Royal Docks Business School

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MKM227 Postgraduate Dissertation

Student Number: 1242308

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Consumer E-Lifestyles and Psychographics in the context of the German Mobile Telecommunications Market

A dissertation submitted in partial fulfilment of the requirements of the Royal Docks Business School, University of East London for the degree of MSc International Marketing Management.

September, the 3rd 2013

14.520 words

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Royal Docks Business School

Postgraduate Dissertation

Consumer E-Lifestyles and Psychographics in the context of the German Mobile Telecommunications Market

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Abstract

This research project empirically examines key e-lifestyles of German consumers in the context of mobile services. The author quantitatively investigates the concept of lifestyles and psychographics, whereby a domain-specific lifestyle segmentation approach is taken. Popular determinants and instruments of lifestyle research are critically evaluated and a validated e-lifestyle instrument is replicated in the domain of mobile services. Consequently, a self-administered online survey is distributed among German mobile service consumers and 104 responses are collected. Key findings of the conducted factor analysis indicate five psychographics of German mobile service consumers. Aspects of hedonism, innovativeness, conservatism, effectiveness and concern shape the motivation of these psychographic profiles. A further comparison with Chinese consumers of information and communication technology reveals differences in usage, appeal and traditional values. Through a cluster analysis three key e-lifestyles are grouped and interpreted by means of the psycho profiles as well as the cluster item means. Labeled as 'Basic users', 'Critical users' and 'Engaged users', these segments differ in the meaning and personal goals assigned to their consumption practices of mobile services. The literature review and key findings reveal theoretical implications for determinants of e-lifestyle research as well as recommendations for positioning and targeting strategies.

Keywords: market segmentation, lifestyle, psychographics, e-lifestyle, mobile service

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List of Abbreviations

AIO	Activities, Interests, Opinions
FRL	Food-related Lifestyle Instrument
ICT	Information and Communication Technology
LOV	List-of-Values
KMO	Kaiser-Meyer-Olkin
Q	Question
RO	Research Objective
RVS	Rokeach Value Survey
VALS	Values, Attitudes and Lifestyles
WRL	Wine-related Lifestyle Instrument
α	Cronbach's Alpha

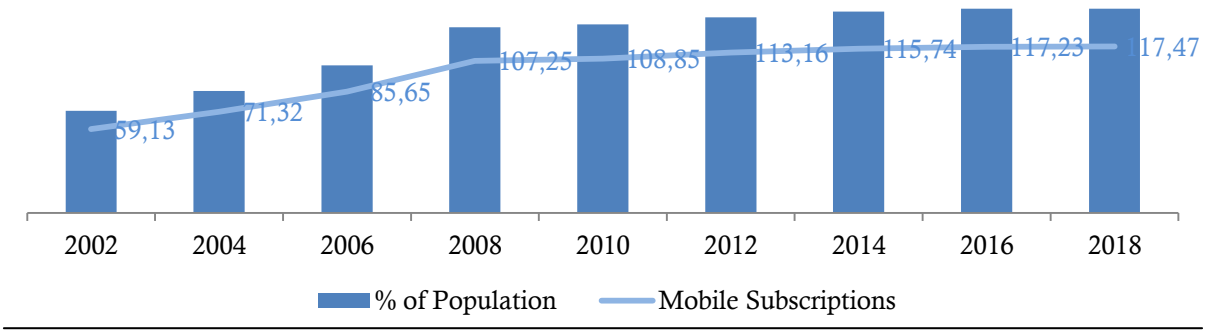
1. Introduction

1.1 Research Relevance and Question

In the academic field of consumer behaviour the topics of lifestyle and psychographics have been explored for almost 60 years. A substantial amount of studies have ever since investigated how to group, interpret and predict the widely scattered heterogeneous needs and wants of consumers. Moreover, a post-modernistic fragmentation of markets and the media alike raised the inevitable call for more consumer insight, beyond demographic, geographic and socio-economic criteria (Yankelovich and Meer, 2006). In broadening the view on market segmentation, psychographic insights about consumers supplement targeting and brand positioning strategies. By this, the promotional mix, product innovation, the choice of distribution channels, pricing and more activities along the consumer life cycle may be tailored around the needs and wants of consumers. Especially in uncertain high technology markets, psychographic insights represent a competitive edge (Lee et al., 2009). The ambiguity about consumer needs and fierce competition among providers, make a broader view on consumers essential.

This is especially true for the case of the highly developed German mobile service market, which ranked 10th in terms of mobile subscriptions worldwide and 1st among all European countries (Euromonitor, 2013). As the result of ongoing technological advances, "...new market participants continue to enter, whilst other participants continuously reposition themselves" (Karla and Bröker, 2011, p. 67). This competitive state of flux is happening, even though the market is saturated, as figure 1 exhibits.

Figure 1. Mobile service penetration in the German mobile service market



Source: Bundesnetzagentur (2012, p. 80); Euromonitor (2013)

The steady increase of mobile subscriptions shows that by 2018 every German citizen will be subscribed to 1.44 mobile service providers, which will be the 5th highest mobile penetration worldwide (Euromonitor, 2013). That underpins the previously made argument of fierce competition and points out how important psychographic insights are in tailoring mobile services to the needs and want of consumers.

In addition to that, the technological convergence of mobile services with other products, like computer, television and the internet, led to a multiform identity of the so called smart phones (Mazzoni, Castaldia and Addeo, 2007). It is estimated that by 2014, 50% of all consumers of mobile services in Germany will have switched to a smart phone device (eMarketer, 2013). With the increasing importance of smart phones as multiple function devices, it is likely that the fragmentation of the German mobile consumers is changing somewhat (Simmonds, 2008). A general acknowledgement of this development is provided in the research priorities by the Marketing Science Institute (2012). The potential of "mobile platforms and their impact on how people live their lives" (MSI, 2012, p. 5) is asserted to be game changing and research "that uses the self-documenting and interrogative capacities of the mobile platform to gather consumer behaviour data" (MSI, 2012, p. 7) is evaluated as important.

To date most lifestyle research related to information and communication technology has asserted general lifestyles in broad online and technology environments (Lee et al., 2009; Ahmad, Omar and Ramayah, 2010). Only a view studies explored consumers' e-lifestyles of mobile services in German, Italian and Chinese cultural settings (Büllingen and Hillebrand, 2005; Mazzoni, Castaldia and Addeo, 2007; Zhu et al., 2009). Therefore this study takes the approach of extending lifestyle research within the domain of mobile services within the saturated German mobile market. A validated e-lifestyle instrument is applied to gather data for the lifestyle segmentation and psychographic analysis (Yu, 2011). Consequently, this research is guided by the following question:

Which e-lifestyle segments can be identified and psycho graphically profiled from a study of the German mobile telecommunications market?

1.2 Research Outline and Objectives

This research project is divided in the five constructive chapters: critical literature review, methodology, research findings, conclusion and recommendations. All chapters are guided by the research question above and are outlined below in conjunction with the envisaged objectives.

In the first chapter the author defines the topics of psychographics and lifestyles, as well as distinguishes between them. Moreover, the concept of lifestyle segmentation is embedded in the broad context of market segmentation as well as the narrow context of a domain-specific level (Raaij and Verhallen, 1991). Thus, the research objective one (RO1) is derived:

> RO1: To critically investigate the scope of lifestyle segmentation for this research project.

The psychographic determinants and instruments of lifestyle research are further critically evaluated in relation to the domain of mobile services, by which the author investigates the research objective two (RO2):

> RO2: To critically evaluate the psychographic variables: activities, interests, opinions and values in relation to mobile services.

Following this review, the topic of e-lifestyle research is embedded in the domain of mobile services and the e-lifestyle instrument by Yu (2011) is chosen for further analysis.

The second chapter gives rationales for the approached methodology. After a brief restatement of the research question and objectives, the author discusses the approached research philosophy and design of this project. The questionnaire design, data collection and sampling approach are further explained and the stages in which the author analyses the data. These stages namely revolve around factor and cluster analysis as well as the comparison, contrast and interpretation of various statistical measures.

In the subsequent third chapter the findings of this research project are presented and underpinned with statistically relevant tables in the appendices. Starting with the sample description the author moves to more sophisticated types of analyses. Through factor analysis the psychographics of German consumers of mobile services are explored, which is a necessary step for the comparison and contrast with the study of Yu (2011) and the

interpretation of the cluster analysis. The found latent factors are further compared to the psychographics of Chinese consumers of information and communication-enabled products/services to achieve the research objective three (RO3):

> RO3: To compare and contrast the psychographics of Chinese and German consumers of ICT products/services and mobile services.

In the next stage a cluster analysis is conducted by applying and comparing various methods, to ensure that the research objective four (RO4) is achieved in a critical manner.

> RO4: To identify key e-lifestyle segments in the German mobile services market.

This is an intermediate step to the envisaged cluster or e-lifestyle segment description, in research objective five (RO5).

> RO5: To determine psychographic profiles of the found e-lifestyle segments.

By including the research findings of the previous factor analysis and Mazzoni, Castaldia and Addeo (2007), the psychographic description of the key e-lifestyles of German mobile service consumers illuminates an insightful snapshot of lifestyle research.

In the fourth chapter the author critically reflects upon the research question and objectives. Herewith, the research findings are discussed to conclude to what extent the envisaged research project was conducted and what this means for academic theory and marketing practice.

Lastly, the author presents recommendations derived from the research question, objectives and findings. This includes academic recommendations for future research projects and managerial advice for positioning and targeting strategies of mobile service providers.

2. Critical Literature Review

2.1 Psychographic and Lifestyle Research

The applications of psychographic research to marketing aroused in the post-World War II era and included behavioural concepts from the social sciences, quantitative research with psychological variables and relevant responses of consumers to marketing activities (Lawson and Todd, 2002). However, the attempts to adapt personality profiling, such as the 'Edward's Personal Preference Schedule', 'Edwards Personal Preference Schedule', 'Thurstone Temperament Schedule' and 'California Personal Inventory', to aspects of consumption, largely resulted in disillusionment of research findings (Kassarjian, 1971; Lawson and Todd, 2002). In other words, "consistently low and even inconsistent correlations" (Vyncke, 2002, p. 447) raised the question whether tests developed for clinical and academic purposes are applicable to consumer behaviour and made them marginal (Wells, 1975, Vyncke, 2002).

The term psychographics originated from psycho, i.e. mental, and graphic, i.e. profile (Anderson and Golden, 1984). In a revised definition of psychographics, Demby (1989) acknowledged the role of lifestyles and ascertained psychographics as:

> "The use of psychological, sociological, and anthropological factors, self-concept, and lifestyle to determine how the market is segmented by the propensity of groups within the market - and their reasons - to make a particular decision about a product, person, or ideology" (Demby 1989, p. 21 cited in Barry and Weinstein, 2009).

Yet, the variety of different dimensions made psychographics a too wide descriptor to capture and operationalise commercially beneficial as well as homogenous groups within the marketplace (Kaze and Skapars, 2011). As a result, a more consumer relevant and economically related approach was necessary with "...less abstract lifestyle traits than standard personality traits" (Lastovicka, 1982, p. 126). Synthesising previous research on psychographics, quantitative methods have been applied to construct lifestyle profiles, which in turn may embrace activities, interests, opinions as well as attitudes, beliefs, motivations, needs and values of consumers, some basic demographics and most recently, expertise (Wells and Tigert, 1971; Wells, 1975, Lawson and Todd, 2002; Kaze and Skapars, 2011; Luo and Brian, 2013). However, a clear distinction in the literature on consumer behaviour, between psychographics and lifestyle, has not been determined yet.

Lawson and Todd (2002) argue that both terms are used interchangeably and have always accepted to describe a lifestyle. Others disagree and distinguish between lifestyles, as a construct and the grouping of segments, and psychographics, as its operationalisation and description of the lifestyles (Wedel and Kamakura, 2000; Bruwer and Li, 2007). For the purpose of this research, lifestyle is subject to consumption within the domain of mobile services and is enriched with a descriptive psychographic analysis.

Although authors like, Lee et al. (2009), Chen (2011) and Kaze and Skapars (2011) referred to William Lazer's (1963) definition of lifestyles, it seems untimely to apply it for the context of electronic-lifestyles, hereafter called e-lifestyles. The dynamics of a society may motivate consumers differently than in the past. Through the technological enhancement of consumer electronics, internal beliefs, e.g. time or technology consciousness, may change and trigger different patterns of overt consumer behaviour (Yu, 2011). Therefore, the interactions of individuals with electronic environmental circumstances result in an e-lifestyle, which is "...a set of behaviours initiated by motivation ... formed by choice, condition, cognition, and beliefs" (Yu, 2011). With this in mind, e-lifestyles represent a modern style of life linked to the enhancement of consumer electronics.

2.2 Lifestyle Segmentation

The concept of market segmentation was introduced by Wendell Smith (1956) to divide "...the total market into several relatively homogenous groups with similar product or service interest, with similar needs and desires" (Vyncke, 2002, p. 446). As the core idea of target marketing, various segmentation approaches, such as demographic, geographic, psychographic, behavioural, benefit and occasional segmentation, have since aimed to capture homogenous groups within the consumer market. According to Vyncke (2002) and Kaze and Skapars (2011) these types of market segmentation can be widely grouped into the following three:

1. Physical attributes, based on geographic, demographic and socioeconomic criteria.
2. Psychographics and the lifestyle embraced determinants.
3. Proposition related behavioural attributes, such as the benefits sought within the product category or products themselves, channel selection, intensity and occasions of usage and brand loyalty.

Authors, like Plummer (1974), Holt (1997), Yankelovich and Meer (2006) and Kaze and Skapars (2011) argued against the still predominantly applied physical related segmentation, e.g. demographic, geographic and socio-economic criteria. They stated that purchasing patterns are not neatly aligned with physical variables, which lack richness and may be supplemented with meaningful insights from lifestyle research. Consequently the need for a three dimensional view on market segmentation aroused, i.e. simultaneously considering physical, psycho graphical and behavioural attributes. One issue remains, as Anderson and Golden (1984) and Fournier, Antes and Beaumier (1992) stressed, lifestyle research spotlights meaningful insights but lacks predictive power to real consumer behaviour, i.e. proposition related behavioural attributes.

That is why an ongoing process in the academic literature discusses whether lifestyle segmentation should be done forward, i.e. indentifying lifestyle segments and following up with observations of their behaviours, or backward, i.e. observing consumer behaviours and subsequently determining lifestyles within the found behavioural segments (Lawson and Todd, 2002). According to Bruwer and Li (2007, p. 21) "...most market segmentations studies have involved an a priori or backward type of analysis..." since at the bottom line lifestyle segmentations attempt to predict overt consumer behaviour and to tailor the marketing-mix around them. The analysis of covert consumer psychographics, however, may add to this prediction, but constitutes an imperfect connection to it (Anderson and Golden, 1984). That is why contemporary lifestyle research is based on either prior reliable experience of behavioural aspects or may analyse behavioural aspect first and then follow up by psychographics.

According to Wolburg and Pokrywczynski (2001), psychographic studies may be grouped in the five following scopes:

1. Lifestyle profiles, in which a researcher investigates demographics, product/media use, and psychographic/lifestyle items.
2. General lifestyle segmentation, in which respondents of large scale surveys are classified into relatively homogenous groups to form a typology.

These approaches may capture general patterns of behaviours, such as the nine consumption lifestyle of the North-American population (Fournier, Antes and Beaumier, 1992) or the values, life visions and aesthetic styles in different markets (Vyncke, 2002), but are

too broad and unlikely to predict consumer behaviours. On the other extreme, the evaluation of selected psychographics segments targeted by companies and industries appears to be "...too detailed to be relevant" (Raaij and Verhallen, 1991, p. 4). Therefore, the approach of:

3. Product-specific psychographic profiles, in which consumers are profiled on product-relevant dimensions, does not reach a balance of what is of interest in academia and is practically feasible.

In addition to the previous either too general as or too specific approaches, the relationship between personality traits and broad variables may be examined.

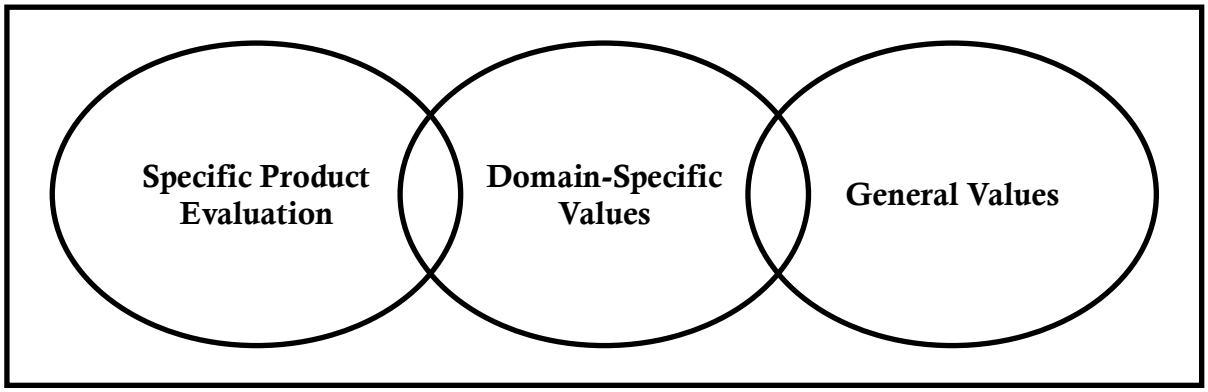
4. Personality traits as descriptors may serve to establish, e.g. the link between personality traits, including extraversion and agreeableness, and motivational factors of online games, such as adventure and relaxation (Park et al., 2011).

However, the relationship between two variables fails to address sound lifestyle segmentations, since the illuminated standard personality traits are too abstract to be of commercial interest. Finally, the most feasible and meaningful scope of lifestyle segmentation refers to the domain-specific level (Raaij and Verhallen, 1991) and can be equalled with the:

5. Product-specific segmentation, in which users of a given product category can be grouped, e.g. linking lifestyle segmentation to product attributes of mobile phones (Zhu et al., 2009).

By domain-specific, Raaij and Verhallen (1991) argue that areas of behaviour are preferences to fit to a usage situation in a consumption context and are therefore the subject to one domain.

Figure 2. The intervening role of domain-specific variables



Source: Raaij, W.F. and Verhallen, T.M.M. (1994) 'Domain-specific Market Segmentation', *European Journal of Marketing,* 28(10), p. 5.

Figure 2 depicts domain-specific attitudes towards a specific product category, i.e. specific product evaluation and general values, which form domain-specific values. The domain-specific values are mediators and represent lifestyles within a domain or industry. As product characteristics and underlying values do not directly correlate to each other, a means-end approach is taken in their interaction (Raaij and Verhallen, 1991). By means-end Gutman (1982, p. 60) argued that, "...products are seen as means through which consumer obtain valued ends". According to this theory, consumers choose products because they believe that the specific attributes of the product can help them to achieve desired values through the consequences or benefits of product use (Gutman, 1982). In the context of a specific-domain, consequences are domain-specific values. As a result an association between product characteristics and underlying values can be established in an abstract way and consequently lifestyles segmented within a specific-domain (Kaciak and Cullen, 2009).

Notably, Raaij and Verhallen (1991) reckon their domain-specific approach to be simultaneous, of the previous forward and backward segmentation approaches. They include domain-specific behaviours in conjunction with domain-specific person characteristics, i.e. product evaluation, to make the approach as predictive as possible. However, Lawson and Todd (2002, p. 298) raise the main issue about simultaneous segmentations, since the "... range of behaviours is too large to investigate and there are many aggregation difficulties". Consequently, it is questionable, if this construct is practically feasible in its full scope and will not result in patchy applications. In the domain of mobile services, the necessary condition for proper applications would be knowledge about commercially beneficial behaviours in the consumption of mobile services.

2.3 Determinants of Lifestyles and an Evaluation of Instruments

Following the domain-specific approach of Raaij and Verhallen (1991), a review of the dominantly applied instruments measuring activities, interests, opinions and values, shall leverage the comprehensibility of the e-lifestyle instrument (Yu, 2011).

The activities, interests and opinions (AIO) approach by Well and Tigert (1971) is broadly grounded on "...the manner in which people conduct their lives..." (Vyncke, 2002, p. 448). Activities are observable behaviours in spending time and money, interests

represent the degree of excitement and attention to an object, event or a topic, and opinions form a person's descriptive beliefs about objects, events or topics (Bruwer, Li and Reid, 2002; Lee et al., 2009). In other words, AIO ratings neither appreciate the role of values nor of specific domains, but generally assess psychographics of consumers. However, AIO item batteries can be modified to specific-domains. AIO items assessing the factors fashion consciousness, leisure orientation, internet involvement and e-shopping preference proved to be direct and indirect antecedents of high-technology products (Lee et al., 2009). This is of importance, since mobile services have taken a multiform identity due to the technological convergence with other media, like computer, television and the internet (Mazzoni, Castaldia and Addeo, 2007). As a result, besides the more common telephone, internet, short message as well as multimedia messaging services, multiple sophisticated functions, such as music, photo and video camera, video games, e-books, television streaming, navigation, data sharing, software for professionals etc., shape a wide range of activities, interests and opinions related to mobile services. Mazzoni, Castaldia and Addeo (2007) included in their AIO inventory motivational factors of mobile services, such as integrated use, info-entertainment and relationships and product attribute dimensions, such as practical aspects, state-of-heart-attributes and service convenience and quality. This clearly shows the conjunction of domain-specific behaviours with domain-specific person characteristics, i.e. product evaluation (Raaij and Verhallen, 1991). Mobile service related e-lifestyle segmentations should therefore embrace an AIO instrument. Nevertheless, caution should be exercised in the length of item batteries. AIO instruments often include up to 250 to 300 items, which lead to waning attention and eventually to biased responses (Gonzales and Bello, 2000; Bruwer, Li and Reid, 2002). Additionally, the bulk of gained data needs to be reduced by multiple statistical analyses, including factor and cluster analysis, which lets a considerable amount of data go unused (Gonzales and Bello, 2000).

While AIO inventories integrate behaviours and product evaluations, various value systems assess general values of consumers. If the general values are applied to a product category, they will become domain-specific values (see figure 1). A causal relationship between consumer behaviour, product evaluation, domain-specific values and general values becomes evident. General values are defined as "...abstract beliefs about desirable goals or final states that transcend specific situational factors" (Bruwer, Li and Reid,

2002, p. 225). Serving as guidelines for people's lives, values are considered as prescriptive for attitudes and behaviour. Values are universal and endure, whereas activities, interests and opinions change more rapidly (Grunert, Brunso and Bisp, 1993; Fischer et al., 2010). Due to the inevitable role of general values in lifestyle research and the extensive attention in the consumer behaviour literature, the value instruments Rokeach Value Survey (RVS), List-of-Values (LOV), Values, Attitudes and Lifestyles (VALS) shall be critically evaluated below.

The Rokeach Value Survey (Rokeach, 1973) was created with the assumption that values are standards of conduct, tend to be limited in number and are stable over time (Kamakura and Mazzon, 1991). Rokeach (1973) categorises 18 terminal values, as the either self or society centred end-states of existence i.e. personal goals and 18 instrumental values, as modes of conduct to achieve this end-states led by competence and moral i.e. ways of reaching personal goals (Morganosky, 1986; Yu, 2011; Kaze and Skaspars, 2011). Moreover, Rokeach (1973) asserts that an individual hierarchy of the two types of values is leading consumers in their "...discrete choice decisions, and different brands are preferred by customers representing different value segments" (Kaze and Skaspars, 2011, p. 1269). The RVS is credited as the most influential value measurement instrument as the base for the List-of-Values (Kahle, 1983). Yet, critique on the foundation of this inventory is raised. Vyncke (2002) argues that the RVS is grounded on little scientific underpinning in comparison to the claimed assessment of universal values, which appears to be paradox.

The List-of-Values (Kahle, 1983) revises the 18 terminal values of the RVS and reduces the set of values to 9. These terminal values or personal centred goals are more directly related to an individual's daily life and situations, e.g. usage situations of products (Simpson, Bretherton and De Vere, 2004). The LOV enables a classification of individuals according to Maslow's 'Hierarchy of Needs' (Maslow, 1954), as the 9 asserted personal goals relate to them (Kaze and Skaspars, 2011). On the other hand, the LOV does not consider the concept of Rokeach's (1973) value system, since the participants are required to choose their most important values and not to prioritise within a value system (Kamakura and Mazzon, 1991). In conclusion, the LOV items are more related to a consumer behaviour context than the RVS, since its level of abstraction is a more needs and less instrumental value driven context. The culmination to 9 values makes the LOV less

cumbersome and more practicable than the RVS (Simpson, Bretherton and De Vere, 2004).

The Values, Attitudes and Lifestyles (VALS) approach, developed by Mitchell (1983) and succeeding by VALS2 (Strategic Business Insights, 2008), incorporates AIO's and values. Mitchell (1983) argued that "...a mixture of personal life and perceived value determine individual behaviour" (Yu, 2011, p. 215) and assessed the self-orientation and the resources of individuals. That is why VALS covers background information, such as demographics, personal life i.e. activities and perceived value, such as attitudes and beliefs. Therefore VALS may embrace the domain-specific lifestyle approach on its own, without the supplement of AIO items. However, VALS is like the previously assessed RVS and the LOV grounded on value research in North America. To improve cultural validity, international VALS surveys have been developed for the United Kingdom, Japan and China (Strategic Business Insights, 2013; Wu, 2005 cited in Zhu et al., 2009). Apart of the typology, neither the factors assessed in the 35 values and lifestyle items, nor the dynamic weighting algorithms are published. As a result, the VALS approach in its originality is rather applied in large research firms than in academic publications on lifestyle research (Bruwer, Li and Reid, 2002).

To date there is no concluding evidence in the literature on general values which instrument maps lifestyles best (Yu, 2011). However, among the previously introduced instruments, the LOV is most commonly used in contemporary academia, as shown in table 1.

Table 1. Continuum of lifestyle research in specific domains

Author	Year	Context/Domain	Cultural Setting	Instruments
Gonzales and Bello	2000	Tourism	Spain	AIO
Shim, Kenneth and Lotz	2001	Fruit	Japan	FRL
Lawson and Todd	2003	Banking	New Zealand	AIO
Brunso et al.	2004	Food	France	LOV, FRL
Simpson, Bretherton and De Vere	2004	Wine Tourism	New Zealand	LOV
Divine and Lepisto	2005	Healthy and unhealthy Food and Beverages	USA	LOV
Büllingen and Hillebrand	2005	Mobile Services and Health	Germany	self-construct
Mazzoni, Castaldia	2007	Mobile Services	Italy	self-construct

and Addeo				
Bruwer and Li	2007	Wine	Australia	AIO, WRL
Della et al.	2008	Fruit and Vegetable	USA	VALS
Cullen and Kingston	2009	Food	Ireland	FRL
Lee et al.	2009	High-Technology	South Korea	AIO
Zhu et al.	2009	Mobile Services	China	self-construct
Chen	2011	Food	China (Taiwan)	FRL
Yu	2011	Information and Communication Technology	China (Taiwan)	AIO, LOV, RVS VALS

By this, items from the LOV are applied as general values (Brunso and Grunert, 2004; Simpson, Bretherton and De Vere, 2004), adapted as specific-domains values (Mazzoni, Castaldia and Addeo, 2007; Zhu et al., 2009) or mixed with the RVS and VALS (Yu, 2011). In assessing domain-specific values of mobile services, Mazzoni, Castaldia and Addeo (2007) found that less abstract domain-specific values within the Italian mobile market broadly refer to connected, committed and traditionalist psychographics.

Firstly, connected psychographics refer to the multiple uses of media and great interest in sports (Mazzoni, Castaldia and Addeo, 2007). Compared to the findings of Zhu et al. (2009), these psychographics may reflect a high degree of novelty-fashion and hedonistic shopping consciousness. A further abstraction to the LOV may draw a more value related picture, since great similarity exist with LOV items "fun and enjoyment in life, excitement in things to do and sense of accomplishment" (Kahle, 1983, p. 1361). Secondly, committed psychographics are characterised by "...demanding cultural consumption, principles of culture and social participation" (Mazzoni, Castaldia and Addeo, 2007. p 643). This may embrace habitual and impulsiveness consciousness (Zhu et al., 2009) and most abstract, the LOV items "warm relationships with others, sense of belonging and being well respected by others" (Kahle, 1983, p. 1361). Lastly, traditionalist psychographics represent "...basic information consumption and traditional values" (Mazzoni, Castaldia and Addeo, 2007, p. 644). A high degree of advice-seeking and high-quality consciousness further interprets this factor (Zhu et al., 2009) and may be mapped against the LOV items "safety and security, self-respect and self-esteem" (Kahle, 1983, p. 1361). Notably, Büllingen and Hillebrand (2005) analysed lifestyles of German mobile service consumers, but have dissimilated their large scale study to the context of health consciousness. For this research, psychographics of mobile service consumers shall be explored

without a relation to a particular issue within the domain. Therefore, the above asserted psychographic variables shall be considered in the e-lifestyle instrument for mobile services in Germany.

Also worth mentioning are the extensively applied and cross-culturally validated food-related lifestyle instrument (FRL) by Grunert, Brunso and Bisp (1993) and its amendment, the wine-related lifestyle instrument (WRL). Authors applying the FRL, like Shim, Kenneth and Lotz (2001), Bruwer and Li (2007), Cullen and Kingston (2009) and Chen (2011) argue that the lifestyle of individuals is the mediator of product characteristics and general values. This clearly supports the notion of Raaij and Verhallen (1991) and their intervening role of domain-specific values, which in turn justifies the taken approach of lifestyle research within the domain of mobile services.

2.4 E-lifestyle Research

E-lifestyle research concerns with activities, interests, opinions as well as attitudes, beliefs, motivations, needs, values and some basic demographics about consumers of information and communication technology (ICT) related domains (Raaij and Verhallen, 1991; Yu, 2011). As previously indicated, mobile services have taken a multiform identity alongside the technological convergence with other media (Mazzoni, Castaldia and Addeo, 2007). This makes this mobile services representative for an ICT context and justifies its investigation. Moreover, Yu (2011) noted that academic literature on ICT lifestyles is scarce, since most studies focused on general lifestyles in broad online and technology environments (Lee et al., 2009; Ahmad, Omar and Ramayah, 2010). Very few studies have been conducted yet in directly assessing consumer's e-lifestyles of mobile services (Büllingen and Hillebrand, 2005; Mazzoni, Castaldia and Addeo, 2007; Zhu et al., 2009). Thus, this research contributes towards the typology and predictability of ICT or e-lifestyles within the domain of mobile services.

The choice for an instrument in identifying key e-lifestyles of mobile services in a German cultural setting is made in line with the cultural limitation of the study of Yu (2011) in applying it to a Chinese cultural setting. Moreover, the e-lifestyle instrument below fulfils the requirements of Raaij and Verhallen (1991), since domain-specific behaviours

in conjunction with product evaluation and intervening domain-specific values are incorporated.

Table 2. Constructs used to measure e-lifestyle

e-Activities	**e-Interests**	**e-Opinions**	**e-Values**
Work	Family	Themselves	Respect
Hobbies	Home	Social Issues	Accomplishment
Social Events	Job	Politics	Fulfilment
Vacation	Community	Business	Relationships with others
Entertainment	Recreation	Economics	Expectation
Club Membership	Fashion	Education	Prejudices
Community	Food	Products	Hopes
Shopping	Media	Future	Demands
Sports	Achievements	Culture	

Source: Yu, C.-S. (2011) 'Construction and validation of an e-lifestyle instrument', *Internet Research,* 21(3), p. 217.

Yu (2011, p. 217) remarked about the constructs used to measure e-lifestyles in table 2 that e-activities are considered as "observable actions in using ICT-enabled services/products, e-interests as sensible tendencies to use and know the ICT-enabled services/products, e-opinions as fundamental response to the matters of ICT-enabled services/products, and e-values as basic beliefs about ICT-enabled services/products".

The 39 assessed e-lifestyle items in Yu's (2011) instrument can be broadly grouped into seven factors, explaining 61.17 – 65.62% of responses, which illuminate a meaningful snapshot of the market and scholarly recommendations (Malhotra and Birks, 2007). The varying explained variances (percentages below), i.e. range of psychographic items reflecting a latent factor, account for a different weight or importance of the factors within the e-lifestyles.

F1: needs-driven psychographics (17.29 – 19.32 %)

F2: interest-driven psychographics (10.11 – 10.94 %)

F3: entertainment-driven psychographics (9.97 – 10.73 %)

F4: sociability-driven psychographics (7.83 – 7.99 %)

F5: perceived importance-driven psychographics (6.91 – 7.31 %)

F6: uninterested or concern driven psychographics (4.92 – 5.12 %)

F7: novelty-driven psychographics (4.14 – 4.21 %)

This in turn may be used for an interpretation of the found e-lifestyle segments and serve as a basis for research objectives. However, these psychographic insights are to be treated with caution, since Yu (2011) assessed ICT products/services and not particularly mobile services. Nevertheless, the author argues that due to the multiform identity of mobile services in smart phones, a comparison between these related domains as well as their consumers in different cultural settings may be leveraged (Mazzoni, Castaldia and Addeo, 2007). That is why research objective three (RO3) is derived:

RO3: To compare and contrast the psychographics of Chinese consumers of ICT products/services and German consumers of mobile services.

Moreover, the various variances shown above represent the weight of consumer psychographics of ICT products/services. By the comparison of the psychographics weight of Chinese and German consumers, a clearer and somewhat distinct picture of German mobile service consumers may be leveraged.

Yu (2011) tested the e-lifestyle instrument with a factor analysis, but did not conduct a cluster analysis in identifying key e-lifestyle segments. This was also noted as a research limitation: "...further study could apply the e-lifestyle scale to the execution of more elaborate marketing research, and cluster respondents to analyse subgroups' differences regarding ICT-enabled services/products" (Yu, 2011, p. 231). Therefore, the author claims that key e-lifestyle segments may vary in their psychographics, which is subjected to the research objectives four and five (RO4 and RO5):

RO4: To identify key e-lifestyle segments in the German mobile services market.

RO5: To determine psychographic profiles of the found e-lifestyle segments.

Summarising the afore-mentioned arguments, cultural and methodical limitations in the research of Yu (2011) shall be the starting points of this research. Further the mobile services domain shall extent the ICT lifestyle literature. Finally and most importantly, the typologisation and interpretation of the various e-lifestyles of mobile services in Germany may offer insights for marketing practitioners.

2.5 Chapter Reflection

In the previous literature review the author critically engaged with the fields of consumer lifestyle and psychographics in the light of mobile services. An important distinction between both fields was made in considering lifestyle, as a construct and the grouping of

segments, and psychographics, as its operationalisation and description of the lifestyles. The work of Raaij and Verhallen (1991) pointed out that lifestyle segmentation is most feasible and meaningful in the scope of a specific domain. Lifestyle studies of the past 13 years were mapped to underpin this assumption, by which the author could investigate the scope of lifestyle research for this project. The introduced instruments AIO, RVS, LOV and VALS were considered in the mapping. The author further critically evaluated the psychographic variables: activities, interests, opinions and values in relation to mobile services. Thus, previous studies on e-lifestyle research are integrated and a validated instrument by Yu (2011) is chosen for this research, which is part of the methodology chapter.

3. Methodology

3.1 Research Question and Objectives

From the guiding research question, identified knowledge gap, cultural and methodological limitations of Yu (2011) below, three research objectives are derived.

Which e-lifestyle segments can be identified and psycho graphically profiled from a study of the German mobile telecommunications market?

Firstly, it was found that very few studies directly assessed consumer's e-lifestyles of mobile services (Büllingen and Hillebrand, 2005; Mazzoni, Castaldia and Addeo, 2007; Zhu et al., 2009). Secondly, the cultural limitation of applying the e-lifestyle instrument by Yu (2011) in a Chinese cultural setting, suits the purpose of testing it for the highly developed German mobile market. By this, the author envisages to illuminate a clearer and distinct description of German mobile service consumers. Lastly, Yu (2011) only conducted a psychographic analysis of the ICT product/service domain, but did not segment the consumers of ICT products/services into lifestyles. Therefore, the following research objectives shall be guided by the research question above and contribute to the aforementioned facts.

RO3: To compare and contrast the psychographics of Chinese consumers of ICT products/services and German consumers of mobile services.

RO4: To identify key e-lifestyle segments in the German mobile services market.

RO5: To determine psychographic profiles of the found e-lifestyle segments.

The research question will be answered and the objectives achieved, by applying a self-administered online survey in a quantitative data ascertainment. This section provides rationale for the approached research philosophy, data collection and sampling method as well as for the reliability, validity and data analysis of this research.

3.2 Research Paradigms

The academic field of consumer behaviour underlies fundamental assumptions that guide researchers on what they are studying and how to conduct their research (Solomon et al., 2010). These assumptions, known as research paradigms or philosophies, are beliefs about "universally recognized scientific achievements that for a time provide model prob-

lems and solutions to a community of practitioners" (Kuhn, 1962 cited in Collis and Hussey, 2003, p. 46).

Research on consumer behaviour is conducted between the paradigms of positivism and interpretivism. These constitute a state of flux, since researches not only apply either or, but also mixed paradigms and some authors argue that consumer behaviour is in the middle of a paradigm shift from a predominantly applied positivist to a upcoming interpretivist philosophy (Hunt, 1991; Aijo, 1996; Schiffman et al., 2008). For instance, Holt (1997) demonstrates in his deconstructing Poststructuralist lifestyle analysis that predicted and quantified lifestyle segments may be deconstructed by using qualitative techniques, guided by an interpretivist philosophy, such as in-depth interviews. Consumers of the same lifestyle segment may assign different cultural meanings to the sociohistoric patterning of consumption and be therefore somewhat different as predicted in the positivist philosophy (Holt, 1997; Arnould and Thompson, 2005).

Table 3. Positivist vs. interpretivist approaches in consumer behaviour

Assumptions	**Positivism**	**Interpretivism**
Nature of Reality	Objective, tangible Single	Socially constructed, Multiple
Goal	Prediction	Understanding
Knowledge generated	Time-free Context-independent	
View of causality	Existence of real causes	Multiple, simultaneous shaping events
Research relationship	Separation between researcher and subject	Interactive, co-operative, with researcher being part of phenomenon under study

Source: Hudson and Ozanne, 1988 cited in Solomon, M., Bamossy, G., Askegaard, S. and Hogg, M. (2010) *Consumer Behaviour: A European Perspective,* 4th edn., Harlow: Pearson Education Limited, p.25.

As shown in table 3. the positivism philosophy emphasises a single and objective truth, whereas interpretivism, also known as phenomenology, questions this philosophy and stresses a socially constructed reality with multiple truths (Solomon et al., 2010). Nevertheless, the generated knowledge in both philosophies is time free and context independent.

For the purpose of this research a positivist philosophy is followed, since e-lifestyle research attempts to predict the domain specific behaviour of homogenous groups by their domain-specific values (Raaij and Verhallen, 1991). Therefore, the author argues that causes of domain specific behaviour may be isolated and identified, but are not perfectly predictable (Schiffman et al., 2008). Hence, in the context of e-lifestyle research the relationship between domain specific behaviour and values is imperfect and no certain causal relationship may be established (Anderson and Golden, 1984). That is why causal research is not applied, but a mix of exploratory research and descriptive research. Although the author is aware that exploratory research designs involve some form of expert and pilot surveys, secondary data or qualitative research and none of those is applied, it is legitimate to term the chosen approach to a minor extent exploratory (Malhotra and Birks, 2007). Accordingly, lifestyle segments have, to the best knowledge of the author, not been explored yet with the e-lifestyle instrument (Yu, 2011). This part of the research follows the research objective four, in identifying key e-lifestyle segments. Additionally, the descriptive research part of the study is more typical to the chosen quantitative methodology of a survey and seeks to achieve the research objectives three and five, in comparing the psychographics of Chinese and German consumers of ICT products/services and mobile services and in psycho graphically describing key e-lifestyles of German consumers of mobile services. Both research designs complement each other in first exploring and subsequently describing e-lifestyles within the German mobile service market.

Further, the used e-lifestyle instrument implies a separation of the researcher and the subject, and is quantitative in nature. Consequently, this research seeks to establish objective results and concrete measures, which can be understood in the research objectives three, four and five. The data is quantitatively collected through an online survey and may be generalized to a larger population of German mobile service consumers (Fisher, 2004). The approach of this research can be clearly delimited from a qualitative method, in which the researcher would rather seek a subjective understanding of a consumption practises and take an interpretivist philosophy approach (Collis and Hussey, 2003).

3.3 Questionnaire Design

According to Malhotra and Birks (2007, p.299) a questionnaire is "a formalized set of questions for obtaining information from respondents" and is a survey technique. The

great weaknesses about the questionnaire design process are lack of theory and experience (Malhotra and Birks, 2007). To overcome such difficulties in indentifying the content, structure, wording and order of the questions, an existing questionnaire is reproduced in this research with the aim to gather psychographic insights in the domain of mobile services in a German cultural setting. Additionally, the given time constraint of the research project, the author's lack of specific psychological knowledge and the elaborative construction of the chosen instrument, replaced the process of designing a questionnaire by reproducing one. Further, the replication of lifestyle instruments seems to be common practise as shown in section 2.3, for instance the LOV was replicated in Brunso and Grunert (2004), Simpson, Bretherton and De Vere (2004) as well as Divine and Lepisto (2005).

The initial construction of the applied e-lifestyle instrument by Yu (2011) involved of a panel discussion, pre-testing and a two months online field study with 1,135 responses. The instrument embraces components from AIO, RVS, LOV as well as VALS and was reduced alongside the steps of construction from initially 60 to 52 and eventually to 39 items, which are shown in appendix 1. Thus, the used e-lifestyle instrument consists of 10 items measuring e-activities, 10 items measuring e-interests, 8 items measuring e-opinions and 11 items measuring e-values. All items are closed questions and assessed on a five-point Likert scale, ranging from strongly disagree to strongly agree. Notably, dual statements in the items 21 to 25 implying positive as well as negative directions, e.g. item 25 "Continued development of smart phones is positive for our society" (Yu, 2011, p. 219), are included. Due to the reduction of the number of items, the negative form of item 25 was not included by Yu (2011), leaving this item without a counterpart and therefore leading the respondent (Malhotra and Birks, 2007). Furthermore, the items 19 "I like the challenge brought by smart phones" (Yu, 2011, p. 219) and 34 "I don't like my life to involve with too many smart phones" (Yu, 2011, p. 219) were recognised as ambiguous in a pre-test with three respondents. However, for the sake of construct validity, i.e. the theoretical ideas behind the item, the items were kept (Messick, 1989). The only item amendments made refer to the domain and replace "ICT products/services" (Yu, 2011) with smart phones, in order to reflect the current multiform identity of mobile devices (Mazzoni, Castaldia and Addeo, 2007). Another 5 items are added to consider the socio demographic aspects gender, age, education, occupation and income. These are closing

questions, because they refer to a more intimate as well as sensitive form of information and would discourage respondents, if asked as opening questions.

It is worth mentioning that the questionnaire was translated from English to German and previously from Chinese to English, which "...merits caution regarding the cultural and language differences" (Yu, 2011, p. 232). Nevertheless, the quality and sense of the items was kept to a maximum through the review of the German English lecturer, Gunnar Lahr.

3.4 Data Collection and Sampling

To answer the research question and to achieve the set objectives, primary data is collected for this research project. This is done within a time horizon of one week via a self-administered online survey, using the freeware Google Docs.

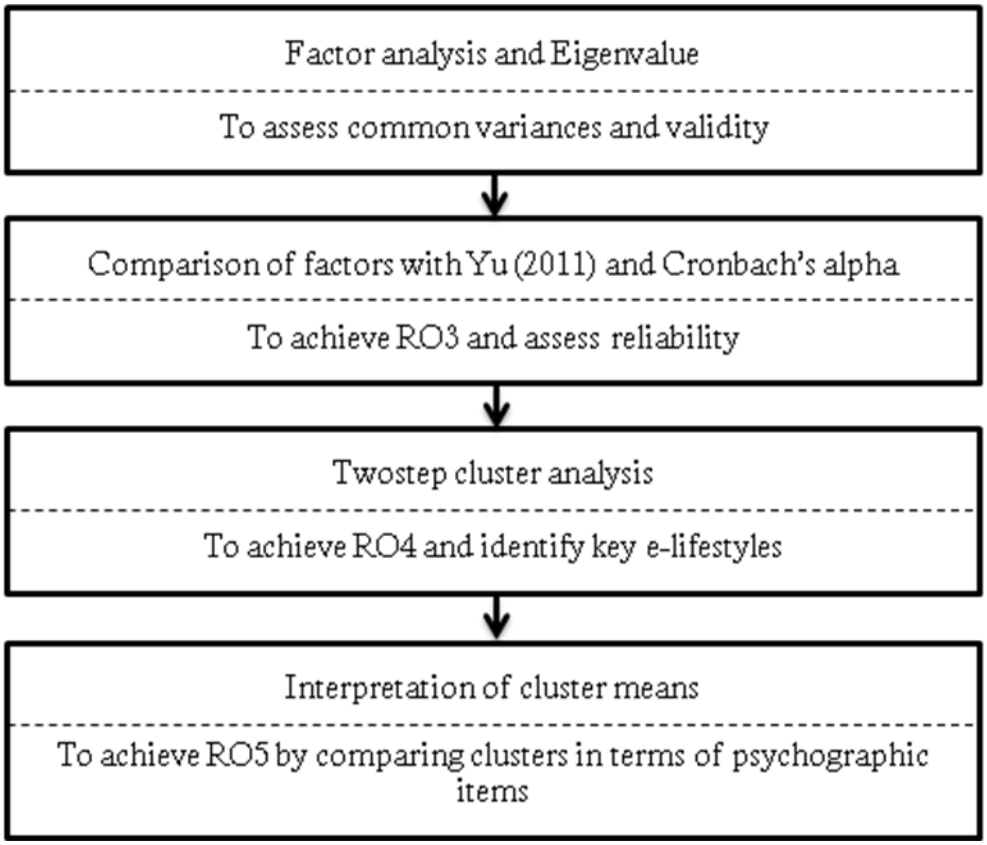
As remarked in the introduction chapter, every German citizen was subscribed to 1.38 providers of mobile services in 2012. This determines a target population of approximately 81 million users. With respect to the smart phone penetration in Germany, which is expected to be at 50 % by 2014, the target population would still be between 35 and 40 million users (eMarketer, 2013). To envisage a sample size and structure, which is representative for this target population is beyond the scope of this research project. Therefore the non probability approach of convenience sampling is applied (Malhotra and Birks, 2007). Subsequently, 230 online members of the social networking site Facebook, who are resident in Germany and between 14 and 65 years old, were randomly selected as a sample and invited via the Facebook messenger service to take part in the online survey (see appendix 2 for the cover letter). Further, it was assured that the respondents are smart phone users to cover the content of the e-lifestyle survey. To increase the response rate, an incentive was given to win a 50 € voucher for the website Amazon. Given the fact that the author did not have access to a database of German consumers of mobile services, this represents an appropriate way of data collection.

3.5 Data Analysis

The applied self-administered online survey on the website Google Docs makes it reasonably easy to download all responses in a Microsoft Excel spreadsheet. Due to the fact

that the responses are exported in words, a so called if/then function eases the coding to numbers, with 1 standing for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. The absence of missing answers, as a result of the mandatory condition of the main 39 items to be answered, facilitated the editing and cleaning steps. Next, the coded items are imported in the SPSS 21 package after setting up the variable view. The subsequent data analysis process can be summarised in the four steps shown in figure 2 and is explained below.

Figure 3. The data analysis process for this research



In the first step the set of 39 observable items or variables is reduced on their common variances to a set of their latent factors. Herewith the construct of Eigenvalue, as "...the total variance explained by each factor" (Malhotra and Birks, 2007, p. 612), is selected to be greater than 1 in line with the analysis of Yu (2011). Thus, the validity of this research is enhanced in ensuring that the e-lifestyle instrument measures underlying psychographics. Further, the point of infection will show how many factors possess an Eigenvalue greater than 1 and those will be extracted, i.e. Kaiser's critereon. Additionally, "simple

correlations between variables and the factors" (Malhotra and Birks, 2007, p. 612), known as factor loadings, will be significant at a minimum of 0.512. This is recommended by Field (2013, p.681) who relates this minimum to approximately 100 responses. Yu (2011) uses factor loadings greater than 0.6, since his data set embraces 1,135 responses. Thus, a high correlation towards the maximum towards 1 can be asserted. If the correlation was towards -1, a negative correlation would be a result. At 0 no correlation at all would exist between the variables and their factors. This is also in line with the analysis of Yu (2011) and will contribute to a meaningful snapshot of the general psychographic factors of German mobile users.

The second step of the analysis involves the comparison and contrast of the predetermined psychographic factors of this research and the psychographic factors, which have been found by Yu (2011). In the absence of the data of Yu (2011), this includes the weight in variance each factor account for and Cronbach's alpha, which is the measurement of the reliability of the research project. Cronbach's alpha or coefficient varies from 0 to 1. If is lower than 0.5, the reliability of the research is low. If it is higher than 0.7, the reliability is high and the e-lifestyle instrument can be interpreted across different domains and cultural settings. Thus, possible differences in the psychographics between both studies will be analysed to achieve the research objective three.

In the third step, a cluster analysis is applied, which "...identifies similar entities from the characteristics possessed by the entities" (Proctor, 2005, p. 304). In other words, the clustering of respondents of the e-lifestyle instrument into cluster memberships, results in a grouping of the users of mobile services into various e-lifestyles. Herewith the so called Twostep cluster analysis is applied, which is a combination of hierarchical, including Ward's method, and non-hierarchical, including k-means cluster, clustering procedures (Malhotra and Birks, 2007). In the popularly applied k-means cluster technique the researcher determines a number of clusters, which is derived from the literature review. Since Yu (2011) has not conducted a cluster analysis a possible number of clusters is unknown, making the k-means cluster technique less relevant. Contrastingly, Ward's method requires the researcher to select a range of cluster solutions, which makes it a rather exploratory approach. However, according to Malhotra and Birks (2007) different methods should be used in multiple runs to ensure the quality of the clustering solutions.

A combination of both, as the Twostep cluster analysis, is therefore applied to the identification of key e-lifestyles in order to achieve the research objective four.

The last step of the data analysis involves the comparison of the means of psychographic items, on the basis of the previous Twostep Cluster Analysis. By this, differences between the found e-lifestyle segments shall be found to facilitate a further psychographic description. Consequently, the interpretation of the various cluster means will yield to distinct psychographic descriptions of the e-lifestyle segments. Further, the comparison to the previously found factors and to Mazzoni, Castaldia and Addeo (2007) will supplement the descriptions and the research objective five will be achieved.

Consequently, this four step data analysis process eases the coherence and comprehensibility of the research findings. The data ascertained with the e-lifestyle instrument is organized and prioritised in the most relevant manner to the guiding research question:

Which e-lifestyle segments can be identified and psycho graphically profiled from a study of the German mobile telecommunications market?

4. Research Findings

4.1 Sample Description

A total of 230 invitations for the online survey were sent out via the social networking site Facebook. Reinforced by the given monetary incentive, 104 completed responses have been collected. The achieved response rate of 45.21 % is compared to the average of 47.3 % for email surveys, according to Malhotra and Birks (2007, p.199), satisfactory. Moreover, the applied online survey technique did not yield any invalid responses, since the 39 psychographic items in the e-lifestyle instrument were marked as mandatory. Only the more sensitive last 5 items could have been left unanswered.

The sample consists of 60 female respondents (57.7 %) and 44 male respondents (42.3 %), which marks an unequal gender distribution. Moreover, the age distribution exhibited in appendix 3, shows an uneven distribution of the age categories, i.e. a random sampling error. This means that 58 respondents (55.8 %) are aged 20 to 24 years and 37 respondents (35.6 %) are aged 25 to 29 years. Only 9 respondents (8.6 %) fall into other age categories. This is certainly a limitation of the data collection and may be explained by the characteristics of the majority of the respondents aged 20 to 29 years. Often labelled as Generation Y or Generation Net, these respondents are likely to be Digital narratives and more tech-savvy than respondents from the other age categories (Napoli and Ewing, 2001). Moreover, bias towards the online survey technique may have produced a strong unwillingness of the other age categories. Hence, the subsequent research findings can only apply to consumers aged 20 to 29 years.

Further, 50 respondents (48.1 %) possess a Bachelor or Masters Degree from a College or University, 20 respondents (19.1 %) have completed a training or are doing apprenticeship and another 22 (21.2 %) respondents have completed their A levels (see appendix 4). Following the education, the occupational area revealed that 28 respondents (26.9 %) work in hospitality and tourism, 19 respondents (18.3 %) are students, 17 respondents (16.3 %) work in retail and distribution and 13 respondents (12.5 %) work in social services (see appendix 5). Lastly, the net income revealed that 17 respondents (16.3 %) earn 1.501 to 2.000 € per month, 34 respondents (32.7 %) earn 1.001 to 1.500 € per month and 29 respondents (27.8 %) earn 150 to 1.000 € per month.

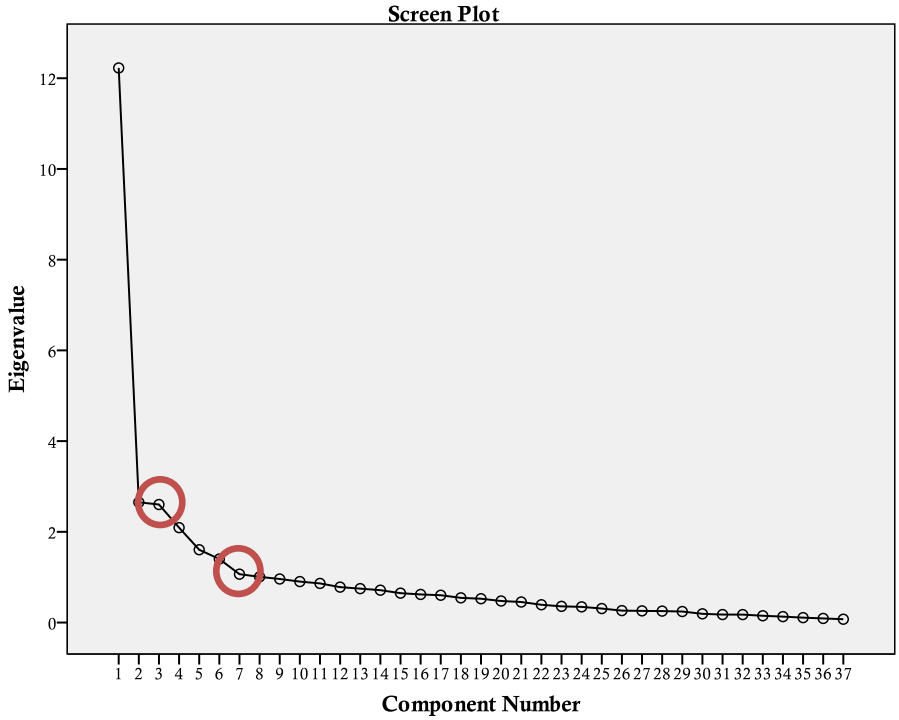
The socio-economic description represents a rather tangible picture of the sample. If more sophistically analysed, a clearer pattern may be revealed and segments described. However, the age homogeneity of the sample majority (20 to 29 years) would not result in a realistic reflection of German consumers of mobile services, since statistically every German citizen is subscribed to a mobile provider (Bundesnetzagentur, 2012; Euromonitor, 2013). Additionally, as pointed out in section 2.2, physical related segmentations do not yield to meaningful insights, since purchasing patterns are not neatly aligned with physical variables (Yankelovich and Meer, 2006; Kaze and Skapars, 2011). To overcome the previously stated random sampling error and the critique on physical segmentations, it continues to be logical to analyse the sample psycho graphically and by this, to reveal a richer picture of the German Generation Y of mobile service consumers.

4.2 Psychographics of German Consumers of Mobile Services

The 39 psychographic items in the e-lifestyle instrument by Yu (2011) provide the basis for a factor analysis. A reduction of the common variances to a set of their latent factors is done using principal axis factoring (Field, 2013). The rotation of items, which maximises the loadings on the various factors and shows a clearer psychographic picture, is set as oblique rotation (Malhotra and Birks, 2007). By this, the author claims that items, which are loaded to latent factors, may be correlated to more than one factor and thus represent a more real context. Further, the Kaiser-Meyer-Olkin (KMO) measure of sampling at 0.840 is adequate, since between 0.5 and 1.0 the sample size suits a meaningful factor analysis (Malhotra and Birks, 2007, p. 612). Additionally, Bartlett's test indicates that the 39 items "...correlate perfectly with it selves but have no correlation with other..." (Malhotra and Birks, 2007, p. 612) items and is significant, since the p-value less than 0.001. Both figures can be comprehended in appendix 7.

Moving towards the number of factors to be extracted, figure 3 can be interpreted ambiguously.

Figure 4. Points of inflection



Two points of inflection suggest a different set of factors with different Eigenvalues. In this sense, three factors have a minimum Eigenvalue of 2.602 and seven factors a minimum Eigenvalue of 1.107. In line with the minimum Eigenvalue of 1.0 by Yu (2011) a seven factor solution is envisioned. However, a Cronbach's alpha test on this solution shows a not acceptable outcome of 0.275 on the fifth factor. The Cronbach's alpha (α) should be above 0.700 as a good benchmark for internal consistency and reliability of a factor (Kline, 1999 cited in Field, 2013). Therefore, the factor analysis is repeated with six factors resulting in disillusionment, since less than three items are loaded higher than 0.512 to a factor at a time. Consequently, a five factor solution is chosen and tested with Cronbach's alpha. Herewith, the second factor's Cronbach's alpha is 0.681, i.e. below the threshold of 0.700. The other four factors of this solution score clearly higher. Therefore, the author replicated the factor analysis with four and three factor solutions. Both solutions resulted in too many suppressed items, since their factor loading were below 0.512 and consequently too less items sufficiently loading on to a factor. Due to the nature of factor analysis, in revealing latent psychographics, a two factor solution is excluded as that would not yield to any meaningful insights in relation to an amount of 39 items or variables.

Given the unsuitable solutions of the factor analyses with seven, six, four, three and two factors, the limited five factor solution is selected for the further analysis. By this, the Cronbach's alpha value for factor one is at 0.903 (see appendix 8), factor two is at 0.904 (see appendix 9), factor three is at 0.818 (see appendix 10), factor four is at 0.791 (see appendix 11) and factor five is below the recommendation of 0.700, at 0.681 (see appendix 12). The five factor solution possesses a minimal Eigenvalue of 1.605 and explains the total variance of 57.23 %, which adjoins Malhotra and Birks's (2007) recommendations of 60 % (see appendix 13). A component correlation matrix in appendix 14 reveals no positive correlations higher than 0.439 as well as no negative correlations lower than -0.239 between the seven factors. Lastly, eight items are suppressed, since they load lower than 0.512 on any of the five factors (see appendix 15). Moreover, the items 'Q22_Continued development of smart phones has a negative effect for our society' and 'Q24_Continued development of smart phones has a negative effect on our education' are excluded, since both items decrease the reliability of the e-opinions scale (see section 4.3) and consequently the reliability of the factors. This reflects previous critique of Gonzales and Bello (2000), who asserted that factor analysis leaves a considerable amount of data is unused. To clarify the research findings of the five factor analysis, a cleaned summery is shown below in table 4.

Table 4. Psychographics of German consumers of mobile services

	Factors and Items	Factor Loading	Eigenvalue	Variance	α
	1. Social Funlovers				
7	I frequently chat via smart phones.	0.856			
9	I frequently use smart phones to read news or get data.	0.846			
6	I frequently share my opinions via smart phones.	0.779			
10	I frequently spend a lot of time involved with smart phones.	0.691	12.226	33.04%	0.903
8	I frequently participate in social events via smart phones.	0.668			
29	Smart phones greatly enhance the convenience of my life.	0.716			
2	I frequently play games or listen to music via smart phones.	0.631			
17	Using smart phones really gives me a lot of fun.	0.621			
	2. Involved Trendsetters				
13	I stay updated as to the latest development in smart phones.	0.888			
12	I am very excited to know new smart phones.	0.849	2.651	7.17%	0.904
14	Being able to use the newest smart phones makes me happy.	0.826			
15	Being able to use the newest smart phones gives me a sense of achievement.	0.741			

19	I like the challenge brought by smart phones.	0.628			
27	Keeping alerts to the latest trends of smart phones is very important.	0.606			
11	I am very interested in discovering how to use smart phones.	0.578			
16	I like gaining knowledge regarding smart phones.	0.555			
	3. Convinced Profiteers				
39	The more time with smart phones I spend, the more advantages I take.	0.731			
38	The more new knowledge regarding smart phones I gain, the more advantages I take.	0.676			
35	The living environment has been influenced by smart phones, and I have benefited from the impact.	0.653	2.602	7.03%	0.819
37	The leisure environment has been influenced by smart phones, and I have enjoyed from the impact.	0.591			
28	Keeping inaugurating new smart phones is very important.	0.531			
36	The working environment has been influenced by smart phones, and I have benefited from the impact.	0.565			
	4. Professional Users				
30	Smart phones greatly improve my job efficiency.	0.789			
1	I frequently perform my job via smart phones.	0.775			
36	The working environment has been influenced by smart phones, and I have benefited from the impact.	0.567	2.092	5.65%	0.793
5	I frequently do my banking or finances via smart phones.	0.515			
	5. Sceptical Users				
33	Smart phones marked decrease face-to-face emotional interaction among people.	0.691			
26	The more the development on smart phones, the more pressure on human lives.	0.563	1.605	4.39%	0.682
23	Continued development of smart phones is positive for our education.	-0.555			
34	I don't like my life to involve with too many smart phones.	0.535			

The first factor found is labeled ‘Social Fun-lovers’ and constitutes the most important psychographics, since 33.04 % of the total variance are attributed to it. Characterised by an omnipresent desire to chat, share opinions and participate in social events, consumers of this profile appreciate the more common functions, i.e. telephone, internet, short message as well as multimedia messaging services. Moreover, clear indications of leisure orientation and internet involvement reinforce the basic use of the devices and expand to more sophisticated functions, such as social networking services (Lee at al., 2009). Accordingly, a strong belief of mobile services as means of life convenience becomes evident

and a lot of time is spent in the usage. A hedonistic component in the gratification of pleasure further reinforces this belief (Zhu et al., 2009). Consequently, more functions like news and cloud data applications as well as games and music are heavily explored. Notably, this profile is distinct from the fifth factor 'Sceptical Users', since a negative correlation of -0.239 indicates a contrary profile (see appendix 14).

The second factor 'Involved Trendsetters' reveals a high degree of novelty-fashion consciousnesses (Lee et al., 2009; Zhu et al., 2009) and characterises 7.17 % of the psycho profiles. A high interest in the latest development and high importance to the introduction of mobile devices, are accompanied by feelings of excitement, achievement and happiness. The likelihood of innovators and early adopters being part of this profile is marked by an active encountering of challenges, brought by new devices. Gaining knowledge about the devices and discovering their functions, are not considered as a must, but rather as liked activities. The high correlation with the profile 'Social Fun-lovers' of 0.439 suggests that 'Involved Trendsetters' are similarly social and hedonistic driven users of the mobile services (see appendix 14).

A third profile is the 'Convinced Profiteers', who are committed to an aspect of cultural consumption and advocate for 7.03 % of the psycho profiles (Mazzoni, Castaldia and Addeo, 2007). They possess a strong belief that mobile devices have influenced the general living environment, i.e. have impacted their leisure and work time. In turn, they are of the opinion that the impact is a great benefit and they have enjoyment from it. This is also evident in their time allocation. They believe that the higher the amount of invested time and knowledge into mobile device is, the more advantages they will take from it. Clearly equating the time for mobile usage with advantage, they place a modest importance to the introduction of new mobile devices. In comparison to the 'Involved Trendsetters', the 'Convinced Profiteers' are more of a early majority, since they do not involve themselves too much into the innovative aspect of the mobile devices, but rather into the established applications and functions. Further, modest positive correlations of 0.283 with the 'Social Fun-lovers' and 0.323 with the 'Involved Trendsetters' denote the 'Convinced Profiteers' as less hedonistically and socially driven, but more of settled and conservative psycho profile (see appendix 14).

The fourth factor, labelled as 'Professional Users', refers purely to the professional functions of mobile devices and embraces 5.65 % of all psycho profiles. The belief that mobile devices have influenced the working environment and the 'Professional Users' have benefited from it, is omnipresent. That is why they are of the opinion that mobile devices greatly improve their job efficiency. They subsequently perform their job via mobile devices and do their banking or finances. A very low positive correlation of 0.182 relates them to the 'Social Fun-lovers', as their underlying beliefs of mobile devices are entirely separated from leisure activities.

Lastly, factor five marks the psycho profile 'Sceptical Users', who are likely only to possess a mobile device because of their inevitable role in the postmodern society (Firat et al., 1995; Cova, 1996; Simmonds, 2008). Accounting for 4.39 % of the total variance, they represent "...basic information consumption and traditional values" (Mazzoni, Castaldia and Addeo, 2007). They associate the development of mobile devices with increasing pressure on human lives. This clearly negative opinion is reinforced by their judgement that mobile devices have "...marked a decrease in face-to-face emotional interaction among people" (Yu, 2011, p. 219) and a negative impact on education. Hence, they "...do not like their life to involve with too many..." (Yu, 2011, p. 219) mobile devices, which may be also asserted in the negative correlation, of -0,239, with the heavy users of factor one (see appendix 14).

4.3 Comparison of the Psychographics of German and Chinese Consumers

In section 2.4 the author concluded that due to the multiform identity of mobile services in smart phones, a comparison with the related domain ICT-enabled products/services as well as their consumers in different cultural settings may be leveraged (Mazzoni, Castaldia and Addeo, 2007). Moreover, by the comparison of Chinese and German consumers, a clearer and somewhat distinct picture of German mobile service consumers may be illuminated. That is why the research objective three was derived:

RO3: To compare and contrast the psychographics of Chinese consumers of ICT products/services and German consumers of mobile services.

In the last section the author analysed the psychographics of German mobile service consumers as an intermediate step to the comparison, envisaged in RO3. However, before comparing the psychographics, the reliability of the e-activities, e-interest and e-opinion

as well as e-value scale needs to be compared. In the absence of the dataset examined by Yu (2011), this may only happen by comparing Cronbach's alpha levels. Yu (2011) remarked that his levels for the four dimensions range from 0.781 to 0.899 (mean = 0.846). Comparatively, in this research the Cronbach's alpha levels range from 0.619 in e-opinions to 0.916 in e-interests (mean = 0.785) (see appendices 16, 17, 19 and 20). The different levels in the research projects may be explained by the distinct number of respondents. Yu (2011) had 1,135 responses, whereas this research project has 105 responses. More importantly is that Yu (2011) used a scale of 52 items, which was reduced to 39 items due to suppressed factor loadings below 0.6. Therefore he recommends applying the latter 39 item scale to e-lifestyle research, which was done in this research. However, in the reduction to 39 items the reliability is affected. In appendix 18 the issue is illustrated, in which the items 'Q22_Continued development of smart phones has a negative effect for our society' and 'Q24_Continued development of smart phones has a negative effect on our education' are examined as the cause for the low Cronbach's alpha of the e-opinion scale. This approves the previously raised concern in section 3.3 that missing item counterparts may affect the reliability, since one item in the e-opinions scale was reduced by Yu (2011). Consequently, the items 22 and 24 were excluded and raised the reliability to 0.619, which does not reach the threshold of 0.700 and is a limitation of this research. Table 5 shows a summary of the findings of the research of Yu (2011).

Table 5. Psychographics of Chinese consumers of ICT-enabled products/services

	Factors and Items	Factor Loading	Eigenvalue	Variance	α
	1. Needs-driven				
29	ICT-enabled products/products/services greatly enhance my convenience of life.	0.823			
30	ICT-enabled products/products/services greatly improve my job efficiency.	0.815			
9	I frequently use ICT-enabled products/products/services to read news or get data.	0.812			
3	I frequently shop or make purchase via ICT-enabled products/services.	0.798	7.726	19.32%	0.763
5	I frequently do my banking or finances via ICT-enabled products/services.	0.756			
1	I frequently perform my job via ICT-enabled products/services.	0.723			
39	The more time with ICT-enabled products/services	0.712			

	I spend, the more advantages I take.				
35	The living environment has been influenced by ICT-enabled products/services and I have benefited from the impact.	0.665			
36	The working environment has been influenced by ICT -enabled products/services and I have benefited from the impact.	0.615			
	2. Interest-driven				
10	I frequently spend a lot of time involved with ICT-enabled products/services.	0.865			
11	I am very interested in discovering how to use ICT -enabled products/services.	0.864			
13	I stay updated as to the latest development in ICT-enabled products/services.	0.829	4.043	10.11%	0.772
12	I am very excited to know new ICT-enabled products/services.	0.817			
16	I like gaining knowledge regarding ICT-enabled products/services.	0.811			
27	Keeping alerts to the latest trends of ICT-enabled products/services is very important.	0.686			
	3. Entertainment-driven				
2	I frequently play games or listen to music via ICT-enabled products/services.	0.798			
4	I frequently watch movies or sport via ICT-enabled products/services.	0.739			
20	I like ICT-enabled products/services involving in my entertainment.	0.720	3.988	9.97%	0.782
17	Using ICT-enabled products/services really gives me a lot of fun.	0.682			
37	The leisure environment has been influenced by ICT-enabled products/services, and I have enjoyed from the impact.	0.672			
	4. Sociability-driven				
6	I frequently share my opinions via ICT-enabled products/services.	0.873			
7	I frequently chat via ICT-enabled products/services.	0.860			
32	ICT-enabled products/services greatly enhance interaction among people.	0.778	3.130	7.83%	0.869
31	ICT-enabled products/services greatly expand my friends cycle.	0.758			
8	I frequently participate in social events via ICT-enabled products/services.	0.741			
	5. Perceived Importance-driven				
38	The more new knowledge regarding ICT-enabled products/services I gain, the more advantages I take.	0.828	2.762	6.90%	0.741
15	Being able to use the newest ICT-enabled products/services	0.812			

	gives me a sense of achievement.				
25	Continued development of ICT-enabled products/services is positive for our economy.	0.799			
21	Continued development of ICT-enabled products/services is positive for our society.	0.767			
23	Continued development of ICT-enabled products/services is positive for our education.	0.621			
	6. Concern-driven				
34	I don't like my life to involve with too many ICT-enabled products/services.	0.813			
33	ICT-enabled products/services marked decrease face-to-face emotional interaction among people.	0.755			
22	Continued development of ICT-enabled products/services has a negative effect for our society.	0.733	1.967	4.91%	0.728
26	The more the development on ICT-enabled products/services, the more pressure on human lives.	0.729			
24	Continued development of ICT-enabled products/services has a negative effect on our education.	0.717			
	7. Novelty-driven				
18	I like to share with people about new knowledge of ICT-enabled products/services.	0.857			
14	Being able to use the newest ICT-enabled products/services makes me happy.	0.745	1.515	4.13%	0.801
19	I like the challenge brought by ICT-enabled products/services.	0.737			
28	Keeping inaugurating new ICT-enabled products/services is very important.	0.687			

Source: Yu, C.-S. (2011) 'Construction and validation of an e-lifestyle instrument', *Internet Research,* 21(3), pp. 224.

In the study of Yu (2011), the psychographics of Chinese consumers of ICT-enabled products/services are grouped to seven latent factors and are herewith compared to the five latent factors of German mobile service consumers. This is done to leverage a psychographic description of German mobile service consumers, as the characteristics of the German psychographics are explained to be different below.

The first and most important psycho profile, i.e. it accounts for 19.32 % of the total variance, of Chinese consumers is ‘need-driven’ with regards to their daily life and work. By this, Chinese consumers shop, read news and get data, do their banking and finances and

perform their job via ICT-enabled products/services. They are convinced that ICT-enabled products/services influenced the living as well as the working environment and they have benefited from it, in an enhanced life convenience and improved job efficiency. Therefore they believe that time allocated to ICT-enabled products/services equals continuous advantages (Yu, 2011). With respect to German consumers of mobile services the factor does not weigh as heavy as with the Chinese consumers of ICT-enabled products/services. More specifically, the psycho profiles three 'Convinced Profiteers' and four 'Professional Users', which account respectively to 7.03 % and 5.65 % of the total variance, do relate to the 'need-driven' psychographics (Yu, 2011). Equaled with the German 'Convinced Profiteers' who are settled and conservative, it seems that the important Chinese 'need-driven' psycho profile is less hedonistically and socially shaped. That is why, a clear distinction with German consumers can be made, since their most important psycho profile is the 'Social Fun-lovers'. In turn, this may be explained with the relation of the Chinese 'need-driven' and the German 'Professional Users' psycho profiles. The underlying beliefs of 'Professional Users' about mobile services as means of job facilitation, make a clear separation from leisure activities. Consequently, a more settled, conservative and more work related psycho profile seems to be dominant in China, whereas Germany's most important psycho profile relates more to a leisure oriented and hedonistic form of consumption. Notably, this assumption may be limited to the perspective of Generation Y.

The second 'interest-driven' and seventh 'novelty-driven' Chinese psycho profiles account for respectively 10.11 %, and 4.13 % of the total variance. The 'interest-driven' are interested and attracted to the latest trends of ICT-enabled products/services and therefore stay updated to the latest developments and like to discover new devices. Further the 'novelty-driven' are happy to gain and share new knowledge about ICT-enabled products/services, thus face the challenge brought by the devices and think that keeping inaugurated by new devices is very important. In comparing these psychographics with German consumers of mobile services, a relation to the 'Involved Trendsetters' accounting for 7.17 % of the total variance becomes evident. The novelty-fashion consciousness and innovative characteristics of the 'Involved Trendsetters', correlated with the social and hedonistic similarity of the 'Social Fun-lovers' (see section 4.2). Hence, the likelihood of 'Involved Trendsetters' being market mavens (Feick and Price, 1987) is high. Interesting-

ly, the percentage of this psycho profile in Germany (variance = 7.17 %) is lower than in China (summarized variance = 14.24 %), which may characterise a higher technology adoption likeliness of Chinese consumers of ICT-enabled products/services than of German consumers.

The third 'entertainment-driven' and fourth 'sociability-driven' psycho profile of Chinese ICT-enabled products/services consumers account for respectively 9.97 % and 7.83 % of the total variance. Consumers with the psycho profile 'entertainment-driven' clearly like ICT-enabled devices for the purposes of entertainment, to play games, listen to music or to watch movies or sport. Having fun in the executions of these activities, 'entertainment-driven' consumers believe that they have benefited from ICT-enabled products/services. The 'sociability-driven' consumers share a positive opinion about ICT-enabled products/services, as they think that the devices expanded their friend's cycle and enhanced interaction among people. Hence, they chat, share opinions and participate in social events via ICT-devices. In relation to German mobile service consumers, the 'entertainment-' and 'sociability-driven' psycho profile possess a clear similarity with the most important German latent factor 'Social Fun-lovers', accounting for 33.04 % of the total variance. As previously stated this psycho profile is leisure orientated and strongly involved in internet activities. Life convenience and hedonistic aspects of mobile devices are dominant for their motivation, which is why the 'Social Fun-lovers' are different from the Chinese most important 'need-driven' psycho profile. As a result, the 'entertainment-'and 'sociability-driven' psycho profiles are more evident in Germany than in China.

The fifth 'perceived importance-driven' psycho profile of Chinese consumers accounts for 6.90 % of the total variance and is grounded in a deeply positive opinion about ICT-enabled products/services. A positive impact on the economy, society and education is thought to be related to ICT-devices. Further, a sense of achievement is concluded from the use of the newest devices and knowledge about ICT-devices is equaled with an advantage. Referring to German mobile service consumers, the 'Convinced Profiteers' with an variance of 7.03 % may be accounted the same importance as the 'perceived importance-driven' psycho profile of Chinese ICT consumers (variance = 6.90 %). The qualitative characteristics of the 'Convinced Profiteers' underpin that quantitative assumption. By this, a strong belief in a positive influence on the living, leisure and work-

ing environments through mobile services shows similarities to the deeply positive opinion of the 'perceived importance-driven' psycho profile on the impact of ICT devices on economy, society and education. Moreover, both psycho profiles evaluate the relationship between knowledge about ICT or mobile devices and advantage as causal, to some extent even the time allocation. Also, a high importance is placed on new devices and their usage results in a sense of achievement.

Lastly, the sixth Chinese 'concern-driven' psycho profile is highly similar to the German 'Sceptical Users', accounting for respectively 4.39 % and 4.13 % of the total variance. Both psycho profiles associate ICT or mobile devices with pressure on human lives, a negative influence on education and a decrease in face-to-face emotional interaction. That is why they clearly refuse to accept ICT or mobile devices beyond their inevitable role in daily lives as means of information and communication.

4.4 Exploration of E-Lifestyles in the German Mobile Service Market

As remarked in section 3.5, a Twostep cluster analysis is applied to fill the knowledge gap about the number of clusters or e-lifestyles within the domain of mobile services (Yu, 2011). By this the author envisages to achieve research objective four:

RO4: To identify key e-lifestyle segments in the German mobile services market.

Yet, following the recommendation of Malhotra and Birks (2007) to conduct multiple runs of different cluster analysis approaches, the exploratory hierarchical cluster analysis (Ward's method) is applied first. Hence, various cluster solutions with three, four and five clusters are compared. The five and four cluster solutions showed too many similarities in the various item means to become distinct clusters (see appendices 21 and 22), which is why a three cluster solution has been selected (see appendix 23). In further comparing the solution with a three cluster k-means analysis the author ascertained that cluster sizes considerably vary (see appendix 24). That is why, a Twostep cluster analysis finally determined, which respondents shall be grouped to e-lifestyle segments and what sizes these segments may have.

Table 6. TwoStep Cluster Number

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Cluster 1** 'Basic User Segment'	11	10.6	10.6	10.6
	Cluster 2 'Critical User Segment'	45	43.3	43.3	53.8
	Cluster 3 'Engaged User Segment'	48	46.2	46.2	100.0
	Total	104	100.0	100.0	

The findings of the Twostep cluster analysis in table 6 indicate that the clusters take similar sizes as the hierarchical three cluster solution in appendix 25 revealed. This means that the smallest cluster 1 represents 11 respondents, the modest cluster 2 represents 45 respondents and the largest cluster 3 represents 48 respondents of the sample. This three cluster or e-lifestyle solution is selected for the further interpretation below.

4.5 Psychographic Description of German E-Lifestyles of Mobile Services

In this last section of the research findings, the author extracted the means of the psychographic items for the three clusters. This and a comparison with the previously detected psycho profiles, i.e. factors, and the clusters found by Mazzoni, Castaldia and Addeo (2007) contribute to the research objective five:

RO5: To determine psychographic profiles of the found e-lifestyle segments.

Although the psycho profile 'Professional Users' was found, a clear allocation to any of the clusters cannot be established. This is due to the level of either disagreement or neutrality in relation to the items loaded to this factor. The random sampling error, i.e. the age limitation of the sample, may be the cause of this effect.

4.5.1 Cluster 1 – Basic User Segment

The name of the smallest cluster (n = 11) is derived from the similarity with the basic user segment in Mazzoni, Castaldia and Addeo (2007). Characterised by an elementary and

essential use of mobile services, this segment is "...uninterested in the additional functions, in the possibility of personalizing the devices and its aesthetics" (Mazzoni, Castaldia and Addeo, 2007, p. 644). This is evident in the activities and interests of basic users in this research. Clearly rejecting the more sophisticated functions of the devices, such as playing games and listening to music (Q2 mean = 1.091), shopping (Q3 mean = 1.000), handling banking (Q5 mean = 1.000), social networking sites (Q6 mean = 1.182; Q8 mean = 1.000), they disagree less with activities, like chatting (Q7 mean = 1.364) and reading news or getting data (Q9 mean = 1.455). Moreover, the afore-mentioned disinterest is expressed in unconcerned statements about the development (Q13 mean = 1.273), product knowledge (Q16 mean = 1.182) and an active participation in word of mouth about the devices (Q18 mean = 1.000). Most suitable to the basic users is the psycho profile of the 'Sceptical Users', since a similar "basic information consumption and traditional values" (Mazzoni, Castaldia and Addeo, 2007, p. 641) indicate a rather negative opinion about mobile devices. Basic users neither disagree nor agree that continued development of mobile services has negative effects on the society (Q22 mean = 3.273) as well as education (Q24 mean = 3.273) or a positive effect on the economy (Q25 mean = 3.091). Additionally, basic users are of a strong opinion that the development of mobile devices can be equalled with the continuous increase of pressure on human lives (Q26 mean = 3.818). Not surprisingly, they place a very low importance on the latest trends (Q27 mean = 1.182) and the inauguration of new devices (Q28 mean = 1.545). Further, basic users believe that they have not benefited from the mobile device's impact on the living (Q35 mean = 2.000), working (Q36 mean = 1.727) and leisure environment (Q37 mean = 2.091). The amount of invested time (Q39 mean = 1.091) and knowledge (Q38 mean = 1.545) into mobile devices is not considered as an advantage and the devices neither improve life convenience (Q29 mean = 1.636) nor the interaction among people (Q32 mean = 1.818). That is why basic users absolutely do not like to get involved with too many mobile devices (Q34 mean = 3.909).

Basic users are generally uninterested in mobile services and their impact on any areas of live. Nevertheless, they think that mobile services put pressure on their users and therefore consume only basic information. That is why they rather keep it to one device, which is humbly used with basic chat, news-feed and data exchange functions.

4.5.2 Cluster 2 – Critical User Segment

The second largest segment (n = 45) is labeled 'Critical user segment', since its members generally perform the same basic activities via mobile services heavier than basic users. However, critical users possess a less negative opinion about the devices, are more interested in the development of mobile services and believe that mobile services are convenient products (Q29 mean = 3.444). Comparatively, critical users share characteristics with the 'Value-driven segment' of Mazzoni, Castaldia and Addeo (2007), as its members seek service convenience and quality. That is why their mobile service "…choice is based on a sound evaluation of cost and quality" (Mazzoni, Castaldia and Addeo, 2007, p. 644). In relation to their activities, critical users do not perform their job (Q1 mean = 2.022), shop (Q3 mean = 1.711), watch movies or sport (Q4 mean = 1.667), do their banking (Q5 mean = 1.644) or participate in social events (Q8 mean = 2.111) via mobile services either. Nevertheless, they chat (Q7 mean = 4.044) and read news or get data via mobile services (Q9 mean = 4.356) to a larger extent than the basic users. Critical users further are not interested in the latest development of mobile service (Q13 mean = 1.956; Q27 mean = 1.756) and being able to use the newest devices does not make them happy (Q14 mean = 2.267) or gives them a sense of achievement (Q15 mean = 1.778). In addition to this low novelty-consciousness, they think that the development of mobile services is positive for the economy (Q25 mean = 3.711), but puts more pressure on human lives (Q26 mean = 3.778). In other words they are conscious about the importance of the technical advancement, but a rather pessimistic towards it. Moreover, they do not believe in advantages they may take from involving themselves with the devices (Q38 mean = 2.533; Q39 mean = 2.133) and that they have benefited in any area of life from mobile services (Q35 mean = 2.644; Q36 mean = 2.089; Q37 mean = 2.756). In line with this rather negative attitude towards mobile services is their belief that mobile services "…decreased face-to-face emotional interaction among people" (Yu, 2011, p. 219) (Q33 mean = 3.600).

Critical users are novelty-unconscious, do not believe in a personal benefit from the use of mobile services and possess a rather negative attitude in the impact of mobile services on human lives. Yet, they know about the importance of the development of mobile services, appreciate the caused convenience improvement and heavily use chat, news-feed and data exchange functions of the devices.

4.5.3 Cluster 3 – Engaged User Segment

In the largest cluster (n = 48), labelled 'Engaged user segment', clear indicators of leisure orientation and hedonistic motivation are evident. Further, a comparison to Mazzoni, Castaldia and Addeo (2007) reveals a high similarity to their 'Techno-fun segment', in which members are consumers of multiple modern media vehicles, extensively use advanced services of the devices and keep up with the current development of mobile services. In line with that, elements from three psycho profiles 'Social Fun-lovers', 'Involved Trendsetters' and 'Convinces Profiteers' can be found in the engaged user segment. With regards to the activities of the engaged users more functions are frequently exercised. Engaged users play games or listen to music (Q2 mean = 3.875), share their opinions (Q6 mean = 4.000), chat (Q7 mean = 4.479), read news and get data (Q9 mean = 4.688) via their mobile devices and generally "...spend a lot of time involved with smart phones" (Yu, 2011, p. 219) (Q10 mean = 4.000). Yet, applications used for job execution (Q1 mean = 2.375), banking (Q5 mean = 2.417) and the participation in social events (Q8 mean = 2.833) are not applied and explored. Further clearly supporting nuances of the 'Social Fun-lovers' in the engaged user segment, it can be asserted that using mobile service give engaged users a lot of fun (Q17 mean = 3.917) and they like mobile devices involved in their entertainment (Q20 mean = 3.833). Accordingly, they believe in personal benefits from the impact of mobile service on the leisure environment (Q37 mean = 3.500) and think that mobile devices "...greatly enhance the convenience of life" (Yu, 2011, p. 219) (Q29 mean = 4.021). In extracting elements related to the 'Involved Trendsetters' and 'Convinced Profiteers', engaged users are interested (Q11 mean = 3.604) and excited (Q12 mean = 3.583) to know new mobile devices. Moreover, a market maven element is slightly recognisable in gaining (Q16 upper bound mean = 3.634) and sharing (Q18 upper bound mean = 3.606) knowledge about new devices among a few engaged users. However, a neutral attitude regarding keeping track of the newest trends (Q27 mean = 2.521) weakens this assumption. Finally, a strong belief that continued development of mobile service is positive for the society (Q21 = 3.417) and economy (Q25 mean = 4.063) supports the positive attitude of engage users towards mobile services.

Engaged users are driven by leisure orientation and hedonistic motivation. They do not perform a holistic magnitude of the possible applications, but do use entertaining and socially important functions. High levels of interest and excitement indicate a

high involvement with mobile services. A positive attitude towards broad impact on human lives does not reveal concerns about mobile services.

5. Conclusion

The topics of consumer lifestyle and psychographics have been extensively explored in academic marketing research for the past 60 years. Among others, the study of Raaij and Verhallen (1991) has guided contemporary lifestyle segmentation research and Yu (2011) incorporated previous popularly applied lifestyle instruments in the light of e-lifestyles. This research project continues e-lifestyle research in the context of mobile services, which have a game changing (MSI, 2012) impact on consumers, and are especially relevant in the saturated German mobile service market. The derived research question guided the project and objectives.

Which e-lifestyle segments can be identified and psycho graphically profiled from a study of the German mobile telecommunications market?

The research findings are stimulated by the comparison and contrast with Chinese consumers (RO 3), the identification of key e-lifestyles (RO 4), the determination of their psychographics (RO 5) and entail several implications for marketing practice.

The author applied factor analysis in exploring psychographics of German mobile service consumers and interpreted a dominant profile of leisure oriented 'Social Fun-lovers', who highly evaluate convenient and hedonistic aspects of sophisticated functions. However, the comparison to Chinese consumers in the study of Yu (2011) revealed that German consumers are less holistic but more focused in the usage of functions, since they evaluate entertaining as well as sociability related functions higher than fragmented multiple need satisfying functions. The profile 'Involved Trendsetters' exposes a high degree of novelty-fashion consciousness, innovative attributes and mobile domain values related to excitement, achievement and happiness. Yet, this profile possesses lower technology adaption likeliness than the Chinese equivalent in Yu's (2011) study, which reveals a culturally conditioned lower appeal to mobile services. Next, the profile 'Convinced Profiteers' highly evaluates established more common functions, is more settled and values traditionalistic meanings. In this respect, German mobile service consumers appear to be less conservative and settled than Chinese consumers of ICT-enabled products/services in the study of Yu (2011), wherefore the psycho profile 'Professional Users' is much less evident in a Germany than in China. By this, beneficial impacts of mobile services on the work-

ing environment are less credited by German consumers. Lastly, a small part of psychographic profiles is revealed as 'Sceptical Users', who in both cultures alike consume basic information about mobile services, because of their inevitable role in post-modern societies.

The research on key e-lifestyles in the German mobile telecommunications market resulted in three distinct clusters, which vary in importance and characteristics and are compared with the study of Mazzoni, Castaldia and Addeo (2007).

The least important cluster (10.6 %) of 'Basic users' is concerned to uninterested in mobile services and keeps to the consumption of basic information, i.e. common functions, and a humble use of the mobile device. A more important role (37.4 %) of 'Basic users' is evident in the study of Mazzoni, Castaldia and Addeo (2007), who interpret this segment as traditionalists, who value relationships and practical aspects of mobile devices. The evidence of less 'Basic users' in this study than in Mazzoni, Castaldia and Addeo (2007) is a positive indicator for German mobile providers, since users of this segment are hard to persuade and may be exposed only by very few marketing activities to retain it. Nonetheless, when targeted in marketing actions, a sound value proposition may increase trust levels and prevent counter effects.

The second cluster 'Critical users' is of modest importance (43.3 %), novelty-unconscious and does not believe in a connection of mobile service benefits and personal goals. Accordingly, 'Critical users' possess a negative attitude towards the impact of mobile services on human lives. Yet, they share a fundamental positive response towards the development of mobile services, highly evaluate them as means of convenience and heavily use chat, news-feed and data exchange functions. Comparatively, the 'Value-driven' users (38.3 %) of Mazzoni, Castaldia and Addeo (2007) are committed to cultural consumption, integrated use, service convenience and quality. The presence of more 'Critical users' in this study, who share some of the above characteristics with the 'Value-driven' users, shows German mobile providers that 'Critical users' must be persuaded and retained in a mix of cultural meaning associations, trusted recommendations of the 'Involved Trendsetters' and convenient service.

Finally, the most important cluster ‘Engaged users’ (46.2 %) is driven by leisure orientation and hedonistic motivation. A great degree of the psycho profile ‘Social Fun-lovers’ in this cluster, marks a highly evaluated focus on entertaining as well as sociability related functions. Surprisingly, Mazzoni, Castaldia and Addeo (2007) found ‘Engaged users’ in their study to be less relevant. Only 24.3 % of mobile service consumers are labelled as ‘Techno-fun’ users, who possess similar characteristics towards entertainment and advanced services. This is important for German mobile providers, since the study of Yu (2011) also revealed less existence of the psycho profile ‘Social Fun-lovers’ in a Chinese setting. Therefore entertainment and sociability related attributes of mobile services must be highlighted and other postpositive functions subliminally tailored in targeting the ‘Engaged users’.

6. Recommendations

6.1 Theoretical Implications for E-Lifestyle Research

Based on the continuum of domain-specific lifestyle research, the evaluation of dominant lifestyle instruments and its determinants and limitations of this research, several theoretical implications may be derived for future research projects.

E-lifestyle research based on the ICT-enabled product/service domain should more specifically incorporate the sequence of meaning abstraction, proposed by Raaij and Verhallen (1991). In this respect, future research projects should start with a qualitative observation of consumer behaviours of specific domains, such as laptops, tablet computers, audio-players, television etc. and must consider antecedents of ICT-enabled products/services, like fashion consciousness, leisure orientation, internet involvement and e-shopping (Lee et al., 2009). By collecting insights of consumption practices, the potential of real-world market segments could be maximised. Next, evaluations of the leading products within one domain may quantitatively provide the most important preferences for a usage situation. Herewith, the degree of excitement and attention, i.e. interests, as well as fundamental responses, i.e. opinions, towards the chosen domain serve as indicators for domain-specific values. These domain-specific beliefs must be further resulting from an abstraction to general values. Due to a mediating role of domain-specific values, the quantified most important preferences for a usage situation must be abstracted to either self or society centred personal goals. The resulting sequence does bridge the gap between consumer consumption patterns and the motivation behind these patterns. To transcript these insights into meaningful e-AIO and e-value variables, researchers may ease the process by adapting an existing instruments, like the LOV by Kahle (1983) or the e-lifestyle itinerary by Yu (2011) for their purposes. Conversely, researchers must keep the nature of these converted home-made instruments in mind and continuously validate the constructs. Lastly, particular attention in future research projects should be paid to the representation of the target population, i.e. the consumer market of the chosen ICT-domain. In this sense, a more real and commercially applicable outcome will be stimulated. This is the major limitation of this research and does result in a biased snapshot of the German mobile service market, i.e. in an e-lifestyle analysis of Generation Y's mobile service consumers.

6.2 Managerial Recommendations for Mobile Service Providers

The exploration of three key e-lifestyle segments and their psychographic interpretation in five factors as well as their psychographic item means stimulated the findings of this research project and serves for practical recommendations. More specifically, the conducted market segmentation based on psycho graphical and behavioural attributes provides insights for positioning and targeting strategies.

The main research findings imply that the most important German mobile service segment, the 'Engaged users', has clear similarities with the psychographic profile of the 'Social Fun-lovers'. This means that 46.2 % of the German mobile service consumers are exclusively motivated by convenience and hedonism, therefore highly evaluate sophisticated entertaining as well as sociability related functions. Consequently, German mobile service providers may position themselves as means of entertainment and connection. Yet, they must consider the revealed lower technology adaptation likeliness of the German mobile service consumers. That is why an element of eased and supported service should distinct a successful from a failing mobile provider. Further, an elaborative driving idea based on these conclusions should be integratively incorporated in the way this segment is targeted. This must be reflected in the proposed value of service experience and price, the integrated marketing communications mix and the choice of distribution channels. The continuous monitoring of this target should reveal its commercial size, changes in motivation and marketing action effectiveness to it. Further, amendments should be undertaken in the positioning of mobile service providers around the second important segment of 43.3 %, the 'Critical users'. Although sharing some characteristics, like the importance of convenience and the heavy use of chat, news-feed and data exchange functions, 'Critical users' have in main a negative attitude towards the meaning of mobile services for the achievement of personal goals. That is why mobile providers may associate their positioning with more culturally committed driving idea. By targeting the psychographic profile of the 'Involved Trendsetters' as the early adaptor consumer life stage, trust may be created and an attitude change of the 'Critical users' leveraged. A move of this segment towards the psychographics of the less negative minded 'Convinced Profiteers' could be herewith affected. As proposed above, the marketing activities and the monitoring of the segments should reflect this positioning. The least important segment, 'Basic users' (10.6 %) may be too small to be commercially sufficient for a distinct posi-

tioning strategy. However, losing this market potential is certainly not recommendable. Trust is the main issue in targeting 'Basic users', since they are concerned to uninterested in mobile services and keep it to the consumption of basic information. Therefore, a similar positioning as with the 'Critical users' may persuade 'Basic users' with a driving idea of service quality and marginal points of contact. Again, marketing activities and segment monitoring should be reflected in this positioning

Finally, the research question set for this project has been answered, so that distinct e-lifestyle segments of German mobile telecommunications consumers were indentified and their psychographics determined. The recommendations drawn from the findings of this research, offer valuable points of departure for future research projects with a larger examination of the mobile telecommunications market and consumer insight for the challenged German mobile service providers.

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Appendices

Appendix 1: The e-lifestyle instrument

Constructs	Items	
e-activities	1	I frequently perform my job via smart phones.
	2	I frequently play games or listen to music via smart phones.
	3	I frequently shop or make purchase via smart phones.
	4	I frequently watch movies or sports via smart phones.
	5	I frequently do my banking or finances via smart phones.
	6	I frequently share my opinions via smart phones.
	7	I frequently chat via smart phones.
	8	I frequently participate in social events via smart phones.
	9	I frequently use smart phones to read news or get data.
	10	I frequently spend a lot of time involved with smart phones.
e-interests	11	I am very interested in discovering how to use smart phones.
	12	I am very excited to know new smart phones.
	13	I stay updated as to the latest development in smart phones.
	14	Being able to use the newest smart phones makes me happy.
	15	Being able to use the newest smart phones gives me a sense of achievement.
	16	I like gaining knowledge regarding smart phones.
	17	Using smart phones really gives me a lot of fun.
	18	I like to share with people about new knowledge of smart phones.
	19	I like the challenge brought by smart phones.
	20	I like smart phones involving in my entertainment.
e-opinions	21	Continued development of smart phones is positive for our society.
	22	Continued development of smart phones has a negative effect for our society.
	23	Continued development of smart phones is positive for our education.
	24	Continued development of smart phones has a negative effect on our education.
	25	Continued development of smart phones is positive for our economy.
	26	The more the development on smart phones, the more pressure on human lives.
	27	Keeping alerts to the latest trends of smart phones is very important.
	28	Keeping inaugurating new smart phones is very important.

e-values	29	Smart phones greatly enhance the convenience of my life.
	30	Smart phones greatly improve my job efficiency.
	31	Smart phones greatly expand my friend's cycle.
	32	Smart phones greatly enhance interaction among people.
	33	Smart phones marked decrease face-to-face emotional interaction among people.
	34	I don't like my life to involve with too many smart phones.
	35	The living environment has been influenced by smart phones, and I have benefited from the impact.
	36	The working environment has been influenced by smart phones, and I have benefited from the impact.
	37	The leisure environment has been influenced by smart phones, and I have enjoyed from the impact.
	38	The more new knowledge regarding smart phones I gain, the more advantages I take.
	39	The more time with smart phones I spend, the more advantages I take.

Source: Yu (2011)

Appendix 2: Cover letter of the online survey

Dear [Name],

For the purposes of my Masters thesis with the shortened title "E-lifestyle within the German Mobile Market" at the chair of Integrated Marketing Communications by Dr. Aidan Kelly at the University of East London, I am currently conducting an empirical study.

If you are a user of a smart phone device, I would kindly like you to take part in my online survey. You would just need to click on this hyperlink http://bit.ly/12DJsvE to be forwarded to the online survey.

By participating, you will have the chance to take part in a raffle and to win a 50.00 € gift voucher for Amazon sponsored by me.

It will take you less than 10 minutes to complete the survey. This online survey is anonymous and will be solely used for the data analysis of my master thesis.

Thank you very much for your support,

UEL University of East London

Dmitry Kuvshinskiy

Appendix 3: Age distribution of the sample

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 20 years old	1	1.0	1.0	1.0
	20 to 24 years old	58	55.8	55.8	56.7
	25 to 29 years old	37	35.6	35.6	92.3
	30 to 34 years old	5	4.8	4.8	97.1
	40 to 44 years old	1	1,0	1,0	98,1
	50 to 54 years old	1	1,0	1,0	99,0
	55 to 59 years old	1	1,0	1,0	100,0
	Total	104	100,0	100,0	

Appendix 4: Education distribution of the sample

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below high school diploma.	3	2.9	2.9	2.9
	High-school diploma	2	1.9	1.9	4.8
	University of applied sciences entrance qualification	5	4.8	4.8	9.6
	A level	22	21.2	21.2	30.8
	Ongoing apprenticeship	5	4.8	4.8	35.6
	In-firm training	4	3.8	3.8	39.4
	Off-the-job training	4	3.8	3.8	43.3
	University of cooperative education	7	6.7	6.7	50.0
	Bachelor (College)	18	17.3	17.3	67.3
	Master (College)	21	20.2	20.2	87.5
	Master (University)	11	10.6	10.6	98.1
	Other	2	1.9	1.9	100.0

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below high school diploma.	3	2.9	2.9	2.9
	High-school diploma	2	1.9	1.9	4.8
	University of applied sciences entrance qualification	5	4.8	4.8	9.6
	A level	22	21.2	21.2	30.8
	Ongoing apprenticeship	5	4.8	4.8	35.6
	In-firm training	4	3.8	3.8	39.4
	Off-the-job training	4	3.8	3.8	43.3
	University of cooperative education	7	6.7	6.7	50.0
	Bachelor (College)	18	17.3	17.3	67.3
	Master (College)	21	20.2	20.2	87.5
	Master (University)	11	10.6	10.6	98.1
	Other	2	1.9	1.9	100.0
	Total	104	100.0	100.0	

Appendix 5: Occupation distribution of the sample

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	19	18.3	19.4	19.4
	Social Services	13	12.5	13.3	32.7
	Media/Agency/Publishing	7	6.7	7.1	39.8
	Hospitality/Tourism	28	26.9	28.6	68.4
	Manufacturing	6	5.8	6.1	74.5
	Other	1	1.0	1.0	75.5
	Retail/Distribution	17	16.3	17.3	92.9
	Unemployed	1	1.0	1.0	93.9

	Finance/Insurance	4	3.8	4.1	98.0
	Real Estate	2	1.9	2.0	100.0
	Total	98	94.2	100.0	
Missing	Not answered	6	5.8		
Total		104	100.0		

Appendix 6: Income distribution of the sample

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 150 €	1	1.0	1.1	1.1
	150 to 400 €	12	11.5	13.0	14.1
	401 to 800 €	7	6.7	7.6	21.7
	801 to 1.000 €	10	9.6	10.9	32.6
	1.001 to 1.250 €	21	20.2	22.8	55.4
	1.251 to 1.500 €	13	12.5	14.1	69.6
	1.501 to 1.750 €	7	6.7	7.6	77.2
	1.751 to 2.000 €	10	9.6	10.9	88.0
	2.001 to 2.250 €	5	4.8	5.4	93.5
	2.251 to 2.500 €	3	2.9	3.3	96.7
	3.001 to 3.500 €	2	1.9	2.2	98.9
	more than 6.000 €	1	1.0	1.1	100.0
	Total	92	88.5	100.0	
Missing	Not answered	12	11.5		
Total		104	100.0		

Appendix 7: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.840
Bartlett's Test of	Approx. Chi-Square	2274.013

Sphericity	df	666
	Sig.	.000

Appendix 8: Cronbach's alpha for factor one

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.903	.905	8

Appendix 9: Cronbach's alpha for factor two

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.904	.904	8

Appendix 10: Cronbach's alpha for factor three

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.818	.819	6

Appendix 11: Cronbach's alpha for factor four

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.791	.793	4

Appendix 12: Cronbach's alpha for factor five

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.681	.682	4

Appendix 13: Eigenvalues and total variance explained

Total Variance Explained

Com-ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	12.226	33.043	33.043	12.226	33.043	33.043	8.766
2	2.651	7.165	40.209	2.651	7.165	40.209	8.456
3	2.602	7.032	47.241	2.602	7.032	47.241	6.102
4	2.092	5.655	52.895	2.092	5.655	52.895	3.309
5	1.605	4.338	57.234	1.605	4.338	57.234	3.118

Extraction Method: Principal Component Analysis.

a. When components are correlated. sums of squared loadings cannot be added to obtain a total variance.

Appendix 14: Inter-correlations in the five factor solution

Component Correlation Matrix

Com-ponent	1	2	3	4	5
1	1.000	.439	.283	.182	-.239
2	.439	1.000	.323	.149	-.078
3	.283	.323	1.000	.118	-.162
4	.182	.149	.118	1.000	-.037
5	-.239	-.078	-.162	-.037	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Appendix 15: Five factor solution with factor loadings

Pattern Matrix[a]

	Component				
	1	2	3	4	5
Q7_I frequently chat via smart phones.	.856				
Q9_I frequently use smart phones to read news or get data.	.846				
Q6_I frequently share my opinions via smart phones.	.779				
Q10_I frequently spend a lot of time involved with smart phones.	.691				

Q8_I frequently participate in social events via smart phones.	.668				
Q29_Smart phones greatly enhance the convenience of my life.	.638				
Q2_I frequently play games or listen to music via smart phones.	.631				
Q17_Using smart phones really gives me a lot of fun.	.621				
Q20_I like smart phones involving in my entertainment.					
Q4_I frequently watch movies or sports via smart phones.					
Q13_I stay updated as to the latest development in smart phones.		.888			
Q12_I am very excited to know new smart phones.		.849			
Q14_Being able to use the newest smart phones makes me happy.		.826			
Q15_Being able to use the newest smart phones gives me a sense of achievement.		.741			
Q19_I like the challenge brought by smart phones.		.628			
Q27_Keeping alerts to the latest trends of smart phones is very important.		.606			
Q11_I am very interested in discovering how to use smart phones.		.578			
Q16_I like gaining knowledge regarding smart phones.		.555			
Q18_I like to share with people about new knowledge of smart phones.					
Q39_The more time with smart phones I spend, the more advantages I take.			.731		
Q38_The more new knowledge regarding smart phones I gain, the more advantages I take.			.676		
Q35_The living environment has been influenced by smart phones, and I have benefited from the impact.			.653		
Q37_The leisure environment has been influenced by smart phones, and I have enjoyed from the impact.			.591		
Q28_Keeping inaugurating new smart phones is very important.			.531		
Q25_Continued development of smart phones is positive for our economy.					
Q31_Smart phones greatly expand my friends cycle.					
Q21_Continued development of smart phones is positive for our society.					

Q32_Smart phones greatly enhance interaction among people.					
Q30_Smart phones greatly improve my job efficiency.				.789	
Q1_I frequently perform my job via smart phones.				.775	
Q36_The working environment has been influenced by smart phones, and I have enjoyed from the impact.			.565	.567	
Q5_I frequently do my banking or finances via smart phones.				.515	
Q33_Smart phones marked decrease face-to-face emotional interaction among people.					.691
Q26_The more the development on smart phones, the more pressure on human lives.					.563
Q23_Continued development of smart phones is positive for our education.					-,555
Q34_I do not like my life to involve with too many smart phones.					,535
Q3_I frequently shop or make purchase via smart phones.					

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 19 iterations.

Appendix 16: Cronbach's alpha for e-activities

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.859	.857	10

Appendix 17: Cronbach's alpha for e-interests

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.916	.916	10

Appendix 18: Cronbach's alpha issue and item reduction of the e-opinion scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's alpha if Item Deleted
Q21_Continued development of smart phones is positive for our society.	20.6250	8.508	.183	.454	.223
Q22_Continued development of smart phones has a negative effect on our society.	20.7981	9.930	-.034	.437	**.346**
Q23_Continued development of smart phones is positive for our education.	20.9904	8.942	.085	.568	.284
Q24_Continued development of smart phones has a negative effect on our education.	20.6731	10.688	-.167	.439	**.429**
Q25_Continued development of smart phones is positive for our economy.	19.8462	8.733	.255	.206	.197
Q26_The more the development on smart phones, the more pressure on human lives.	20.0000	9.534	.039	.321	.306
Q27_Keeping alerts to the latest trends of smart phones is very important.	21.6058	7.717	.379	.220	.105
Q28_Keeping inaugurating new smart phones is very important.	21.0385	8.076	.305	.355	.152

Appendix 19: Cronbach's alpha for e-opinions

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.619	.619	6

Appendix 20: Cronbach's alpha for e-values

Reliability Statistics

Cronbach's alpha	Cronbach's alpha Based on Standardized Items	N of Items
.749	.749	11

Appendix 21: Hierarchical cluster analysis with five clusters

Ward Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cluster 1	29	27.9	27.9	27.9
	Cluster 2	31	29.8	29.8	57.7
	Cluster 3	16	15.4	15.4	73.1
	Cluster 4	15	14.4	14.4	87,5
	Cluster 5	13	12,5	12,5	100,0
	Total	104	100,0	100,0	

Appendix 22: Hierarchical cluster analysis with four clusters

Ward Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cluster 1	45	43.3	43.3	43.3
	Cluster 2	31	29.8	29.8	73.1
	Cluster 3	15	14.4	14.4	87.5
	Cluster 4	13	12.5	12.5	100.0
	Total	104	100.0	100.0	

Appendix 23: Hierarchical cluster analysis with three clusters

Ward Method

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cluster 1	45	43.3	43.3	43.3

	Cluster 2	44	42.3	42.3	85.6
	Cluster 3	15	14.4	14.4	100.0
	Total	104	100.0	100.0	

Appendix 24: K-means cluster analysis with three clusters

Cluster Number of Case

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Cluster 1	58	55.8	55.8	55.8
	Cluster 2	16	15.4	15.4	71.2
	Cluster 3	30	28.8	28.8	100.0
	Total	104	100.0	100.0	

Appendix 25: Cluster description with means

TwoStep Cluster Number

Dependent Variable	TwoStep Cluster Number	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Q1_I frequently perform my job via smart phones.	Cluster 1	1.273	.368	.543	2.003
	Cluster 2	2.022	.182	1.661	2.383
	Cluster 3	2.375	.176	2.026	2.724
Q2_I frequently play games or listen to music via smart phones.	Cluster 1	1.091	.351	.394	1.788
	Cluster 2	2.978	.174	2.633	3.322
	Cluster 3	3.875	.168	3.541	4.209
Q3_I frequently shop or make purchase via smart phones.	Cluster 1	1.000	.334	.338	1.662
	Cluster 2	1.711	.165	1.384	2.039
	Cluster 3	2.333	.160	2.016	2.650
Q4_I frequently watch movies or sports via smart phones.	Cluster 1	1.000	.281	.442	1.558
	Cluster 2	1.667	.139	1.391	1.943
	Cluster 3	2.521	.135	2.254	2.788
Q5_I frequently do my banking or finances via smart phones.	Cluster 1	1.000	.370	.266	1.734
	Cluster 2	1.644	.183	1.282	2.007
	Cluster 3	2.417	.177	2.065	2.768
Q6_I frequently share	Cluster 1	1.182	.319	.548	1.815

my opinions via smart phones.	Cluster 2	3.311	.158	2.998	3.624
	Cluster 3	4.000	.153	3.697	4.303
Q7_I frequently chat via smart phones.	Cluster 1	1.364	.259	.850	1.877
	Cluster 2	4.044	.128	3.791	4.298
	Cluster 3	4.479	.124	4.233	4.725
Q8_I frequently participate in social events via smart phones.	Cluster 1	1.000	.302	.402	1.598
	Cluster 2	2.111	.149	1.815	2.407
	Cluster 3	2.833	.144	2.547	3.120
Q9_I frequently use smart phones to read news or get data.	Cluster 1	1.455	.284	.892	2.017
	Cluster 2	4.356	.140	4.077	4.634
	Cluster 3	4.688	.136	4.418	4.957
Q10_I frequently spend a lot of time involved with smart phones.	Cluster 1	1.182	.282	.622	1.742
	Cluster 2	2.978	.140	2.701	3.255
	Cluster 3	4.000	.135	3.732	4.268
Q11_I am very interested in discovering how to use smart phones.	Cluster 1	1.727	.282	1.168	2.287
	Cluster 2	2.933	.140	2.657	3.210
	Cluster 3	3.604	.135	3.336	3.872
Q12_I am very excited to know new smart phones.	Cluster 1	1.636	.291	1.060	2.213
	Cluster 2	2.689	.144	2.404	2.974
	Cluster 3	3.583	.139	3.307	3.859
Q13_I stay updated as to the latest development in smart phones.	Cluster 1	1.273	.312	.654	1.891
	Cluster 2	1.956	.154	1.650	2.261
	Cluster 3	3.146	.149	2.850	3.442
Q14_Being able to use the newest smart phones makes me happy.	Cluster 1	1.273	.301	.676	1.870
	Cluster 2	2.267	.149	1.971	2.562
	Cluster 3	2.917	.144	2.631	3.202
Q15_Being able to use the newest smart phones gives me a sense of achievement.	Cluster 1	1.364	.269	.829	1.898
	Cluster 2	1.778	.133	1.514	2.042
	Cluster 3	2.688	.129	2.432	2.943
Q16_I like gaining knowledge regarding smart phones.	Cluster 1	1.182	.317	.553	1.810
	Cluster 2	2.489	.157	2.178	2.800
	Cluster 3	3.333	.152	3.032	3.634
Q17_Using smart	Cluster 1	1.727	.223	1.285	2.169

phones really gives me a lot of fun.	Cluster 2	3.333	.110	3.115	3.552
	Cluster 3	3.979	.107	3.768	4.191
Q18_I like to share with people about new knowledge of smart phones.	Cluster 1	1.000	.287	.430	1.570
	Cluster 2	2.444	.142	2.163	2.726
	Cluster 3	3.333	.138	3.060	3.606
Q19_I like the challenge brought by smart phones.	Cluster 1	1.000	.256	.492	1.508
	Cluster 2	2.022	.127	1.771	2.274
	Cluster 3	3.146	.123	2.902	3.389
Q20_I like smart phones involving in my entertainment.	Cluster 1	1.364	.247	.874	1.854
	Cluster 2	2.822	.122	2.580	3.064
	Cluster 3	3.833	.118	3.599	4.068
Q21_Continued development of smart phones is positive for our society.	Cluster 1	1.818	.280	1.263	2.373
	Cluster 2	2.911	.138	2.637	3.185
	Cluster 3	3.417	.134	3.151	3.682
Q22_Continued development of smart phones has a negative effect on our society.	Cluster 1	3.273	.289	2.699	3.846
	Cluster 2	3.067	.143	2.783	3.350
	Cluster 3	2.563	.138	2.288	2.837
Q23_Continued development of smart phones is positive for our education.	Cluster 1	1.636	.291	1.059	2.214
	Cluster 2	2.356	.144	2.070	2.641
	Cluster 3	3.188	.139	2.911	3.464
Q24_Continued development of smart phones has a negative effect on our education.	Cluster 1	3.273	.326	2.626	3.920
	Cluster 2	3.178	.161	2.858	3.498
	Cluster 3	2.729	.156	2.419	3.039
Q25_Continued development of smart phones is positive for our economy.	Cluster 1	3.091	.238	2.619	3.563
	Cluster 2	3.711	.118	3.478	3.945
	Cluster 3	4.063	.114	3.836	4.289
Q26_The more the development on smart phones. the more pressure on human lives.	Cluster 1	3.818	.290	3.243	4.393
	Cluster 2	3.778	.143	3.493	4.062
	Cluster 3	3.500	.139	3.225	3.775
Q27_Keeping alerts to the latest trends of	Cluster 1	1.182	.258	.670	1.694
	Cluster 2	1.756	.128	1.503	2.009

smart phones is very important.	Cluster 3	2.521	.123	2.276	2.766
Q28_Keeping inaugurating new smart phones is very important.	Cluster 1	1.545	.255	1.039	2.052
	Cluster 2	2.400	.126	2.150	2.650
	Cluster 3	3.063	.122	2.820	3.305
Q29_Smart phones greatly enhance the convenience of my life.	Cluster 1	1.636	.234	1.173	2.100
	Cluster 2	3.444	.116	3.215	3.674
	Cluster 3	4.021	.112	3.799	4.243
Q30_Smart phones greatly improve my job efficiency.	Cluster 1	1.727	.365	1.003	2.452
	Cluster 2	2.200	.181	1.842	2.558
	Cluster 3	3.063	.175	2.716	3.409
Q31_Smart phones greatly expand my friends cycle.	Cluster 1	1.000	.292	.420	1.580
	Cluster 2	2.089	.145	1.802	2.376
	Cluster 3	2.812	.140	2.535	3.090
Q32_Smart phones greatly enhance interaction among people.	Cluster 1	1.818	.298	1.227	2.409
	Cluster 2	2.689	.147	2.397	2.981
	Cluster 3	3.375	.143	3.092	3.658
Q33_Smart phones marked decrease face-to-face emotional interaction among people.	Cluster 1	2.818	.348	2.127	3.509
	Cluster 2	3.600	.172	3.258	3.942
	Cluster 3	3.229	.167	2.898	3.560
Q34_I do not like my life to involve with too many smart phones.	Cluster 1	3.909	.285	3.344	4.474
	Cluster 2	3.289	.141	3.010	3.568
	Cluster 3	2.708	.136	2.438	2.979
Q35_The living environment has been influenced by smart phones, and I have benefited from the impact.	Cluster 1	2.000	.251	1.503	2.497
	Cluster 2	2.644	.124	2.399	2.890
	Cluster 3	3.396	.120	3.158	3.634
Q36_The working environment has been influenced by smart phones, and I have enjoyed from the impact.	Cluster 1	1.727	.299	1.135	2.320
	Cluster 2	2.089	.148	1.796	2.382
	Cluster 3	3.125	.143	2.841	3.409

Q37_The leisure environment has been influenced by smart phones, and I have enjoyed from the impact.	Cluster 1	2.091	.305	1.486	2.696
	Cluster 2	2.756	.151	2.457	3.055
	Cluster 3	3.500	.146	3.211	3.789
Q38_The more new knowledge regarding smart phones I gain, the more advantages I take.	Cluster 1	1.545	.306	.939	2.152
	Cluster 2	2.533	.151	2.233	2.833
	Cluster 3	3.208	.146	2.918	3.499
Q39_The more time with smart phones I spend, the more advantages I take.	Cluster 1	1.091	.256	.583	1.599
	Cluster 2	2.133	.127	1.882	2.385
	Cluster 3	2.938	.123	2.694	3.181

Declaration

I hereby declare that this paper is wholly the work of Dmitry Kuvshinskiy. Any other contributors or sources have either been referenced in the prescribed manner or are listed in the acknowledgements together with the nature and scope of their contribution.

Dmitry Kuvshinskiy