how many of the respondents ever used a PC at work, as this may have influenced their Internet experience. Indeed, as *Table 4* shows, there is

a significant relationship (p = 0,000) between the two variables, with a clear pattern showing that little PC usage at work seems to be associated with lower Internet experience, while frequent PC usage is related to higher degrees of Internet experience.

To gain a picture about how the respondents make use of the Internet, they were asked which activities they predominantly pursue. As *Table 5* presents, German Silver Surfers use the Internet mainly to read or watch news (79,5%), stay in touch with relatives or friends (71,8%), get information about products (71,8%) or other topics of interest (74,4%), and to purchase products (65%). Note that this was a multiple answer questions, which is why the total frequency of answers exceeds the sample size.

Table 5: Silver Sufers' usage of the Internet

Internet usage	Frequency	Percent	Percent of Cases
To read or watch news	93	16,9%	79,5%
To keep in touch with relatives or friends	84	15,3%	71,8%
To purchase products	76	13,8%	65,0%
To book services (e.g. vacation)	58	10,6%	49,6%
To get information about products or services	84	15,3%	71,8%
To get information about health topics	57	10,4%	48,7%
To get information about other topics of my interest	87	15,8%	74,4%
Other	10	1,8%	8,5%
Total	**549**	**100,0%**	**469,2%**

To introduce the results of the scale that has been developed for the extension of the TAM, means of concepts are presented in *Table 6*. Each concept's Cronbach's Alpha too is provided in the right column and proves that all Alpha values meet the requirements of internal reliability as stated in *Section 5.7*. Apart from Uncertainty Avoidance (UAI) and Outdoor Immobility (OIM) still reaching acceptable scores, most of the constructs fulfilled adequate internal reliability (>0,8), while perceived self-efficacy (PSE), anticipated embarrassment (AE) and intention to purchase (IP) even exceeded the 0,9 mark.

For the subsequent analyses, the single items have been converted into one comprehensive concept each by computing the corresponding variable's mean within each case. In the following, the findings of this thesis are presented in accordance to the research questions.

Table 6: Mean scores and Cronbach's Alpha scores of scale items

Variable	Item	Mean	Standard Deviation	Cronbach's Alpha
IEX I	How would you rate your level of experience with the internet?	4,10	0,65	0,85
IEX II	I know how to use a search engine (e.g. Google) to search for information on the Internet.	4,59	0,79	
IEX III	When using a search engine (e.g. Google), I usually find the information I was looking for.	4,34	0,84	
PEOU I	Learning to use the Internet to buy a product was (would be) easy for me, even for the first time.	3,54	1,15	0,84
PEOU II	The internet is (would be) easy to use to do my shopping.	3,32	1,07	
PEOU III	Using the internet to buy a product is (would be) easy to do for me.	3,68	1,10	
PU I	With Internet shopping I can (could) make my life more comfortable.	3,44	1,08	0,88
PU II	Buying products over the Internet is (would be) more comfortable than purchasing them from a store.	3,50	0,98	
PU III	Buying things over the Internet is (would be) more convenient than normal shopping.	3,32	0,95	
PSE I	I feel capable of buying a product on the Internet.	4,44	0,92	0,90
PSE II	I am capable of navigating through shopping sites on the Internet.	4,18	1,04	
PSE III	I am convinced that I possess the capability to find information about a product on the internet.	4,40	0,83	
	Please indicate how you would feel in this situation (fully agree – fully disagree).			
AE I	- embarrassed	2,44	1,36	0,98
AE II	- awkward	2,49	1,41	
AE III	- uncomfortable	2,46	1,37	
UAI I	It is important to have instructions spelled out in detail so that I always know what I'm expected to do.	3,90	1,05	0,76
UAI II	It is important to closely follow instructions and procedures.	3,83	0,84	
UAI III	Rules and regulations are important because they inform me of what is expected of me.	3,90	0,85	
TR I	The Internet has enough safeguards to make me feel comfortable using it for shopping.	2,96	1,06	0,86
TR II	I feel assured that legal structures and technological advances adequately protect me from problems on the Internet.	2,88	1,08	
TR III	In general, the Internet is now a robust and safe environment to do shopping tasks.	3,17	1,07	
HIDV I	I rather depend on myself than others.	3,81	1,00	0,83
HIDV II	I rely on myself most of the time; I rarely rely on others.	3,62	0,94	
HIDV III	It is very important to me to be independent of others.	4,15	0,83	
OIM I	Activities (e.g. transportation, walking in stores, waiting in line) involved in shopping are difficult for me.	2,09	1,19	0,77
OIM III	Due to physical limitations, I can barley go more than just around the next corner.	1,33	0,74	
OIM III	Carrying shopping bags from a store to my home is not possible for me (anymore).	1,59	1,04	
IP I	It is likely that I will purchase products from Internet vendors in the future.	3,88	1,23	0,97
IP II	I intend to purchase products on in Internet in the future.	3,74	1,31	
IP II	There is a substantial chance that I would purchase different products from an online retailer.	3,73	1,31	

6.2. Findings to Research Question I

This section presents findings related to RQ I, i.e., both the original as well as the additional cultural, age- and health-related variables of the extended TAM are tested regarding their ability to explain German Silver Surfers' E-commerce adoption according to the hypotheses and the proposed research model presented in *Section 3.3*. The analysis first revolved around validating the hypotheses by a correlation matrix, outlined in *Subsection 6.2.1*. By taking these results into account, the decision about whether or not a multiple regression analysis was advisable is summarised in *Table 8* within *Subsection 6.2.2*, followed by the results of the consequent regression models in *Table 9*.

6.2.1. Relations between TAM variables

The first aim of answering RQ I was it to test the hypothesised relationships of the conceptual model. To identify the strength of correlations according to the suggestions made in *Section 5.7*, *Table 7* presents the correlation matrix among all age- and health-related TAM variables and highlights relevant significant coefficients in green, while unsupported hypotheses are marked

red. Recall that coefficients were computed by Spearman's rho (refer to *Section 5.7*). Note that at the same time, these correlations decide which related variables are suitable for a multiple regression analysis. The respective decisions described throughout this section are summarised in *Table 8,* presented in *Section 6.2.2*.

Table 7: Correlation matrix of extended TAM variables

	CHA	IEX	PU	PEOU	RVC	RMD	RCC	PSE	UAI	TR	OIM	HIDV	IP
Chronological Age (CHA)	1												
Internet Experience (IEX)	-,193*	1											
Perceived usefulness (PU)	-,067	,518**	1										
Perceived ease of use (PEOU)	-,113	,593**	,736**	1									
Reduced visual capability (RVC)	,042	-,325**	-,172	-,236*	1								
Reduced manual dexterity (RMD)	,033	-,435**	-,174	-,310**	,603**	1							
Reduced cognitive capability (RCC)	,150	-,424**	-,142	-,270**	,559**	,696**	1						
Perceived self-efficacy (PSE)	-,293**	,780**	,482**	,681**	-,376**	-,441**	-,497**	1					
Uncertainty Avoidance (UAI)	,282**	-,005	,006	-,021	-,093	-,142	,004	-,040	1				
Online trust (TR)	-,012	,404**	,605**	,601**	-,181	-,056	-,146	,358**	,012	1			
Outdoor Immobility (OIM)	,114	-,094	,117	,003	,399**	,329**	,310**	-,210*	-,086	,103	1		
Horizontal Individualism (HIDV)	,008	,149	,113	,120	-,166	-,240**	-,099	,153	,296**	,004	-,174	1	
Intention to purchase (IP)	-,296**	,622**	,601**	,588**	-,232*	-,355**	-,419**	,692**	-0,97	,483**	-,109	-,025	1

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

There is a small but significant negative relationship between chronological age and Internet experience (r = -0,193) and a medium negative relationship between age and online purchase intention (r = -0,296), which **supports H1 and H3.** Thus, it can be suggested, the older Silver Surfers are, the lower their experience with the Internet and the less likely they intend to purchase online. Age correlates negatively but not significantly with PEOU (r = -0,113), hence **H2 must be rejected**. Instead, there is a small negative relationship between age and perceived self-efficacy (r = -0,293) although this was not directly hypothesised. The older Silver Surfers are, the less good they seem to perceive their self-efficacy.

Internet experience largely correlates with PEOU (r = 0,593) and even higher with perceived self-efficacy (r = 0,780) and IP (r = 0,622), **supporting H4, H5 and H11**. This suggests that the higher respondent's experience with the Internet, the better they perceive their self-efficacy as well as the ease of use of online shopping, and the higher they indicate the likelihood to purchase online. Internet experience too correlates highly with PU (r = 0,518), implying that a better perceived usefulness comes with higher Internet experience.

Perceived self-efficacy negatively and significantly correlates on a medium degree with reduced visual (r = -0,376), manual (r = -0,441) and cognitive capabilities (r = -0,497), **supporting H12**. Thus, physical decline of visual, manual and cognitive functions (DCMV) has the expected negative relationship with perceived self-efficacy of online shopping. These three variables of physical decline also correlate positively with each other, suggesting a relationship between these different facets of age- and health-related changes.

PEOU and PU highly correlate with each other (r = 0,736), which advises that they are not suitable as two distinct predictors of intention to purchase online (recall that regression analysis requires correlation coefficients between independent variables being r<0,7). Also, even though both PEOU (r = 0,588) and PU (r = 0,601) highly correlate with purchase intention (**supporting H6 and H7**), perceived self-efficacy correlates much higher with intention (r = 0,692) (**supporting H14**) when compared with PEOU. Perceived self-efficacy and PEOU prove the expected positive relationship and thus **support H13** (r = 0,681). Moreover, perceived self-efficacy correlates with PU on a medium strength (r = 0,482), thus they distinguish sufficiently from each other to be regarded as two distinct predictors of online purchase intention.

Due to the high correlation between PU and PEOU, however, they might not constitute well-distinguished concepts that deserve being called two distinct predictors of online purchase intention. Instead, as perceived self-efficacy correlates higher with intention, experience and age than PEOU does, perceived self-efficacy was regarded as constituting a much better predictor within the proposed research model. For being processed into a multiple regression analysis, PEOU was therefore not suitable for the model and instead replaced by perceived self-efficacy.

Online trust correlates on a significant and medium strength with purchase intention (r = 0,483), **supporting H16**. The higher trust in the online environment was stated, the more likely respondents intend to purchase online. Additionally, trust shows a significant medium relationship with Internet experience (r = 0,404) and perceived self-efficacy (r = 0,358), as well as a high correlation with PU (r = 0,605) and PEOU (r = 0,601). The level of trust in the online environment is not related with age, since there is no significant correlation between the two variables. This suggests that it is not chronological age that relates to online trust, but rather experience with Internet usage as well as perceived self-efficacy, and especially how seniors perceive ease of use and usefulness of online shopping sites. To see whether trust has a predictive power towards online purchase intention, the variable was added to the abovementioned regression model that is presented in *Subsection 6.2.2*.

It must be noted that the cultural variables that were measured at the individual-level did not reveal relevant relationships with any of the expected TAM variables, **rejecting H10 and H15**. That is, Uncertainty Avoidance does neither correlate with online trust as assumed, nor does Horizontal Individualism seem to have any relationship with online purchase intention. There too is no significant relationship between outdoor immobility and intention to purchase online or between outdoor immobility and PU, **rejecting H8 and H9**.

A small positive relationship was found between age and Uncertainty Avoidance (r = 0,282). This means that the older respondents were, the more they try to avoid uncertainty. Another correlation can be seen between Uncertainty Avoidance and Horizontal Individualism (r = 0,296), indicating that the higher the level of Uncertainty Avoidance, the more individualistic respondents were on the horizontal dimension.

6.2.2.Predictive power of TAM variables

For the decision whether the abovementioned relationships are eligible to be tested for their predictive power within a multiple regression analysis, *Table 8* presents an overview of the proposed relationships as per research model and their suitability for a regression analysis. Recall that for independent variables that did not correlate on the required minimum of r = 0,3 with a proposed dependent variable (refer to *Section 5.7*), regression analysis was not advisable. Consequently, these variables were not further examined within the suggested TAM. Likewise, if independent variables correlate too high with each other (r>0,7), this implies multicollinearity, which too renders multiple regression analysis inappropriate.

Table 8: Decision matrix for multiple regression processing

Proposed relationships	Processed in multiple regression	Remarks
PSE + IEX + CHA → PEOU	No instead: IEX + CHA → PSE (Model I)	PEOU was replaced by PSE because of too high correlation between PU and PEOU[1)]
RCC, RMD, RVC (DCMV), IEX → PSE	Yes	Assumptions of normal distribution and linearity of residuals not met
UAI → TR	No	Correlation not sufficient to justify a regression analysis[2)]
OIM → PU	No	OIM did not correlate sufficiently with PU to justify a regression analysis[4)]
IEX + CHA + PEOU + PSE + TR + PU + OIM + HIDV → IP	Yes: IEX + CHA → IP (Model II) PSE + PU → IP (Model III) PSE + PU + CHA → IP (Model IV) PSE + PU + CHA + TR → IP (Model V)	PEOU was replaced by PSE because of too high correlation between PU and PEOU[1)], OIM + HIDV did not correlate sufficiently with IP to justify multiple regression[4)], IEX correlated too high with PSE[5)] to be included in the same regression model

1) r = 0,736 (requirement for two independent variables r < 0,7)
2) r = 0,012 (requirement r > 0,3)
3) r = 0,117; r = 0,084, respectively (requirement r > 0,3)
4) r = -0,109; r = -0,025, respectively (requirement r > 0,3)
5) r = 0,780 (requirement for two independent variables r < 0,7)

For correct correlating variables, multiple regression analysis may then show which variable is the most influential one in a predictive relationship. However, as Pallant (2007) states, assumptions about relationships must have been predetermined beforehand when being derived from theoretical implications. This means that principally, only proposed relationships are to be tested if their correlation coefficients suggest suitability for a multiple regression analysis. However, recall that perceived self-efficacy and PEOU, although having been found to be conceptually different, were initially not distinguished by Davis (1989). The findings of the correlation matrix then showed that perceived self-efficacy seems to have a higher amount of relevant relationships within the present research model, which is why this variable will be processed in the multiple regression analysis as substitute for PEOU.

Consequently, five models have been tested which mirror the predicted relationships within the conceptual model (refer to *Table 9*): First, the effect of age and internet experience on perceived self-efficacy was examined within *Model I* (recalling that PEOU has been replaced by perceived self-efficacy, the effect on perceived self-efficacy was tested) followed by assessing their direct effect on purchase intention in *Model II*. Afterwards, the effect of perceived self-efficacy (as

alternative to the omitted PEOU) and perceived usefulness on purchase intention was tested (*Model III*), before integrating the effect of age to this relationship in *Model IV*. Finally, the influence of trust was analysed in *Model V*.

Table 9: Results of multiple regression models

Multiple Regression Model						Coefficients			
No.	Variables	r^2	SE	F	Sig.	IV's	Beta	t	Sig.
I	IEX + CHA → PSE	0,700	0,471	132,71	0,000	IEX	0,792	14,938	0,000
						CHA	-0,136	-2,561	0,012
II	IEX + CHA → IP	0,405	0,972	38,727	0,000	IEX	0,554	7,417	0,000
						CHA	-0,204	-2,732	0,007
III	PSE + PU → IP	0,560	0,836	72,436	0,000	PSE	0,553	7,619	0,000
						PU	0,294	4,047	0,000
IV	PSE + PU + CHA → IP	0,582	0,817	52,43	0,000	PSE	0,487	6,418	0,000
						PU	0,318	4,431	0,000
						CHA	-0,160	-2,455	0,016
V	PSE + PU + CHA + TR → IP	0,591	0,812	40,451	0,000	PSE	0,470	6,159	0,000
						PU	0,250	3,002	0,003
						CHA	-0,163	-2,518	0,013
						TR	0,123	1,571	*0,119*

As presented in *Table 9*, *Model I* reveals the result of the combination of Internet experience and age as predictors of the outcome perceived self-efficacy. The model explains 70% (r^2 = 0,700) of the variance of perceived self-efficacy, while experience predicts this variance (β = 0,792) to a greater extent than age (β = -0,136). It can thus be derived that perceived self-efficacy could be largely predicted by the level of Internet experience but only to a small degree by the chronological age of a Silver Surfer. Note that the negative Beta value connotes that the less old (younger) Silver Surfers are, the better they perceive their self-efficacy.

In their proposed direct effect on the outcome online purchase intention, age and experience explain 41% (r^2 = 0,405) of the variance of intention within *Model II*, with experience again having a greater effect (β = 0,554) than age (β = -0,204). Compared to the high predictive power of experience on perceived self-efficacy, however, the effect of experience on intention is most likely rather indirect via perceived self-efficacy.

Perceived self-efficacy as predictor of intention on the other hand demonstrates a higher predictive power (β = 0,553) than PU (β = 0,294) within *Model III*, where 56% of the variance in IP are explained (r^2 = 0,560). This suggests that for Silver Surfers, the degree of perceived self-efficacy has a greater power to predict the intention to purchase online than perceived usefulness.

This effect of perceived self-efficacy, however, is diminished (β = 0,487) if age is integrated into this model (refer to *Model IV*), which explains 58% of IP (r^2 = 0,582), even though the contribution of age to this model is rather low (β = - 0,160). It could therefore be assumed that age slightly moderates the effect of perceived self-efficacy on intention; however this postulation cannot be tested through regression analysis and must be seen as careful derivation. Recall that

experience could not be included to this model due to its high interrelationship with perceived self-efficacy.

Model V then also added online trust to the last model, to see whether the explanation of intention could be further increased or whether trust had a better predictive power than any of the other predictors. However, although the explanatory power of the model was slightly increased to 59% (r^2 = 0,591), trust did not reveal a significant contribution to this model (β = 0,123; p = 0,119). It could thus be derived that the predictive power of online trust on Silver Surfers' online purchase intention is not relevant. To confirm this careful assumption, another model was supposed to test whether trust achieves a better contribution if age is removed; however, since the significance of trust did not improve through this approach, this model has not been further considered and was hence also not included in *Table 9*.

Another regression analysis was conducted to reveal which of the factors of physical decline (DVMV) had the greatest effect on perceived self-efficacy. With r^2 = 0,21 (SE = 0,767; Sig. 0,000), the variation of DVMV explained 21% of DVMV, however, assumptions of this model are not met according to the suggestions made in *Section 5.7* (large deviations from suggestions of Normal P-P Plot and Scatterplot regarding linearity and normal distribution of residuals, which violated the key principles of a linear regression). It could carefully be noted that the only significant factor (p = 0,001) of this model seemed to be reduced cognitive capability (β = 0,387

In summary, according to the results of the preliminary correlation analysis and the multiple regression models that have been computed to test the relationships within the proposed research model, four important determinants of E-commerce adoption could be identified. Namely, Internet experience largely explains the outcome perceived self-efficacy, and perceived self-efficacy, PU and age are important factors that can predict the intention to shop online.

6.3. Findings to Research Question II

It was the aim of the second research question to identify Silver Surfers' online purchase intentions for a particular healthcare context. That is, to find out how anticipated embarrassment influences consumers' online purchase intention in physical purchase settings, a potentially embarrassing purchase situation was created, to which levels of embarrassment had to be indicated by respondents. A dummy variable was created to separate low and high levels of embarrassment, in order to identify the degree of embarrassability of respondents for the specific situation of imagining a need for incontinence products (refer to *Subsection 3.2.5*). A high level of embarrassment was allocated to those cases that scored higher than M=2,5 in the variable measuring anticipated embarrassment, since this value implies that they did not clearly indicate they would *not* have been embarrassed. Accordingly, those scoring below 2,5 were regarded as implying low embarrassability. Recall that, to test for purchase intention, in this case the online purchase intention for the particular product (i.e., incontinence pads) had to be indicated after the imagined situation.

To test whether embarrassability depends on age, *Table 10* first presents the extent of embarrassment across age groups. With a Chi-Square significance of 0,992, there is no

relationship between age groups and the dummy variable for low and high embarrassment. To validate this finding, Spearman's correlation coefficient between the continuous variables age and anticipated embarrassment confirms the result with r = 0,047. Thus, age has no influence on the degree of embarrassment that an adult diaper would cause, which **supports H17**.

Table 10: Extent of embarrassment across age groups

		Age groups			
		60-64 years	65-69 years	> 70 years	Total
Extent of Embarrassment	low	27	20	21	68
	high	20	14	15	49
Total		**47**	**34**	**36**	**117**

Respondents were given the possibility to indicate that they suffer (or once suffered) from incontinence, as they would rate their level of truly experienced embarrassment instead of anticipated embarrassment. The file was split to analyse the groups independently, resulting in 14 cases who already experienced incontinence and 103 who did not or did not want to state it. No significant difference was found between their levels of embarrassment, thus **rejecting H 18**.

Table 11: Purchase intention after imagining embarrassing situation – Difference in experience with incontinence

	Purchase intention after imagining embarrassing purchase situation			
	N	Mean	SD	Sig.
No experience with incontinence	103	2,738	1,268	0,046
Some experience with incontinence	14	2,000	1,414	
Total	**117**	**2,650**	**1,302**	

However, the two groups significantly (p = 0,046) differ on their online purchase intention for incontinence products, as *Table 11* shows. Recall that higher means indicate higher levels of agreement as measured per 5-point Likert scale. Those who do not suffer from incontinence would be significantly more likely to consider purchasing incontinence products online (M: 2,738) than those who are or once were incontinent (M: 2,000).

Table 12: Purchase intention after imagining embarrassing situation – Difference in levels of embarrassment

	Purchase intention after imagining embarrassing purchase situation			
Extent of AE	N	Mean	SD	Sig.
low	62	2,530	1,238	0,042
high	41	3,050	1,264	
Total	**103**	**2,740**	**1,268**	

Within the group who had experienced incontinence, no significant differences on purchase intention were found between low and high extent of embarrassment. However, as *Table 12* demonstrates, within the group who had no experience with incontinence, those with higher levels of embarrassment were significantly (p = 0,042) more prone to buy incontinence products

online (M: 3,050) than those with low embarrassment (M: 2,530). Besides **supporting H19**, it can be derived that anticipated embarrassment increases the likelihood of online purchases.

Table 13 confirms that obviously embarrassment is not a major issue anymore for those who have or once had a need for incontinence products. Having two choices of desired product criteria max, neutral packaging was only chosen once. Security and wearing comfort are much more important for respondents suffering from loss of bladder control.

Table 13: Desired product criteria

Product criteria	N	Percent	Percent of Cases
Wearing comfort	8	34,8%	57,1%
Security	10	43,5%	71,4%
Price	4	17,4%	28,6%
Neutral packaging	1	4,3%	7,1%
Total	**23**	**100,0%**	**164,3%**

To conclude RQ II, the most relevant finding was found within the group who had no experience with incontinence. Namely, those with higher levels of anticipated embarrassment were significantly more prone to buy incontinence products online than those who anticipated their level of embarrassment as being low. Thus, it can be derived that anticipated embarrassment increases the likelihood of online purchases within a particular purchase context. At the same time, this may only go for initial stages of incontinence, as familiarity with the embarrassing condition reduces the intention to purchase incontinence products online.

6.4. Findings to Research Question III

It was the aim of the last research question to check for possible other aspects that affect German Silver Surfers' online shopping behaviour. When looking at the former online purchase behaviour of German Silver Surfers, the majority already seemed to have experience with online shopping. To a large amount, respondents stated that they already purchased online so often that they couldn't indicate a number anymore.

Table 14: Frequency of former online purchases

How often have you purchased something on the Internet?	Frequency	Percent
never	14	12,0%
once	2	1,7%
maybe 2-3 times	14	12,0%
not more than 5-6 times	16	13,7%
so often that I can't say anymore	71	60,7%
Total	**117**	**100,0%**

As *Table 14* confirms, more than 60% belong to these frequent online shoppers, while 12% never and 1,7% had only once performed an online shopping task. Note that this purchase frequency variable for later purposes was converted into a new variable with fewer categories, to provide a larger amount of cases each. Consequently, those who indicated that they purchased

once, 2-3 times and not more than 5-6 times were grouped under *rarely* purchased (N = 32), while only those that stated that they had purchased so often that they cannot indicate a number anymore were regarded as deserving the label *frequently* purchased. Together with *never* purchased, this new variable entailed three categories.

For those respondents who indicated that they had never or rarely purchased online (N=46), an additional question asked for causes of that hesitation. Main reasons stated (refer to *Table 15*) were the preference of seeing and touching products before purchasing (63%), refusal of stating financial details online (63%), general concerns about data security (41,3%), anxiety of doing something wrong (39,1%), and preference of personal contact (32,6%).

Table 15: Reasons why Silver Surfer have not purchased online

Reasons why have not purchased	Frequency	Percent	Percent of Cases
I simply don't feel the need to purchase something on the Internet	10	7,1%	21,7%
I prefer to see/touch products before purchasing them	29	20,7%	63,0%
I prefer personal sales contact when buying something	15	10,7%	32,6%
I like to buy in stores because it's a way to get out of the house	5	3,6%	10,9%
I am scared of doing something wrong	18	12,9%	39,1%
I haven't found what I was looking for	2	1,4%	4,3%
I am concerned about data security	19	13,6%	41,3%
I don't want to state my bank-/credit card details on the Internet	29	20,7%	63,0%
Delivery costs are too high	1	,7%	2,2%
I don't know why exactly, I just didn't feel good about it	7	5,0%	15,2%
Other	5	3,6%	10,9%
Total	**140**	**100,0%**	**304,3%**

Furthermore, among the demographic characteristics of Silver Surfers that have been gathered, only few showed noteworthy results. While there were no significant relationships between gender, region, settlement, living arrangement or income and online purchase intention, education turned out to be more relevant. Silver Surfers with the lowest education level of 9 - 10

Table 16: ANOVA of educational categories and IP

	Intention to purchase		
Education	N	Mean	SD
9-10 years of school	28	3,476 [a]	1,341
12-13 years of school	20	3,717 [ab]	1,196
Apprenticeship	33	3,727 [ab]	1,303
Higher professional education	15	3,578 [ab]	1,211
University degree	21	4,492 [b]	0,898
Total	117	3,783	1,248

[a,b] values having the same superscript are not significant (p>0.5).

years of school showed a significantly lower (M: 3,476) intention to purchase online in the future than all other educational categories ($p<0,05$), while a university degree as the highest education level accounted for the greatest degree of purchase intention (M: 4,492), being significantly higher than all other groups ($p<0,05$). *Table 16* presents the means and significant differences. Again, recall that higher means indicate higher levels of agreement as measured per 5-point Likert scale.

The demographic factors were also tested via cross-tabulation and Chi-Square test on their former online purchase frequency, which too did not lead to any significant results except from occupational status. *As Table 17* shows, those respondents who still work at least part-time demonstrate a relatively higher number of frequent online purchases than retired surfers or housewives, whose online purchase occurrences are much more distributed between *never, rarely* and *frequently*.

Table 17: Cross-tabulation between occupational status and former purchase frequency

		Purchase frequency			
		never	rarely	frequently	Total
Occupational status	Retired or housewife	10	27	28	**65**
	Retired with part-time job	2	3	14	**19**
	Still working	2	2	29	**33**
	Total	14	32	71	117

Pearson Chi-Square: p = 0,000

This finding also goes for future purchase intentions, as *Table 18* confirms. The group which does not work at all revealed to have the lowest intention to purchase online in the future (M: 3,446), with a statistically significant difference (<0,05) when compared with the two other groups.

Table 18: ANOVA of occupational status and IP

	Intention to purchase		
Occupational status	N	Mean	SD
Retired or housewife	65	3,446 [a]	1,285
Retired with part-time job	19	4,088 [b]	1,110
Still working	33	4,273 [b]	1,059
Total	117	3,783	1,248

[a,b] values having the same superscript are not significant (p>0.5).

The data were then tested on relationships between former purchase frequency and the original and extended TAM variables, which revealed a remarkable amount of significant relationships, depicted in *Table 19*. In brief, it can be noted that there are positive relationships between *former online purchase frequency* and Internet experience, PU, PEOU, perceived self-efficacy, online trust, and intention to purchase online, meaning that a higher purchase frequency is associated with higher degrees of these variables. Those Silver Surfers that are experienced online shoppers are also more experienced with Internet usage in general. They too perceive the usefulness and ease of use of online shopping sites as well as their self-efficacy as better. Lastly, they demonstrate a higher trust in the online environment and therefore also intend to purchase online in the future.

It can be concluded that among the demographic characteristics that have been requested besides age, only education and occupational status had an effect on future online purchase intentions. The former online purchase experience however seems to be largely related to Internet experience, PU, PEOU, perceived self-efficacy, online trust and the intention to purchase online in the future.

Table 19: ANOVA of former purchase frequency

	Internet Experience		
Purchase frequency	N	Mean	SD
Never	14	3,310 [a]	0,956
Rarely	32	4,177 [b]	0,586
Frequently	71	4,624 [c]	0,342
Total	117	4,345	0,671

	Perceived self-efficacy		
Purchase frequency	N	Mean	SD
Never	14	3,024 [a]	1,223
Rarely	32	4,063 [b]	0,711
Frequently	71	4,723 [c]	0,414
Total	117	4,339	0,852

	Perceived usefulness		
Purchase frequency	N	Mean	SD
Never	14	2,833 [a]	1,060
Rarely	32	2,990 [a]	0,832
Frequently	71	3,728 [b]	0,761
Total	117	3,419	0,900

	Online trust		
Purchase frequency	N	Mean	SD
Never	14	2,095 [a]	0,881
Rarely	32	2,760 [b]	0,826
Frequently	71	3,291 [c]	0,864
Total	117	3,003	0,941

	Perceived ease of use		
Purchase frequency	N	Mean	SD
Never	14	2,690 [a]	1,202
Rarely	32	3,094 [a]	0,877
Frequently	71	3,864 [b]	0,772
Total	117	3,513	0,965

	Intention to purchase		
Purchase frequency	N	Mean	SD
Never	14	1,786 [a]	0,608
Rarely	32	3,052 [b]	0,892
Frequently	71	4,507 [c]	0,766
Total	117	3,783	1,248

[a,b,c] values having the same superscript are not significant (p>0.5).

6.5. Concluding Findings

The research conducted on German Silver Surfers revealed important findings about the factors that are determining the E-commerce adoption of older adults. Out of 19 hypotheses, 13 hypotheses could be supported whereas 6 hypotheses had to be rejected. *Table 20* provides all hypothesised relationships of the extended TAM and their results as a whole.

In addition to the correlation analysis that was computed to test hypotheses 1-16, five multiple regression models were tested on the predictive power of the single variables. This analysis revealed that Internet experience, perceived self-efficacy, perceived usefulness and age are the most important factors of German Silver Surfers' E-commerce adoption. For the healthcare context, the support of H17 and H19 and the rejection of H18 contribute to the understanding of the phenomenon in combination to embarrassment. The identified relationships of these most relevant determinants of E-commerce adoption will be presented in *Figure 21* (refer to *Section 8.1.*). Apart from the conceptual model that was tested within RQ I and RQ II of this work, RQ III investigated possible other aspects that may explain E-commerce adoption. Among these aspects, education, occupational status and former purchase frequency revealed relevant results. The following *Chapter 7* now discusses all findings and answers the research questions.

Table 20: Overview of hypotheses

No	Hypotheses	supported	strength*
H1	There is a negative relationship between Age and Internet Experience	**yes**	small
H2	There is a negative relationship between Age and PEOU	no	-
H3	There is a negative relationship between Age and IP	**yes**	medium
H4	There is a positive relationship between Internet Experience and PEOU	**yes**	large
H5	There is a positive relationship between Internet Experience and IP	**yes**	large
H6	There is a positive relationship between PEOU and IP	**yes**	large
H7	There is a positive relationship between PU and IP	**yes**	large
H8	There is a positive relationship between Outdoor Immobility and PU	no	-
H9	There is a positive relationship between Outdoor Immobility and IP	no	-
H10	There is a positive relationship between Individualism and IP	no	-
H11	There is a positive relationship between Internet Experience and PSE	**yes**	large
H12	There is a negative relationship between physical decline factors and PSE	**yes**	medium
H13	There is a positive relationship between PSE and PEOU	**yes**	large
H14	There is a positive relationship between PSE and IP	**yes**	large
H15	There is a negative relationship between Uncertainty Avoidance and Online Trust	no	-
H16	There is a positive relationship between Onine Trust and IP	**yes**	medium
H17	There is no difference of anticipated embarrassment between different age groups	**yes**	n/a
H18	The level of embarrassment will be lower for consumers who are familiar with the purchase of an embarrassing product than for those who have not experienced this condition yet	no	n/a
H19	IP for an embarrassing product will be higher for greater degrees of anticipated embrarrassment than for smaller degrees	**yes**	n/a

* correlation is deemed as small if r = 0,10 to 0,29, medium if r= 0,30 to 0,49 and large if r= 0,50 to 1,00 (Pallant, 2007)

7. Discussion

7.1. Discussing Research Question I

A major purpose of this thesis was it to find out whether a TAM that has been extended by age- and health-related factors can explain German Silver Surfers' online purchase intention. As basis for the research model, the third version of the TAM developed by Venkatesh and Davis (1996) was adopted. In agreement with Ur Rehman et al. (2013) and Alomary and Woollard (2015), the parsimony of the TAM again has proven to offer ample flexibility for a model extension to address particular research aims. That is, the identified age- and health-related factors supposedly influencing German Silver Surfers' E-Commerce adoption could be added to the original TAM, which resulted in a unique research model for this study.

Of the age- and health related hypotheses, the majority could be supported by the correlation analysis. One of the most intriguing issues that evolved when reviewing earlier works revolved around the interrelation between chronological age and Internet experience. As age and experience in this study proved to have a small negative relationship (H1), it could be derived that Internet experience of German Silver Surfers is principally becoming lower with age, which confirms the findings of Hernández, Jiménez and José Martín (2011). Although age did not prove the presumed relationship with PEOU (H2) as e.g. found by McCloskey (2006), it showed a medium negative relationship with the intention to shop online (H3). This suggests that, although there's a growing aversion towards online shopping with age, reasons for this do not lie in how seniors perceive the ease of use of shopping sites. Instead, they can be assumed in the perceived self-efficacy of older adults, as age correlated negatively on a small degree with this variable, confirming the observations of Lee and Coughlin (2015).

The assumed relationships of Internet experience on the other hand were all largely supported (H4, H5 and H11), and correlated much stronger than those regarding age. That is, the more experienced German Silver Surfers seemed to be, the higher was their PEOU, PSE and intention to buy online. This reminds of Hernández, Jiménez and José Martín (2011), who found that after initial barriers of E-shopping are surmounted, age does not significantly affect consumers' subsequent online shopping behaviour anymore. Both PEOU and PU proved to have a large relationship with purchase intention (H6 and H7), which principally supports the validity of the original TAM. However, perceived self-efficacy, whilst strongly correlated with PEOU (H13), turned out to be a better predictor of intention to purchase. That is, according to the decisions for regression analysis that were made based on the correlations between the original and new TAM variables, PEOU was found to be 1) too similar to PU to be processed in a regression analysis and 2) not as highly related to purchase intention as perceived self-efficacy. Apart from possible reasons lying in the operationalisation of the concept, as also assumed by McCloskey (2006), the findings imply that once Silver Surfers feel capable of performing an online shopping task, it is not the ease of use of a certain shopping site that determines their intention to shop on that site. Rather it is about whether the online shop offers the desired usefulness, especially regarding convenience. Former research even revealed that PEOU did not have any direct effect on online purchase intention (Lu & Jin, 2009) although for older people the interrelation

between PEOU and actual usage was found to be much stronger than it was for PU (Dogruel, Joeckel & Bowman, 2015). However, while perceived self-efficacy in this study was assumed to be both a predictor of PEOU (e.g. Ventkatesh & Davis, 1996; Ur Rehman et al. 2013) as well as a direct predictor of purchase intention, correlations showed that perceived self-efficacy has a much stronger relationship with intention to purchase (H14) than PEOU has. This fits to the suggestion of Kim et al. (2016), who stated that, when older people perceive their self-efficacy as low, they are more likely to refuse learning it. That is, no matter how easy the use of online shopping may be regarded, perceived self-efficacy, (i.e., seniors' self-evaluation about their cognitive and behavioural capabilities of effectively performing an online shopping task) plays a much stronger role in deciding whether to make use of online shopping or not. Nonetheless, even though PEOU was not eligible for being included in the multiple regression model, it must not be forgotten that the variable revealed significant correlations with the intention to purchase online, thus confirming former works (e.g. Ziefle & Röcker, 2010), where PEOU principally was found to be of great importance for older people.

Additionally, the factors measuring decline in cognitive, manual and visual functions showed the expected correlation with perceived self-efficacy (H12) instead of with PEOU, confirming the assumptions made in *Section 3.2.3.* This supported that perceived self-efficacy constitute a much better factor within the proposed research model. For a multiple regression analysis, the basic TAM factor PEOU was therefore conceptually omitted from the present research model and instead replaced by perceived self-efficacy. Together with PU, perceived self-efficacy now was regarded as one of the main predictors of online purchase intention.

The cultural dimensions Individualism and Uncertainty Avoidance were proposed to be related to factors that possibly influence E-commerce adoption of older consumers. Namely, in accordance with other authors (e.g. De Angeli & Kyriakoullis, 2006; Hwang, 2009; Yoon, 2009; Stylianou, Kyriakoullis & Savva, 2012; Faisal et al., 2016), Uncertainty Avoidance was assumed to be related to online trust, while the horizontal dimension of Individualism (Triandis & Gelfand, 1998) was supposed to influence online purchase intention of Silver Surfers as e.g. Gong (2009) found that low-context cultures (that they equate with Individualism) show faster E-commerce adoption rates. Also, in agreement with Hofstede (1980) who included independence in his descriptions of an individualistic mindset, it was suggested that Individualism entails the desire for independence that is prevalent in many older adults (Lee & Coughlin, 2015), which in this work was suggested to influence their online shopping adoption in relation with outdoor immobility.

However, regardless of acceptable Cronbach's Alpha scores that confirmed internal reliability of the two cultural concepts measured on individual-level, they did not correlate significantly with the proposed TAM variables, rejecting H10 and H15. Consequently, it was also not possible to progress the cultural variables into multiple regression analysis to test for any predictive relationship between the suggested variables. On the one hand, this could imply that these cultural dimensions do not play a role on E-commerce adoption; however, on the other hand, it may also suggest that the dimensions at hand only affect online shopping intentions when

compared cross-culturally. Another reason may lie in the way how the dimensions are operationalised. The formulation of the cultural items was not related to online shopping, whereas e.g. Hwang (2009) explicitly worded their Uncertainty Avoidance items in relation to purchase behaviour when they examined the dimension's relationship to online trust. Nonetheless, the individual-level measurement of Uncertainty Avoidance revealed differences on age (namely, the older German Silver Surfers are, the more they to avoid uncertainty). Also, the two cultural variables correlated with each other, suggesting that the higher the level of Uncertainty Avoidance, the more individualistic respondents were on the horizontal dimension, i.e., the more they strived for independence. In general, it may be noted that the relatively high means (Uncertainty Avoidance M: 3,87; Horizontal Individualism M: 3,86) of the individual-level concepts each mirror the high scores that were calculated for Germany (UAI: 65; IDV:67) on the country-level (Hofstede, 2001).

Alike the two cultural variables, outdoor immobility too was not found to have a significant relationship with either PU or purchase intention, which is why H8 and H9 had to be rejected. However, it can be inferred from the fact that outdoor immobility scores were quite low (M: 1,67), hence indicating that few respondents perceived their outdoor mobility as being limited. A full range of mobility ratings may have resulted in different results. On the other hand, it must be noted that the operationalisation of two items (OIM II and OIM III) for this variable did not draw back on E-commerce studies, but instead on a health status questionnaire (Bullinger & Kirchberger, 1998) due to lack of appropriate sources from the online consumer literature.

The four most important determinants of German Silver Surfers' E-commerce adoption were identified by the multiple regression analysis that was additionally conducted to reveal the predictive power of the correctly correlating variables. Perceived self-efficacy, perceived usefulness and age turned out to predict online purchase intention best, whilst Internet experience was the most important predictor of perceived self-efficacy. The findings imply that the more self-efficient and younger German seniors are, and the higher they perceive the usefulness of online shopping, the more likely they purchase online in the future. Perceived self-efficacy on the other hand is largely determined by Silver Surfers' Internet experience, which confirms the two factors' importance that was also claimed by Hernández, Jiménez and José Martín (2011).

Whilst trust proved to have a positive relationship with purchase intention (H16), when standing in competition with perceived self-efficacy, PU and age, its effect as predictor of purchase intention within a multiple regression analysis became too weak. This stands in incongruity with e.g. Gefen, Karahann and Straub (2003) who found trust to be a major antecedent of intention. However, recalling that especially the operationalisation of trust is highly prone to confusion between results of different works (refer to *Section 5.6*), it must be reminded that the present study examined trust in the online environment (institutional trust), while the aforesaid authors related their conceptualisation to certain online vendors. Another issue occurs when recalling the problems with data collocation. It could be assumed that, since the sample consisted of Silver Surfers who show a relatively higher trust in the online

environment than those who refused to participate, the data was not able to capture a representative picture of the importance of trust for Silver Surfers.

7.2. Discussing Research Question II

It was the aim of the second research question to figure out whether an imagined need for an embarrassing product may foster Silver Surfers' intention to buy this product online. To test this issue, a special purchase situation (need for an adult diaper) was described to which respondents had to indicate their level of embarrassment, followed by the question whether they would purchase the embarrassing product online. Firstly, it can be noted that age had no influence on the degree of embarrassment that an adult diaper would cause (H17), incongruent to what Nichols, Raska and Flint (2015) and Sarkar and Sarkar (2017) suggested. However, in accordance with Sarkar and Sarkar (2017) and Londono, Davies and Elms' (2017), it was found that, for those who indicated a high level of anticipated embarrassment in the imagined purchase situation, the intention to buy this product online too was higher when compared with those who rated their level of embarrassment low (H19).

This difference however was only true for those respondents who had no experience with incontinence yet. Namely, once an adult had experienced the need for the supposedly embarrassing product, the purchase intention was much lower than for those who had to imagine the situation. There was no indication to support the suggestion of Dahl, Manchanda and Argo (2001), who found that the more familiar consumers became with the purchase of an embarrassing product, the less embarrassed they feel (H18). Nevertheless, the difference in online purchase intention still suggests that the higher online buying intention for this particular product only holds water when there has been no familiarity gained with the product purchase yet.

7.3. Discussing Research Question III

Congruent with findings of McKechnie, Winklhofer and Ennew (2006), Hernández, Jiménez and José Martín (2011), and Lian and Yen (2014), demographics of respondents explained little or no differences in their online shopping intention. Unlike Zhou, Dai and Zhang (2007), for example, who claimed that most studies they reviewed found that men buy more often and spend more money online, whilst women are more sceptical when buying on the web, the present study could not find any significant differences on gender. The only remarkable aspects were occupational status and education, in that those who have a higher education and are still working are slightly more inclined to buy online than those with lower education and full retirement. The findings regarding education confirm those of Gong, Stump & Maddox (2013) and Chen and He (2003); however, unlike both authors reporting that higher income was related to higher online purchase intention, German Silver Surfers did not display such a pattern.

A factor that revealed significant results however, was former purchase frequency. Namely, the more often Silver Surfers have bought online in the past, the higher is their perceived-self-efficacy, PU, PEOU, online trust and also their intention to purchase online in the future. Likewise, Internet experience in general was higher for those who had purchased more

frequently in the past, reinforcing the findings of Wan, Nakayama and Sutcliffe (2012) who found that former online purchase experience is a significant determinant for online shopping.

Additionally, those Silver Surfers who have not often or never bought online stated that anxiety was one of the most important reasons, which concurs with the conclusions of Lee and Coughlin (2015). Alternatively, refusal of stating personal or financial data and the desire of seeing/touching the product before purchasing it were important barriers, mirroring the suggestions made by Leppel and McCloskey (2011) and Trocchia and Janda (2000), respectively. Lastly, missing a personal sales person too seems to prevent older consumers from online shopping, which may lie in the fact that personal contact is related to building trust in relational exchanges (Chattaraman et al., 2014).

8. Conclusion

8.1. Summary of Findings

This work examined the determinants of E-commerce adoption of German Silver Surfers for an online expansion of healthcare retailers. Through a unique extension of the Technology Acceptance Model (Davis, 1989), several age- and health-related factors could be identified which influence the online shopping intention of the aforesaid consumer group. Namely, it was found that age, Internet experience, cognitive, manual and visual decline, perceived self-efficacy, perceived ease of use, perceived usefulness, and trust in the online environment are relevant factors that need to be considered when marketing online shopping sites to seniors. However, of these factors, the most important ones turned out to be Internet experience, perceived self-efficacy, perceived usefulness and age, since they predicted online purchase intention best.

Another remarkable finding was that Silver Surfers' perceived ease of use of online shopping sites was not that important in relation to their purchase intention when being compared to their perceived self-efficacy. On the contrary, ease of webshop use seemed to be very similar to perceived usefulness of online purchases. Furthermore, physical deterioration in the form of outdoor immobility did not play any role for the perceived usefulness of online shopping, which may, however, be different if consumers become older than the here examined age range (average age 67,5 years). From the international perspective that was integrated in this work, it must be noted that he cultural dimensions Individualism and Uncertainty Avoidance, which were measured on an individual-level, did not reveal the expected relationships within the proposed research model. Hence, cultural conclusions may be difficult if research is conducted on one country only.

When concentrating the research to the healthcare industry, anticipated embarrassment that arises because of buying a certain health product in a traditional purchase setting was found to be a valuable aspect for the online purchase intention of German Silver Surfers. Namely, for those seniors who indicated high levels of embarrassment when thinking of buying an incontinence product in a physical store, online purchase intention for the product was higher than for those with low levels of embarrassment. It was also found that embarrassment only presents this relevance if familiarity with the product has not been gained yet, suggesting that possible opportunities for E-commerce must be seized in the initial stages of embarrassing health conditions.

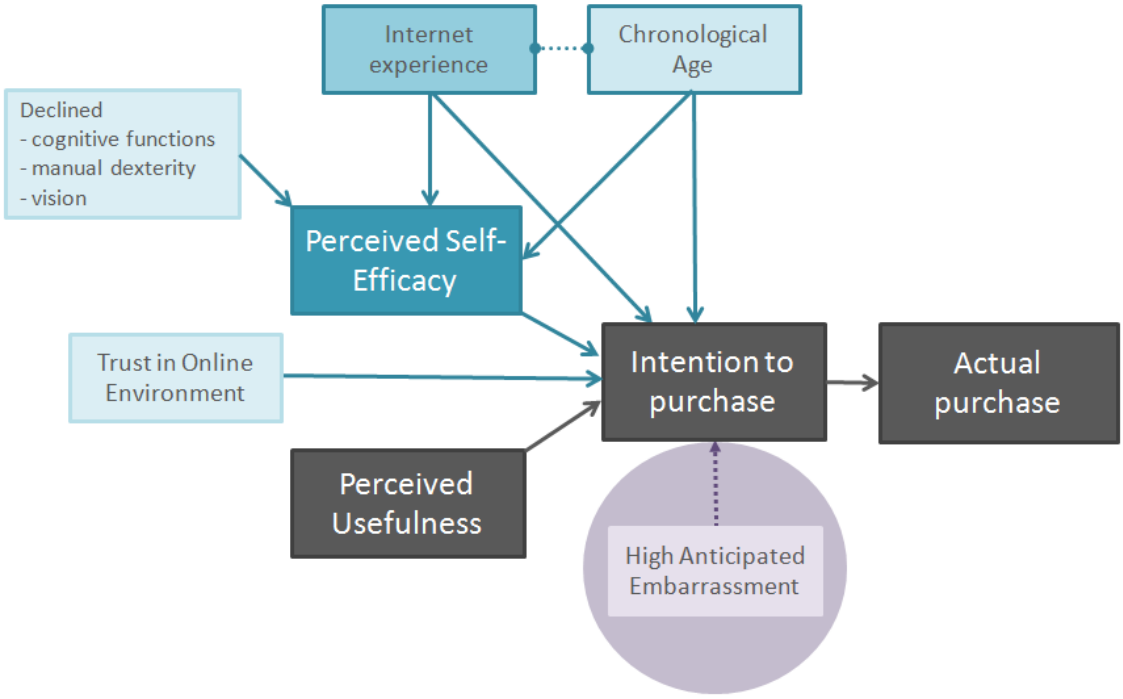
Demographic characteristics apart from age do not seem to present suitable segmentation criteria for senior online shoppers. There were no differences found between groups separating gender, region, type of settlement, living arrangement or income. However, Silver Surfers with higher education and who are still working demonstrated to be more inclined to shop online. Additionally, former online purchase frequency significantly determines German seniors' E-commerce adoption. Perceived-self-efficacy, usefulness, ease of use, online trust and intention to purchase online become much greater for those consumers showing a higher frequency of past online purchases. Barriers to purchase online were predominantly found in the anxiety of doing

something wrong and concerns about data security. However, the preference of having personal sales contact and touching the product before a purchase too demonstrate impediments for E-commerce.

Suggesting a TAM for Silver Surfers' E-commerce adoption in healthcare

The research model that was created throughout the methodical procedure of this work can now be adjusted according to the findings that this study revealed. To determine the power of the contribution that the identified factors of E-commerce adoption demonstrate, five models were tested within multiple regression analysis. One of the key results of this procedure was that the level of Internet experience had a greater effect within the extended TAM than chronological age as such, although the two factors are obviously related. That is, even though it was found that perceived self-efficacy and intention to purchase online become lower with an increasing age of Silver Surfers, for both of these outcome factors, Internet experience was the better predictor. The level of experience with the Internet thus largely determines the degree of a senior's perceived self-efficacy, which in turn contributes most powerful as predictor of Silver Surfers' intention to purchase online. Perceived usefulness of online shopping was found to be the second strongest predictor of online purchase intention, while age still contributed to a small but significant amount to the intention to purchase online. However, decline of cognitive, manual and visual functions as well as online trust too play a role for E-commerce adoption for German Silver Surfers that must not be overlooked. Together with the variable anticipated embarrassment that was found to foster Silver Surfers' online shopping intention, the resulting model is outlined in *Figure 21*. Note that the importance of the additional TAM factors has been visualised by their respective colour saturation.

Figure 21: Final model according to findings on German Silver Surfers



8.2. Managerial Implications

This thesis revealed important implications for international E-commerce endeavours of healthcare retailers that wish to target the promising and large consumer group of German Silver Surfers. Even though the cultural dimensions Uncertainty Avoidance and Individualism that were measured on an individual-level did not seem to be responsible for these seniors' variation in online shopping intentions, it is nonetheless suggested that country-specific research is important before entering a foreign market. After all, results of former E-commerce studies that compared other countries (e.g. USA and Israel: Gefen & Heart, 2006; Pakistan and Canada: Ashraf, Thongpapanl & Auh, 2014), imply that cultural differences between countries play a major role on consumers' E-commerce adoption, even though the majority of these studies examined younger individuals. The findings of this thesis contribute to the understanding of country-specific E-commerce factors by offering a unique picture of a promising market for international online expansion, while obviously providing insights for domestic retailers as well. By shedding light on Germany as potential market for an online expansion of healthcare retailers, the managerial implications of this work explicitly focus on the underexplored group of online consumers aged 60 and above.

Healthcare retailers going online in Germany must ensure easy navigation through web shops if they want to attract Silver Surfers to their sites. As factors of cognitive, manual and visual decline are negatively related to Silver Surfers' intention to shop online, this calls for an awareness of these barriers of E-commerce adoption for the development of web shops. In agreement with Smith (2008), online marketers should advise their web designers to avoid usability obstacles such as small font sizes, inconsistent page layouts, redundant information and too many distracting ads. Ease of website use should be regarded as web designers' necessary response to reduced cognitive capabilities and lower perceived self-efficacy of the elderly. Czaja & Lee (2007) e.g. provide a comprehensive listing of interface design guidelines, which include suggestions such as minimizing visual clutter and demands on working memory, adhering to natural organization principles, and providing navigational tools, meaningful icons as well as adequate response time.

However, older Germans who display mistrust in their own capabilities may nonetheless be impeded in their online purchase intentions. As perceived self-efficacy largely relies to Internet experience and also to former online purchase performance, healthcare retailers could offer e-learning tools in addition to their product offers. Mock purchase tasks e.g. could direct potential consumers through the purchase process before it is actually performed. In explaining each step in parallel, Silver Surfers who are anxious of doing something wrong could practice the shopping task to become more confident with the technique and learn about the features that have been integrated to ensure data security and other safety issues.

Silver Surfers' perceived self-efficacy could potentially be further enhanced by providing them with *vicarious experience* (Bandura, 1982). That is, if they observe how similar others, i.e., other Silver Surfers, manage to perform online shopping tasks, they automatically become aware that they actually possess the same capabilities to master that task. Online communities that are

especially created for seniors (e.g. seniorentreff.de, Feierabend.de) may offer the possibility to see how like-minded seniors cope with comparable difficulties. Online retailers targeting Silver Surfers could therefore place links to relevant discussion boards of such communities on their websites or even develop their own online communities. At the same time, this offers the retailers with opportunities to learn more about their desired customers.

As perceived usefulness contributes to Silver Surfers' intention to purchase online, marketers should also explicitly endorse the convenience of online shopping as opposed to purchasing in physical stores as some Silver Surfers simply have not felt a specific need of purchasing online yet. To differentiate from online giants such as Amazon, however, healthcare retailers then need to promote their strengths and core competences around health products because otherwise, seniors may stick to familiar online shops with which they have gained experience.

Likewise, when promoting embarrassing healthcare products such as incontinence pads, the absence of social presence in the private shopping environment of consumers' homes could help attracting Silver Surfers to buy these products at an online retailer. This opportunity must be seized before consumers become too familiar with the embarrassing product, which renders the initial stages of embarrassing health conditions particularly important to be targeted. Similar to the online communities mentioned above, special online health support groups might be a perfect location to place advertisements that emphasize the privacy of online shopping. After all, those consumers who are affected by a health condition that creates embarrassment often search for emotional, social and informational support among others suffering from the same condition (Kirsten, 2016), which is why this environment too provides a suitable source for shopping tips. The fact that Germans have accepted to contribute and pay out of pocket for their health should additionally serve this opportunity of promoting delicate healthcare products.

Healthcare companies going E-commerce in Germany do not necessarily need to consider other demographic characteristics than age when segmenting their online customers. Instead, they should integrate other factors into their online strategy to meet the most relevant needs of Germans in general and the country's seniors in particular. That is, aspects such as security mechanisms, website safeguards and diverse payment offerings should be explicitly promoted, as German Silver Surfers have large concerns regarding privacy and data security and show little willingness to provide bank or credit card details. E-retailers could e.g. reduce unnecessary plugins in order to minimize security concerns and technical difficulties (Law, Kwok & Ng, 2016). They too should offer alternative payment services as substitute to credit cards.

Finally, although this study focused on those seniors who have already adopted the Internet as such, statistics (e.g. Destatis, 2016) still remind of a large numbers of potential healthcare customers that have either not yet explored this medium for themselves or that are simply not able to independently do their shopping anymore due to a more severe decline of their health status. Healthcare retailers expanding their businesses online must therefore not ignore the potential of those healthcare customers who are caring for their older relatives and who indirectly, yet largely influence relevant purchase decisions.

8.3. Limitations

This study had several limitations that are discussed in the following. First of all, it must be noted that the age range from 60-70 constituted the biggest portion of the convenience sample, while Silver Surfers aged over 70 or even over 80 are only sparsely represented. This may have led to smaller effects of the factors of physical decline. Recall that outdoor immobility could not be validated as important TAM variable; however, it may actually be an important issue for much older seniors. Another issue that raised the concerns of the author was the reported mistrust of some targets which refused survey participation due to concerns regarding anonymity, data security, or anxiety of catching a virus. Perhaps it should hence be considered that the sample consists of Silver Surfers that are rather daring by nature, which is why the measurements of online trust and Uncertainty Avoidance may have been biased. Likewise, it could be assumed that those who participate in online surveys already have a relatively high experience with the Internet, possibly leading to unsatisfactory representation of the average experience level of the Silver Surfer population.

Online survey always entail the risk of method bias coming from self-reported information (Chen & Chan, 2011), which is marked by "fallibility of people's memories, idiosyncratic scale use, and even deliberate alteration through social desirability biases" (Zhou, Dai & Zhang, 2007, p. 53). These shortcomings of online surveys have been predominantly accepted as common limitations that also occurred in previous TAM studies. Nonetheless, having this in mind, ecological validity, which reflects applicability of findings to everyday life behaviour of people, must be questioned. Likewise, the question whether intention to purchase online automatically leads to actual purchase action too has been subject to controversy (Lim et al., 2016), which is why caution must be exercised in interpreting the main outcome variable measured within this study.

There are large dissimilarities in the operationalisation of TAM concepts between researchers. Since different contexts require adjustments in item formulations, research is not very consistent. The author of the present thesis adapted items that best represented the research aim of examining general perceptions of online shopping (e.g. McCloskey, 2006; Hernández, Jiménez and José Martín, 2011; Lim & Ting, 2012), whereas other authors e.g. provide certain website interfaces to measure their perceived usefulness, ease of use and intention (e.g. Phang et al., 2006; Smith, 2008). In this regard, the operationalisation of the two cultural variables must be considered, too. Former E-commerce studies e.g. revealed a relationship between Uncertainty Avoidance and online trust (e.g. Hwang, 2009; Yoon, 2009; Faisal et al., 2016). Perhaps a cross-country comparison of the two cultural dimensions and their effect on TAM variables would have resulted in different results.

Finally, because the author was concerned about respondent fatigue, the survey was kept as easy and as short as possible. Therefore, several issues might have not been addressed sufficiently. For example, reasons why Silver Surfers actually shopped online and which products they purchase on the web were omitted from the survey before launch. Also, online purchase intention could have been additionally tested for the group of health products.

8.4. Recommendations for Future Research

Although this study revealed important aspects of the online shopping adoption of German Silver Surfers, the fact that the high potential of this growing consumer segment has predominantly been ignored in E-commerce studies renders future research necessary. Likewise, since the individual-level cultural investigation did not explain differences in Germans' shopping intentions, a cross-country comparison of Silver Surfers is advisable to unveil the particularities of countries before they are selected for an international online expansion.

In general, the extended TAM has proven to be an appropriate instrument for the studies of older adults' E-commerce adoption; however, the original variable perceived ease of use did not seem to be of great importance for German Silver Surfers as reported in other TAM studies. Instead, perceived self-efficacy was a much better predictor of online purchase intention. This finding should be further validated, as well as the underlying factors that may determine seniors' self-efficacy. It would be interesting to know whether replicating studies of the here applied conceptual model could enhance the representativeness by drawing back on larger sample sizes that entail bigger amounts of seniors aged 70 and over. Perhaps chronological age becomes a more powerful predictor of online purchase intention in relation to Internet experience when examined on older Silver Surfers. On the other hand, experience in regard to online shopping turned out be largely related to the here examined TAM variables, therefore this factor should be integrated as separate concept in future research.

Future studies should also reconsider the operationalisation of online trust, as the findings of this study did not reveal the power of this factor as has been found in previous works (e.g. Gefen, Karahann & Straub, 2003). Germans nonetheless display comparably high concerns on data security, which already hampered the participation in the online survey that was conducted for this study. This suggests that the concept of trust should find a more detailed application in future online studies of German Silver Surfers. Additionally, to shed more light on which factors determine perceived usefulness of Silver Surfers, further antecedents should be explored. For the particular purpose of healthcare marketing, special consumer needs that arise from certain diseases could be explored on their impact on the perceived usefulness and intention of online shopping. While this thesis examined the possible influence of an embarrassing product towards purchase intention, this relationship should be further explored on other health products which offer other advantages when purchased online.

Healthcare retailers that seek to enter foreign online markets need to be aware of what global online players such as Amazon have to offer in comparison to traditional retailers. One important aspect may be the wide product range that is offered on these sites, which is why Silver Surfers' have possibly gained familiarity with the website already. Recall that experience has proven to be a major factor for the online shopping adoption of seniors. Once Silver Surfers have adopted a certain web shop, they may prefer sticking to that website instead of switching to new sites which would again require them to learn new functionalities. Healthcare retailers thus need to find catching arguments that attract these consumers to their web shops. Future research should therefore further explore to what extent traditional healthcare retailers'

inherent knowledge about specific customers' needs can help attracting these customers to their sites and how this knowledge can be translated into marketing messages.

Furthermore, while this study merely examined self-reported status of cognitive, manual and visual functions, for necessary responses within web shop development, further research is needed to explore the physical barriers of online shopping. Eye-tracking for example may reveal at which spots older adults get stuck, while tracking of mouse control could help finding out where problems in web site navigation occur. In general, lab experiments may offer a valuable method to supplement findings that have been made on the basis of conceptual model testing.

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Appendix

Online-Umfrage zur Internetnutzung von Über-60-Jährigen

Sehr geehrte/r Teilnehmer/in,

Vielen Dank für Ihre Bereitschaft zur Teilnahme an dieser Umfrage. Sie ist ein wichtiges Instrument im Rahmen einer Forschungsarbeit, in der ich untersuche, ob Menschen über 60 Jahren Käufe im Internet tätigen und welche Faktoren dies beeinflussen bzw. verhindern.

Falls Sie noch nie etwas im Internet gekauft haben, sind Ihre Antworten für mich genauso wichtig wie wenn Sie schon den einen oder anderen Onlinekauf getätigt haben. Sämtliche Ihrer Angaben werden anonym erhoben und nur im Zusammenhang mit allen anderen Antworten analysiert, was keinerlei Rückschlüsse auf Ihre Person zulässt.

Um wissenschaftlich relevante Ergebnisse zu gewinnen, ist eine hohe Teilnehmerzahl sehr wichtig. Daher bitte ich Sie, die Umfrage vollständig auszufüllen, denn jeder vollständige Fragebogen zählt. Planen Sie bitte ca. 10-15 Minuten Ihrer Zeit ein, oder pausieren Sie einfach zwischendurch ohne das Fenster zu schließen.

Am Ende der Umfrage finden Sie meine Email-Adresse, so dass Sie die Möglichkeit haben, mir etwas mitzuteilen oder mir Fragen zu meiner Forschungsarbeit zu stellen.

Herzlichen Dank und liebe Grüße
Mirjam Kirsten

(Bildquelle: diez.md/wp-content/uploads/2017/01/shopping_online.jpg)

* Erforderlich

Allgemeine Erfahrung mit dem Internet

1. **Wie würden Sie Ihre Erfahrung mit dem Internet einschätzen?** *
   Markieren Sie nur ein Oval.

   - ◯ Ich habe überhaupt keine Erfahrung
   - ◯ Ich schaue zu wenn andere das Internet für mich nutzen Ich bin Neuling im Internet *Weiter mit Frage 3*
   - ◯ Ich bin ein einigermaßen erfahrener Internetnutzer *Weiter mit Frage 3*
   - ◯ Ich bin sehr erfahren im Umgang mit dem Internet *Weiter mit Frage 3*

Allgemeine Erfahrung mit dem Internet

2. **Sind Sie sicher, dass Sie überhaupt keine eigene Erfahrung mit dem Internet haben? In diesem Falle sind Sie für die Befragung leider nicht geeignet.** *
   Markieren Sie nur ein Oval.

   - ◯ Ja, ich bin sicher. Ich habe überhaupt keine eigene Erfahrung mit dem Internet (die Befragung endet hier). *Ausfüllen dieses Formulars beenden*
   - ◯ Nein, ich bin nicht sicher. Ich habe nur wenig Erfahrung, möchte aber trotzdem teilnehmen.
   - ◯ Oh. Da scheine ich mich verklickt zu haben. Ich habe bereits Erfahrung mit dem Internet.

Allgemeiner Umgang mit dem Internet

Bitte geben Sie an, inwieweit sie den folgenden Aussagen zustimmen.

Ich weiß wie man eine Suchmaschine (z.B. Google) benutzt, um im Internet nach Informationen zu suchen *

Markieren Sie nur ein Oval.

- ◯ stimme überhaupt nicht zu
- ◯ stimme eher nicht zu
- ◯ teils/teils
- ◯ stimme eher zu
- ◯ stimme voll und ganz zu

3. **Wenn ich eine Suchmaschine (z.B. Google) benutze, finde ich gewöhnlich auch die Informationen die ich gesucht habe** *

Markieren Sie nur ein Oval.

- ◯ stimme überhaupt nicht zu
- ◯ stimme eher nicht zu
- ◯ teils/teils
- ◯ stimme eher zu
- ◯ stimme voll und ganz zu

Nutzung des Internets

4. **Haben Sie im Rahmen Ihrer beruflichen Tätigkeit jemals einen Computer genutzt?** *

Markieren Sie nur ein Oval.

- ◯ Nein, noch nie
- ◯ Sehr selten
- ◯ Ja, aber nur gelegentlich
- ◯ Ja, häufig
- ◯ Der Hauptteil meiner Arbeit erfordert(e) die Arbeit am Computer

5. **Wozu nutzen Sie das Internet? (Mehrfachantworten möglich)** *

Wählen Sie alle zutreffenden Antworten aus.

- ☐ Um Nachrichten zu lesen oder zu schauen
- ☐ Um Kontakt mit Bekannten oder Familienangehörigen zu pflegen
- ☐ Um Produkte einzukaufen
- ☐ Um Dienstleistungen zu bestellen (z.B. Urlaub buchen)
- ☐ Um mich über Produkte oder Dienstleistungen zu informieren
- ☐ Um mich über Gesundheitsthemen zu informieren
- ☐ Um mich zu anderen Themen zu informieren, die mich interessieren
- ☐ Sonstiges: _____

6. **Wie oft haben Sie schon Produkte im Internet gekauft? (Dienstleistungen ausgenommen)** *
Markieren Sie nur ein Oval.

- ◯ noch nie
- ◯ einmal
- ◯ vielleicht 2-3 mal
- ◯ nicht öfter als 5-6 mal
- ◯ so oft, dass ich auf Anhieb nicht sagen kann wie häufig *Weiter mit Frage 9*

Gründe warum Sie nicht im Internet kaufen

7. **Was hat Sie davon abgehalten (öfter) etwas im Internet zu kaufen? (Mehrfachantworten möglich)** *
Wählen Sie alle zutreffenden Antworten aus.

- ☐ Ich verspüre einfach nicht das Bedürfnis etwas im Internet zu kaufen.
- ☐ Ich bevorzuge es, Produkte vor dem Kauf sehen/anfassen zu können.
- ☐ Ich bevorzuge persönlichen Kontakt beim Kaufen.
- ☐ Ich kaufe gerne in Geschäften, weil ich so aus dem Haus komme.
- ☐ Ich habe Angst, etwas falsch zu machen.
- ☐ Ich habe nicht gefunden wonach ich gesucht habe.
- ☐ Ich bin um den Schutz meiner persönlichen Daten besorgt.
- ☐ Ich möchte meine Bank-/Kreditkartendaten nicht im Internet angeben.
- ☐ Ich möchte keine Pakete erhalten.
- ☐ Die Lieferkosten sind mir zu hoch.
- ☐ Ich weiß nicht genau warum; ich habe mich einfach nicht gut dabei gefühlt.
- ☐ Sonstiges: _____

Einstellungen zum Einkaufen im Internet

Bitte denken Sie darüber nach, was das Einkaufen im Internet für Sie bedeutet (bzw. bedeuten könnte).

Die folgenden Aussagen kommen Ihnen eventuell sehr ähnlich vor, was jedoch einen wissenschaftlichen Grund hat. Bitte geben Sie daher gewissenhaft an, inwiefern Sie den Einschätzungen zustimmen.

8. **Produkte im Internet zu kaufen ist (wäre) bequemer als Einkaufen im Geschäft.** *
Markieren Sie nur ein Oval.

- ◯ stimme überhaupt nicht zu
- ◯ stimme eher nicht zu
- ◯ teils/teils
- ◯ stimme eher zu
- ◯ stimme voll und ganz zu

9. **Zu lernen wie man das Internet benutzt, um ein Produkt zu kaufen war (wäre) einfach für mich, selbst beim ersten Mal.** *
   Markieren Sie nur ein Oval.

   - stimme überhaupt nicht zu
   - stimme eher nicht zu
   - teils/teils
   - stimme eher zu
   - stimme voll und ganz zu

10. **Das Internet hat genügend Schutzmechanismen damit ich mich wohl fühle, wenn ich es zum Einkaufen nutze(n würde).** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

11. **Dinge im Internet zu kaufen ist (wäre) praktischer als normales Einkaufen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

12. **Es ist (wäre) einfach das Internet zu nutzen um meine Einkäufe zu erledigen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

13. **Ich fühle mich sicher, dass rechtliche Strukturen und technologische Weiterentwicklungen mich ausreichend vor Problemen im Internet schützen (würden).** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

14. **Durch Einkaufen im Internet kann (könnte) ich mir mein Leben angenehmer machen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

15. **Es ist (wäre) einfach für mich das Internet zu nutzen um ein Produkt zu kaufen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu
    - teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

16. **Im Allgemeinen ist das Internet heute eine stabile und sichere Umgebung um Einkaufe zu erledigen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu
    - teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

Mobilität und Fähigkeiten

17. **Aktivitäten rund ums Einkaufen (z.B. Hin- und Rückweg, durch das Geschäft gehen, in der Schlange stehen) bereiten mir Schwierigkeiten.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu
    - teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

18. **Aufgrund körperlicher Einschränkungen kann ich kaum weiter als bis zur nächsten Straßenkreuzung gehen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu
    - teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

19. **Es ist mir nicht (mehr) möglich Einkaufstaschen vom Geschäft bis zu mir nach Hause zu tragen.** *
    Markieren Sie nur ein Oval.

    - stimme überhaupt nicht zu
    - stimme eher nicht zu
    - teils/teils
    - stimme eher zu
    - stimme voll und ganz zu

20. **Aufgrund von reduziertem Sehvermögen habe ich (trotz Sehhilfen) Schwierigkeiten bei der Internetnutzung.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

21. **Aufgrund von reduzierter Fingerfertigkeit habe ich Schwierigkeiten bei der Internetnutzung.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

22. **Aufgrund von reduzierten mentalen Fähigkeiten (z.B. Verarbeiten neuer Informationen, Konzentrationsfähigkeit) habe ich Schwierigkeiten bei der Internetnutzung.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

Einschätzung zum Einkaufen im Internet

Die folgenden Aussagen kommen Ihnen möglicherweise wieder sehr ähnlich vor. Bitte geben Sie auch hier gewissenhaft an, inwiefern Sie den Einschätzungen zustimmen.

23. **Ich fühle mich dazu fähig ein Produkt im Internet zu kaufen.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

24. **Es ist wahrscheinlich, dass ich in der Zukunft Produkte bei Internet-Anbietern kaufen werde.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

25. **Ich bin dazu fähig mich auf den Webseiten eines Online-Shops zurechtzufinden.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

26. **Ich beabsichtige, zukünftig Produkte im Internet zu kaufen.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu teils/teils
- stimme eher zu
- stimme voll und ganz zu

27. **Ich bin überzeugt, dass ich die Fähigkeit dazu besitze Produktinformationen im Internet zu finden.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu teils/teils
- stimme eher zu
- stimme voll und ganz zu

28. **Es besteht eine hohe Wahrscheinlichkeit, dass ich verschiedene Produkte zukünftig bei Online-Händlern kaufen werde.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu teils/teils
- stimme eher zu
- stimme voll und ganz zu

Ein paar ganz allgemeine Einstellungen

Die nun folgenden Aussagen sind nicht auf das Internet im Speziellen bezogen. Geben Sie bitte ganz Allgemein an, inwiefern Sie zustimmen. Auch hier werden Ihnen die Aussagen möglicherweise wieder sehr ähnlich vorkommen.

29. **Es ist wichtig, dass Anweisungen im Detail dargelegt sind, damit ich immer weiß was von mir erwartet wird.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu teils/teils
- stimme eher zu
- stimme voll und ganz zu

30. **Ich bin lieber auf mich selbst angewiesen als auf andere.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

31. **Es ist wichtig, Anweisungen und Abläufe genau zu befolgen.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

32. **Ich verlasse mich meistens auf mich selbst; selten verlasse ich mich auf andere.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

33. **Regeln und Richtlinien sind wichtig, denn sie informieren mich darüber was von mir erwartet wird.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

34. **Es ist sehr wichtig für mich, dass ich unabhängig von anderen bin.** *
Markieren Sie nur ein Oval.

- stimme überhaupt nicht zu
- stimme eher nicht zu
- teils/teils
- stimme eher zu
- stimme voll und ganz zu

Nun zu einem sensiblen Thema

Bitte stellen Sie sich folgende Situation vor:

Vor kurzem haben Sie festgestellt, dass Sie an Blasenschwäche leiden. Es kommt immer häufiger vor, dass Sie unfreiwillig Urin lassen, besonders wenn Sie husten, niesen oder lachen.

Glücklicherweise gibt es spezielle Inkontinenzvorlagen (oder Slips), die bequem zu tragen sind und sicher vor Einnässen in die Kleidung sowie unangenehmem Geruch schützen.

Schließen Sie bitte kurz Ihre Augen und stellen Sie sich vor, dass Sie aufgrund Ihrer Blasenschwäche ein solches Produkt kaufen möchten. Sie gehen in ein Einzelhandelsgeschäft (z.B. Drogerie, Sanitätshaus) oder in eine Apotheke und erkundigen sich nach Vorlagen bei Urininkontinenz.

(Falls Sie mit dieser Situation bereits vertraut sein sollten, erinnern Sie sich bitte an Ihren ersten Einkauf)

35. **Bitte geben Sie an wie Sie sich in der beschrieben Situation fühlen würden (bzw. gefühlt haben).** *

Markieren Sie nur ein Oval pro Zeile.

	stimme überhaupt nicht zu	stimme eher nicht zu	teils/teils	stimme eher zu	stimme voll und ganz zu
Es wäre (war) mir peinlich.	◯	◯	◯	◯	◯
Es wäre (war) mir unangenehm.	◯	◯	◯	◯	◯
Ich würde mich unbehaglich dabei fühlen (Ich habe mich unbehaglich gefühlt).	◯	◯	◯	◯	◯

36. **Wenn Sie möchten, dürfen Sie gerne angeben ob Sie tatsächlich an Blasenschwäche leiden.** *

(Denken Sie bitte daran, dass Ihre Antwort nicht auf Sie persönlich zurückgeführt werden kann)
Markieren Sie nur ein Oval.

◯ Nein, ich leide nicht an Blasenschwäche oder möchte nicht angeben dass ich daran leide. *Weiter mit Frage 41*

◯ Ja, ich leide an Blasenschwäche oder habe einmal daran gelitten. *Weiter mit Frage 38*

Einkaufsgewohnheiten

Vielen Dank für Ihre ehrliche Antwort.

37. **Bitte geben Sie an, wo Sie üblicherweise Ihre Inkontinenzprodukte einkaufen.** *

(Falls Sie die Artikel an verschiedenen Orten einkaufen, wählen Sie bitte den Ort an dem Sie sie am häufigsten einkaufen)
Markieren Sie nur ein Oval.

◯ In einem Sanitätshaus (auch bei Rezepteinlösung).

◯ In der Apotheke (auch bei Rezepteinlösung).

◯ Bei einem Online-Anbieter (Hierzu zählen auch Online-Apotheken).

◯ Ich bekomme die Artikel von einem Anbieter geschickt den meine Krankenkasse mir empfohlen hat.

◯ Ich kaufe Inkontinenzprodukte in der Drogerie (Drogeriemarkt oder Drogerie-Abteilung im Einkaufszentrum).

◯ Ich kaufe Alternativprodukte in der Drogerie ein (z.B. Damenbinden).

◯ Ich kaufe die Artikel nicht selbst ein. Ein Familienmitglied erledigt das für mich.

◯ Sonstiges: _____

38. **Welche Produktkriterien sind für Sie beim Kauf von Inkontinenzprodukten am wichtigsten? (bitte maximal 2 auswählen)** *

Wählen Sie alle zutreffenden Antworten aus.

- [ ] Markenprodukt
- [ ] Tragekomfort
- [ ] Sicherheit Preis
- [ ] neutrale Verpackung
- [ ] Sonstiges: _____

Bitte geben Sie an inwiefern Sie zustimmen:

39. **Es ist wahrscheinlich, dass ich meine Inkontinenzprodukte zukünftig im Internet anstatt im stationären Handel kaufen werde.** *

Markieren Sie nur ein Oval.

- ◯ stimme überhaupt nicht zu
- ◯ stimme eher nicht zu
- ◯ teils/teils
- ◯ stimme eher zu
- ◯ stimme voll und ganz zu

Weiter mit Frage 42

Die Alternative

Alternativ zu der beschriebenen Situation können Vorlagen bei Blasenschwäche natürlich auch im Internet bestellt werden. Bitte geben Sie an inwiefern Sie der folgenden Aussage zustimmen.

40. **Es ist wahrscheinlich, dass ich die Vorlagen im Internet anstatt im stationären Handel kaufen würde.** *

Markieren Sie nur ein Oval.

- ◯ stimme überhaupt nicht zu
- ◯ stimme eher nicht zu
- ◯ teils/teils
- ◯ stimme eher zu
- ◯ stimme voll und ganz zu

Nun kurz zu Ihrer Person

Da alle Ihre Angaben anonym erhoben wurden, ist es wichtig, dass die Teilnehmer verschiedenen Kriterien zugeordnet werden können.

41. **Geben Sie bitte Ihr Alter (in Jahren) an.** *

_____

42. **Geben Sie bitte ihr Geschlecht an.** *
Markieren Sie nur ein Oval.

- ◯ männlich
- ◯ weiblich

43. **Geben Sie bitte die ERSTEN BEIDEN Zahlen Ihrer Postleitzahl an (12345 = 12)** *
Falls Sie derzeit keinen Wohnsitz in Deutschland haben, geben Sie bitte das Land ein in dem Sie wohnen.

_____

44. **Welche der folgenden Antwortmöglichkeiten beschreibt am besten Ihren Wohnort?** *
Markieren Sie nur ein Oval.

- ◯ Ort mit unter 5.000 Einwohnern
- ◯ Kleinstadt (ca. 5.000 - 20.000 Einw.)
- ◯ mittelgroße Stadt (ca. 20.000 - 100.000 Einw.)
- ◯ Großstadt (ca. 100.000 - 500.000 Einw.)
- ◯ Großstadt mit über 500.000 Einwohnern

45. **Geben Sie bitte Ihren höchsten Bildungsabschluss an.** *
Markieren Sie nur ein Oval.

- ◯ Hauptschulabschluss oder mittlere Reife
- ◯ Abitur oder Fachhochschulreife
- ◯ Abgeschlossene Ausbildung
- ◯ Meister, Betriebswirt oder ähnlicher höherer Berufsabschluss
- ◯ Hochschulabschluss (Diplom oder höheres)

46. **Geben Sie bitte Ihren derzeitigen Beschäftigungsstatus an.** *
Markieren Sie nur ein Oval.

- ◯ Selbstständig
- ◯ Vollzeit beschäftigt
- ◯ Teilzeit beschäftigt (noch nicht in Rente)
- ◯ Arbeitssuchend
- ◯ Hausfrau
- ◯ Rentner (nebenbei beschäftigt)
- ◯ Rentner (nicht nebenbei beschäftigt)

47. **Leben Sie allein in Ihrem Haushalt?** *
Markieren Sie nur ein Oval.

- ◯ Ja
- ◯ Nein, ich wohne mit meinem Partner zusammen
- ◯ Nein, ich wohne mit meinen Kindern (oder Enkeln) zusammen
- ◯ Nein ich wohne zusammen mit meinem Partner und meinen Kindern (oder Enkeln)
- ◯ Nein, ich wohne in einer Senioreneinrichtung
- ◯ Sonstiges: _____

48. **In welchem Bereich liegt Ihr monatliches Nettoeinkommen?** *

Auch wenn dies eine sensible Frage ist, bitte ich Sie eine Antwort auszuwählen. Ihre Angaben werden lediglich für statistische Zwecke verwendet. Wenn Sie mit Ihrem Partner zusammen leben, geben Sie bitte einfach die Hälfte des gemeinsamen Einkommens an.
Markieren Sie nur ein Oval.

- unter 1.000ú
- 1.000ú - 2.000ú
- 2.000ú - 3.000ú
- über 3.000ú
- Ich möchte mein Einkommen keinesfalls preisgeben.

Fast geschafft!

Klicken Sie bitte nun auf SENDEN um Ihre Angaben zu speichern.