Market segmentation of mobile communication: overview and concept maps

Abstract
The mobile communication industry is one of most dynamic and surprising mass phenomenon in recent years capable of changing consumer behaviour.
The purpose of this contribution, starting from a research activity on the use a the three-dimensional model based on lifestyles, use motivations and product attributes in the field of mobile communication (Mazzoni et al, 2007*),* is to provide a critical review of the literature on market segmentation, in general and with a focus on the demand of mobile communication, and update the concept maps by revising the dimensions and indicators adopted in the previous study, to take account of the changing effects of the industry of mobile communication.

Keywords: Market segmentation; Smartphone; Mobile communication

1. Introduction

The mobile communication industry is one of most dynamic and surprising mass phenomenon in recent years.

The different events that have followed from the servitization of the industry and technological convergence, have influenced the use of the mobile phone, transforming it from a traditional means of communication to an indispensable object in the social life of any person. Indeed, today's handsets are not simply phones in their traditional definition but mobile computing platforms for voice communication and content and services fruition.

In 2006 we performed a wide research on consumer behaviour in the Italian mobile communication market by means of a three-dimensional segmentation framework considering consumers' lifestyles, use motivations and product attributes (LAM model) (Mazzoni et al., 2007; Castaldi et al., 2011). One of the main findings was that two out of three identified clusters were characterized by a propensity to an integrated and service-oriented use of mobile phone: consumers conceived mobile phones not only as simple communication devices, but also like technologically advanced and multipurpose tools.

Nowadays these results seem to foresee the increasing importance that services are assuming in consumers' preferences as well as the centrality that mobile phones have assumed in everyday life.

Indeed, since 2006, many changes have occurred in mobile market[1], which have made of it a pervasive technology and an inseparable part of daily life: "it domesticates the public sphere, enables liberation and permanent control at the same time, frees children from parental control, facilitates membership in a social network, and disturbs the sanctity of a place" (Luthar, Kropivnik, 2011: 1101).

The purpose of this contribution, basing on our previous research activity employing the LAM model to segment the demand in the field of mobile communication, is to:

- provide a critical review, of the literature on segmentation issues;
- update the concept maps by revising the dimensions and indicators to take account of the changing dynamics in the industry of mobile communication.

The work is therefore organized as follows. In section 2 we conduct literature review on market segmentation. Section 3 presents the literature on the segmentation focused on mobile communication. In section 4 we revise the LAM model three-dimension concept maps adopted in our previous work (Mazzoni et al., 2007). The last section briefly illustrates the methodology to be adopted for future steps of this research.

2. The market segmentation literature

The origins of market segmentation lie at the crossroads between the theory of imperfect markets (which allows behavioral asymmetries among the various actors, establishing a different price elasticity of the demand and supply curves) and the development of behavioral sciences (which link purchase behavior not only to rational motives, but also sociological and psychological impulses).

Much of the literature identifies the paper by Smith (1956) as seminal, generating several specific strands of research. Starting from theories on imperfect markets and price discrimination, between the 1960s and 1980s there developed a strand known as the *normative approach to segmentation*, in which the following contributions may be placed: Massy, Frank (1965); Frank (1967, 1968); Claycamp, Massy (1968); Frank, Strain (1972); Frank et al. (1972).

[1] The year 2007 marked the beginning of a new era for mobile telephony, following the introduction of feature-rich and easy to use smartphones, first of all Apple's iPhone7.

By contrast, behavioral sciences spawned an important strand which, starting from the 1970s, sought to relate the behavior of individuals to their lifestyles. This strand embraces Wells, Tigert (1971); Wells (1974, 1975); Ziff (1971, 1974); Plummer (1974); Mitchell (1983); Kahle et al. (1986); Kahle, Kennedy (1989); Lastovicka et al. (1990); Novak, MacEvoy (1990); Michman (1991); Gunther, Furnham (1992); Kamakura, Wedel (1995); Gonzales, Bello (2002); Vincke (2002); Yang (2004).

The strand known as *benefit segmentation* was pioneered by Haley (1968, 1971, 1983, 1984). Under this approach market segmentation is based on the benefits sought by consumers in products/services. Haley's work was later revisited by several scholars, including Ratneshwar et al. (1997) and Wu (2001).

Many scholars have focused on the *methods and techniques of segmentation*, amongst whom Yankelovich (1964); Green (1977); Green, De Sarbo (1979); Green et al (1989); Green, Krieger (1991); Tsiptis, Chorianopoulos (2009). Falling within this group is the work of Wedel, Kamakura (2003), which also marks an attempt to provide an updated review and analysis of the technical literature. Similar attempts have been made since the 1970s, including Wind (1978), Dickson, Ginter (1987), Wedel, Kamakura (2002), and Rangan et al. (2011)[2].

With the development of global markets, supranational market segmentation has attracted attention (see, amongst others, Helsen et al., 1993; Steenkamp, Hofstede, 2002; Aurifeille et al., 2002; Hassan et al., 2003; Bolton-Myers, 2003; Agarwal, 2003).

As may be noted from this brief overview, market segmentation is now considered a well-established subject. With the complication of consumption phenomena and the advent of the Internet, the very possibility of segmentation has been revisited, mixing it with market approach techniques considered more modern and better suited to the times, such as direct marketing, one-to-one marketing, relational marketing, mass customization, micro-marketing, and viral marketing.

However, formulas are often proposed in which market segmentation may be combined with subsequent customization within the segment identified, personalizing the product components and using the same customer database for personalization (Wedel, Kamakura, 2002: 181).

As a well-established area of study, market segmentation is now necessarily included in marketing manuals. After all, most firms, in some way or other, are affected by market segmentation.

The most innovative aspects may be found in methodological applications, in the choice of specific markets in which to apply segmentation (see below the case of mobile communication) and in the choice of the set of segmentation variables. Regarding the latter, figure 1 shows the matrix classification proposed by Wedel, Kamakura (2003: 7-16), adapted from Frank et al. (1972).

[2] For works of this kind with a more educational content, see McDonald, Dunbar (1995, 2004).

	General	Product-specific
Observable	Cultural, geographic, demographic and socio-economic variables	User status, usage frequency, store loyalty and patronage, situations
Unobservable	Psycographics, values, personality and life-style	Psycographics, benefits, perceptions, elasticities, attributes, preferences, intention

Figuure 1. Classification of Segmentation Bases (Wedel, Kamakura, 2003: 7)

The bases[3] are divided into general and specific aspects of the product. The former concern individuals and are independent both of the product/service and of the circumstances of its purchase/use, while the specific segmentation bases of the product are connected to the relationship which is generated between the individual and the particular product/service and/or specific circumstances which create the need to purchase or consume it.
Moreover, in the matrix presented in figure 1, the variables are distinguished between observable and non-observable. The former may be directly detected by the researcher (as occurs for socio-demographic, geographical, and socio-economic parameters, or for the specific circumstances of product purchase/consumption), while the latter may only be inferred. For example, lifestyles or benefits are not immediately examined by the analyst but are obtained from complex calculations on a set of indicators. By crossing these two parameters four quadrants are generated into which the variables are inserted.

3. **Literature review on mobile communication segmentation in the last decade**

In the conviction that it is suitable to mix more than one segmentation bases among those proposed in figure 1, in 2006 we performed, as we remembered above, a study of the mobile communication market in Italy (Mazzoni et al., 2007). The bases for segmentation that were used in that circumstance were multidimensional, and referred to the following:

- consumer/user lifestyles;
- use motivations;
- product/service attributes.

[3] "A segmentation basis is defined as a set of variables or characteristics used to assign potential customers to homogeneous groups" (Wedel-Kamakura, 2003: 7).

The model, subsequently called LAM (Castaldi et al., 2011), was applied on a sample of 1067 Italians and, through the use of pilot surveys, focus groups, factor and cluster analyses, led to three multidimensional segments being identified: techno-fun, value-driven and basic users.

As highlighted above, the mobile communication market has evolved enormously in the last 10 years. In this section we propose a brief review of the literature on the segmentation of the market for mobile communication in the ten-year period 2008-2017. As in any literature review, we selected only the papers which seemed particularly significant vis-à-vis our research objectives, and thus do not claim to be exhaustive. The contributions will be presented in chronological order.

In 2008 the results were published of research carried out in Korea on a sample of 17,000 customers, collected from a mobile telecommunication service provider (Sohn, Kim, 2008). The purpose of the research was to investigate the use of new additional services in mobile communication. Based on the use of 115 input variables (demographic and behavioral data), the method employed not only factor and cluster analyses but also quantitative association rules, which add further details to the clusters found. The research shows the formation of eight clusters with different propensities to using additional services.

The use of conjoint analysis[4] lies instead at the core of the work of Tripathi, Siddiqui (2009). Conjoint analysis seeks to reconstruct the global assessment made by the consumer at the moment in which he/she purchases a product, and to detect indirectly the value assigned to the single attributes. Some product/service profiles are thus presented with a set of attributes for overall evaluation. Using this method, the consumer can be projected into a similar situation to that existing at the moment of purchase, and, from the way the profiles have been ranked, the importance ascribed to each attribute can be derived. After painstaking work to set up the structured questionnaire (focus group discussion, pilot survey, in-depth interviews with telecommunication experts), Tripathi, Siddiqui administered the questionnaire to a representative sample of Indian users (in terms of socio-demographic variables) in several areas of the country (Lucknow, Delhi, Mumbai, Bangalore and Kolgata). In all, 1540 respondents completed the questionnaire. The conjoint results allowed six telecom service packages to be identified (network connectivity, mobile service tariff, customer service, value-added services, variety of plans, technology deployed by network), which were assessed according to the ranking of consumer/user preferences.

Many research papers were published in 2010. This was when new technologies were being developed and there was a boom in additional services. Social applications also increased at this time. Let us highlight a few studies. Falaki et al. (2010) analyzed a sample of 255 users (33 Android users and 255 Windows Mobile users) by using four key dimensions: user interactions, application use, network traffic, energy drain. The study showed high consumer/user heterogeneity: "For example, the mean number of interactions per day for a user varies from 10 to 200…We also found that users are along a continuum between the extremes, rather than being clustered into a small number of groups…". Sell et al. (2010) supply data processed from a sample of 429 effective questionnaires administered to Finnish residents from 16 to 64 years old: using factor analysis, five main factors were identified in the use of mobile communication (skillful, efficient, trendy, basic, social). Kimiloğlu et al. (2010) studied, once again using factor analysis, the importance of 32 different attributes among a sample of 302 mobile phone users in Turkey. Using cluster analysis, they then identified four different segments (pragmatic, abstemious, value conscious, charismatic). Bouwman et al. (2010) presented a comparative cross-country study in the Dutch, Finnish and Greek telecommunication markets (397 effective respondents for Finnish data, 400 for Greek data, 519 for Dutch data). Factor analysis was also

[4] Application of this method to segmentation studies was initiated mainly by the work of Paul Green at the Marketing Department of Wharton School, University of Pennsylvania. For further details on this point, see Green, Rao (1971); Green, Wind (1975); Green, Srinivisan (1978, 1990); Green, Krieger (1991).

applied in this case, enriched by other statistical techniques to test the hypotheses. The authors emphasized the difficulties in carrying out cross-country studies, from different sample selection modes to the use of different languages and different habits regarding the use of mobile communication in each country. Factor analysis and hypothesis testing techniques were also applied to an exploratory study in Italy on 403 effective respondents (Petruzzellis, 2010), resulting in three segments being identified: brand huggies, technology enthusiasts and pragmatists, with differing perceptions regarding brand and technology.

In 2011 two interesting studies were presented. One entailed research into the Japanese market (Ahmad, Methe, 2011), based primarily on secondary data enriched by company interviews and focus groups with lead users, and sought to reconstruct the evolution of mobile communication use in Japan. Four periods were identified: prior to 1987 (pre-cellular mobile service), from 1987 (first generation-analog), from 1993 (second generation-digital), and from 2001 (third generation-multimedia). In the other, Jeong et al. (2011) presented a survey in South Korea carried out on 800 consumers residing in Seoul and five other major South Korean cities. This study also used factor and cluster analyses techniques yet dividing the sample into two sub-groups: customers with a high degree of technology acceptance and users with a low degree of technology acceptance. For each of these two subgroups they found five distinct segments yielding a total of 10 clusters overall. Among the significant variables, this study also considered lifestyles.

Lifestyles were also the focus of research in 2012 (Bouwman et al.), carried out on a sample of 542 Dutch consumers, which linked lifestyles to social influence, people's attitudes toward mobile innovations and the adoption of advanced mobile services. The study showed a relationship between the different lifestyles and the type of advanced service used in mobile communication. In the same year a paper (Sell, Walden, 2012) was published from research carried out on 429 questionnaires administered to a sample of Finnish consumers. Two different bases for segmentation were compared: one based on socio-demographic variables and the other using attitude-based segmentation. The result led to five distinct segments being identified on a socio-demographic basis; yet only one such segment differed from the others in terms of usage of mobile services.

In relation to considerations about the possibility of combining different segmentation bases among those illustrated in fig. 1, in research conducted in the Republic of Korea (Shin et al., 2013) segmentation was made on the basis of customers' general value, but then enriched with product-specific benefit-based market segmentation. The authors confirmed empirically the better performance of combined bases of segmentation.

Three studies were published in 2014 in "Telematics and Informatics", an Elsevier specialized journal in the field of technology, which gives considerable space to issues of mobile communication. Sell et al. (2014) performed, with attitude-based latent class segmentation, an analysis of residents in Finland aged between 16 and 64, working on a useful basis of 340 questionnaires. In their conclusions they suggest "that segments in the mobile phone and mobile services market differ in attitudes, rather than demographics…" (Sell et al., 2014 :217). Also, the exploratory study by Hamka et al. (2014) used latent class analysis of a panel of 129 Finnish and Dutch users, who were monitored using log data collected through smartphone measurement. In this study six different segments were identified on the basis of the different use made of services (basic or advanced) of mobile communication. Finally, the work by Abeele et al. (2014) focused on young people between 12 and 18 years of age. Carried out in Flanders (Belgium), it involved the participation of 1943 high school students. Using cluster analysis, three segments were identified: "trendy users", "engaged users" and "thrifty users".

Let us conclude this brief review with a publication in 2017 (Lee et al., 2017). Confirming the recent trend of directly observing use behavior and along the same lines as those established by Hamka et al. (2014), the authors tested app usage sequences collected from smartphone logs

with the use of statistical methods. The behavior of 180 people and 180,000 app usage sequences were observed, with 10 different segments being described: conversationalists, utilitarians, social stars, photographers, music lovers, news and magazine readers, video streamers, gaming buffs, power users, and beginners.
In light of this rapid overview of the literature and evolution of the mobile communication sector, below we seek to update the concept maps used in Mazzoni et al. (2007).

4. Concept maps

The starting observation is that today, more than when we conducted previous research, the technological tools of mobile phones encompass a number of non-material elements as they are a means of maintaining and establishing sociality. Indeed, mobile phones have assumed a relevant social meaning, extending their role far beyond their instrumental functionality (Silverstone, Hirsch, 1992: 21; Luthar, Kropivnik, 2011: 1092-1094). Nowadays it is very diffused to attach symbolic meaning to the mobile phones and use them as symbolic consumer artefacts. They have both a material and a symbolic dimension and they are directly constitutive of self-understanding and of how we perceive others (Miller, 1987: 85-108). Thus, it is not only the mobile phone's pragmatic/utilitarian function (*technofunction*) that is important, but equally significant is – in Schiffer's words (1992) – its *sociofunction*, involving the manifestation of social relations, and its *ideofunction*, involving the symbolisation of more abstract ideas or beliefs (Luthar, Kropivnik, 2011: 1094). Again, the mobile phone is not just a tool of communication that enables individuals to be a part of society, it is also a personal device and a portable aesthetic artefact always attached to the person and closely associated with clothing and fashion (Luthar, Kropivnik, 2011: 1107).
As utilitarian and expressive meanings of the mobile phone appear evident in current consumer behaviour, we have to hypothesize *pragmatic* and *symbolic* use motivations of a mobile phone, thus two main groups of needs that should induce purchase (see figure 2)[5]. This recalls Douglas and Isherwood's (1979) distinction between physical and marking services and is in line with Katz and Aakhus's (2002) observation that there exist explicit as well as implicit reasons for phone use.

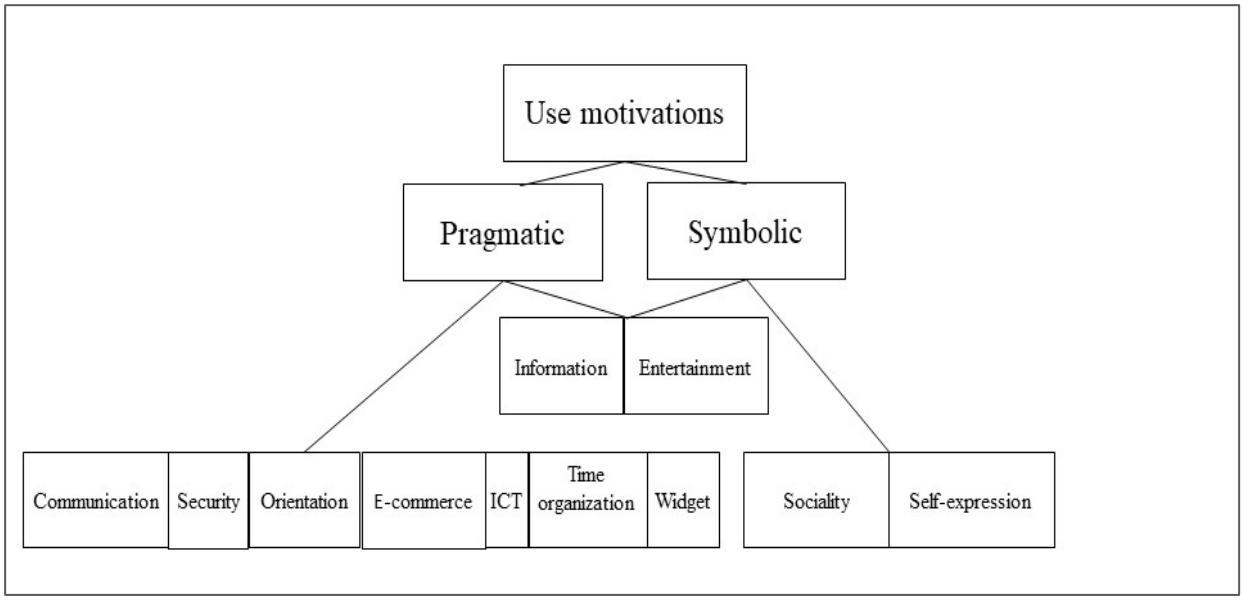

Figure 2. Use motivations concept map

[5] As observed by Luthar and Kropivnik (2011: 1095), the distinction between pragmatic and symbolic use is similar to that between *use* and *consumption* of mobile phones formulated by Haddon (2003).

As shown in figure 2, the use of a mobile phone is strictly instrumental when it is employed as a tool to communicate with family and friends and for work (*communication*), to feel safe (e.g., make phone calls as soon as necessary, for example to call assistance in case of necessity), be always available and check what happens to loved people (*security*), exactly know where one is, where to go and what is around (*orientation* and geolocation), buy and pay online (*e-commerce*), as a terminal for other ICT activities (store and get access to data, etc.), included remote control of things (*ICT*), for *time organization*, and to use *widget*.
The use motivations of the phone are both pragmatic and symbolic when it is adopted to collect, generate and transfer information (news, weather, products, trends, blogs, etc.) (*information*), play with games, take pictures, watch videos, listen to music (*entertainment*).
Finally use motivations are symbolic when the mobile phone is adopted to sustain social relations – (social interaction, integration, and distinction), to maintain and manage social networks, to be trendy, to feel part of a group, for community building, as a status symbol (*sociality*) or is considered a self-extension, an aesthetic object, a technological fetish and used to express one's personality, for self-realization (*self-expression*)[6].
Going to the product attributes, at the moment we could imagine four groups of characteristics of the offering influencing consumers' choice among the various models and brands in the market (see figure 3).
Economic attributes: price of mobile phone, promotional offers and, in case of purchase form mobile network operators (MNOs), tariffs.
Physical attributes: handiness, solidity over time of the mobile phone, battery life, screen visibility, signal reception, battery charge time, and storage capacity.
Emotional attributes: mobile phone brand notoriety, design and aesthetics[7], possibilities of personalization, ring tones, brand and model diffusion among peers.
Technological attributes: operating system, integration with other ICT devices (laptop, smart watch, tablet, etc.), camera, biometric security systems, GPS, ease of use, network connection speed.

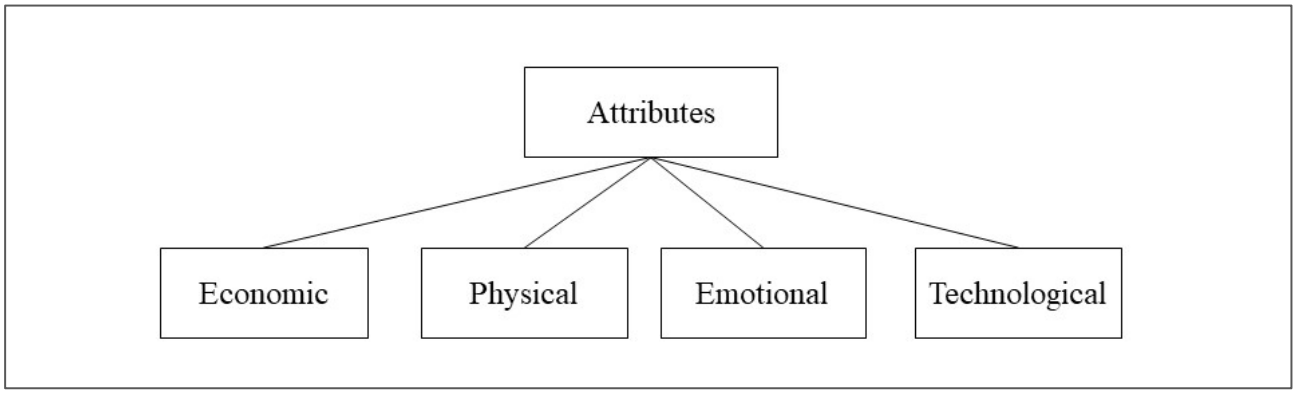

Figure 3. Attributes concept map

Finally, moving the lifestyles dimension of the LAM model, four sets of variables could be identified (see figure 4):

[6] "Not just using or using up something, but also the pleasure of having an artefact, of gathering information on the product, browsing and touching. In short, it involves the artefact as a meaningful thing, whose meaning is established, appropriated, negotiated, or subverted at different stages of its existence (production, promotion, consumption)" (Luthar, Kropivnik 2011: 1095).
[7] Luthar and Kropivnik (2011: 1102) found that "In general, design and aesthetics are more important for female respondents. The reason for this may be the instrumental role played by fashion and anesthetisation in the process of socialisation into gender roles."

Socio-graphic: age, gender, residence, educational level (own/parents'), marital status, employment status (own/parents'), occupation, income level (own/parents').
Values and interests: religion, social commitment, culture, sport, solidarity, environment, personal success, love of country, body care, politics, family, work, friendship, attitudes towards ethnic minorities and gender roles.
Media usage: television, radio, sports dailies, magazines, computer, Internet, video games, mobile phone (intensity of use, number of possessed mobile phones, purchase frequency, years passed since first purchase).
Cultural practices[8]: dailies, books, cinema, theatre, art objects, exhibitions.

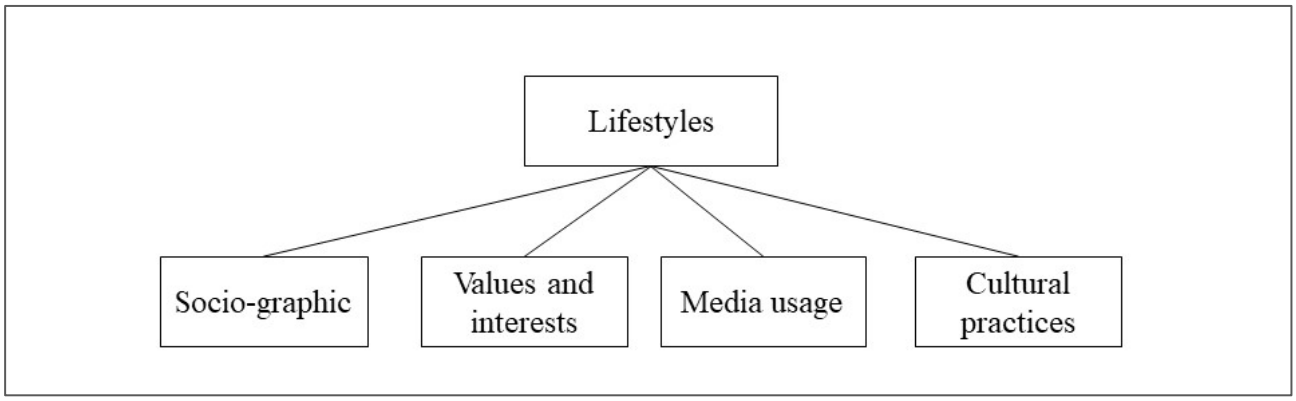

Figure 4. Lifestyles concept map

Luthar and Kropivnik (2011) found that age is an important determinant of the symbolic meaning of the mobile phone, which is consistent with available results from earlier research on the use of mobile phones among young people (see among others: Drotner 2000; Ling and Yttri 2002; Skog 2002; Katz and Sugiyama 2006). Thus, the meaning and adoption of mobile phones in everyday life is affected by generational elements.
As it is a relevant determinant in the life-styles dimension, in what follows we focus our attention on generational groups, which offer researchers a tool to investigates changes as time progresses. The first theory of the generational cohort was proposed by Inglehart (1977) to divide the population into segments-generational cohorts. A generational cohort can be defined according to the years of birth, in the period between 20 and 25 years, or for as long as it usually takes to an age group for birth, age and the fact of having children of their own.
These cohorts share the same attitudes, ideas, values and beliefs based on their birth during the same period of time and living through experiences, with macro social levels, political and economic events that occurred during their fulfillment (Howe, Strauss, 1991). Generations cohorts could be use this hypothesis is used as a general basis for consumer segmentation (Moore, Carpenter, 2008).To give a right classification of generational cohorts the grid provided by the *U.S. Chamber of Commerce Foundation,* can be employ which defines them in the following way and with intervals: Silent generation (1927-1946), Baby Boomers (1947-1964), Generation X (1965-1979), Generation Y (1980-1999), Generation Z born after the 2000 and the last in the definition phase generation Alpha born after the 2010.
We are disregarding the silent generation, thereby we begin with the Baby Boomer. They are characterized by a revolutionary vision, triggered by the student revolt of 1968 in France and the war in Vietnam. The charter trips to new and far-off countries are increased over the years, as well as the internationalization of trade, food and culture. For this reason, this group

[8] It is important to highlight that, as mobile phones are symbolic objects, their use is shaped by social and cultural differentiations (Luthar, Kropivnik, 2011: 1093).

appreciates mobility in one's life. This generation has traveled more than the previous, he seen more and owns great aspirations for the future.
The technology enterprise of the US landing on the moon suggested to Baby Boomers that "anything is possible" (Parment, 2013).The Generation X tends to be deprived of the social skills of its parents (the previous generation) but to have a strong technical ability. The components of this generation probably find the way to do things with intelligence, speed, even though it means bending the rules. With this generation, multiculturalism and global thinking have become the norm; it's main attributes are individualism, self-sufficiency and the urge to be skeptical (Lissitsa, Kol, 2016). Generation Y has some significant peculiarities compared to the previous generation. They are the first digital natives, they grow and continually update themselves with developments in technology (Bencsik, 2016). They use less traditional devices (like television) than previous generations. The Baby Boomers grew with television that became the first true phenomenon of mass media, changing their lifestyles and their ability to inquire. Generation X grew while the computer revolution was making its way and the generation Y reached the age of maturity during the explosion of Internet (Dimock, 2018). The constant and overwhelming flow of information has become the rule for this generation. They are multi taskers who use their smartphone for anything: social network, to find a job, and to get basic information about products, services, schools, employers and travel destinations (Parment, 2013). The generation Y has seen instability in the workplace, corporate scandals and the work of parents being downsized after years of service. These market conditions and unemployment rates encourage many to become entrepreneurs (Chamber of Commerce Foundation, 2012). The generation Z has even more peculiar features than the previous ones. The generation X and Y use technology that have lived in its evolution and therefore prefer more text messages, words to communicate; the Generation Z prefers images, wants to watch, wants to share, be protagonist in digital life. It can use 5 devices simultaneously (Cape, 2018), having a very low focus threshold (approx. 8 seconds), because individuals are focused solely on their desire to self-actualize with the determination to achieve the goals set. The researchers conclude that the Z generation is self-assured, with unacknowledged own limits and in pursuit of happiness and pleasure (Bencsik, 2016).

5. Research design for further study

Research methodology is built upon our previous research path (Mazzoni et al., 2007): a mixed method design combining a qualitative method (focus group) with a quantitative one (survey). Our research implements a specific type of Mixed Methods research, the Exploratory Sequential Design[9] that integrates first a qualitative method then a quantitative one (Cresswell, 1999; Leech, Onwuegbuzie, 2009).
The qualitative stage will adopt the focus group method to gain methodological insights about the concept map and the questionnaire construction.
The quantitative method will implement a survey to collect the data to perform the segmentation analysis. The choice of a post-hoc and descriptive segmentation method has been confirmed as it is still considered reliable by the literature (Gangurde, Akarte, 2015). Our segmentation procedure is based on a sequential combination of two multivariate techniques: factor analysis and cluster analysis. Particularly, we will adopt an alternative but very effective version of the factor analysis: the two-stage principal component analysis (Di Franco, Marradi, 2013).

[9] It is "a two-phase sequential design that can be recognized because the researcher starts by qualitatively exploring a topic before building to a second, quantitative phase […] In many applications of this iterative design, the researcher develops an instrument as an intermediate step between the phases that builds on the qualitative results and is used in the subsequent quantitative data collection" (Cresswell, Piano Clark, 2011: 86).

Recalling the footsteps of the former research, will allow us to adopt a comparative perspective useful to assess the reproducibility of the research design and the consistency over time of the results of the previous segmentation.

Bibliography

ABEELE M. V., ANTHEUNIS M. L., SCHOUTEN A.P. (2014), "*Me, myself and my mobile: A segmentation of youths based on their attitude towards the mobile phone as a status instrument*", in "Telematics and Informatics", 31, pp. 194-208

AGARWAL M. K. (2003), *Developing Global Segments and Forecasting Market Shares: A Simultaneous Approach Using Survey Data*, in "Journal of International Marketing", 11(4), pp. 56-80.

AHMAD N., METHE D.T. (2011), *Technological Innovations and Consumer Needs: An analysis of Mobile Communications Market*, in "Asean Marketing Journal", 3 (2), pp. 65-78.

AURIFEILLE J. M., QUESTER P. G., LOCKSHIN L., SPAWTON T. (2002), *Global vs international involvement-based segmentation: A cross-national exploratory study*, in "International Marketing Review", 19(4), pp. 369-386.

BENCSIK A. (2016), *Y and Z generations at workplaces,* in*"* Journal of Competitiveness".

BOLTON R. N., MYERS M. B. (2003), *Price-Based Global Market Segmentation for Services*, in "Journal of Marketing", 67(3), pp. 96-107.HASSAN S. S., CRAFT S., KORTAM W. (2003), *Understanding the New Bases for Global Segmentation*, in "Journal of Consumer Marketing", 20(5), pp. 446-462.

BOUWMAN H., CARLSSON C., MOLINA CASTILLO F. J., GIAGLIS G. M., WALDEN P. (2010), in "Int. J. Mobile Communications", 8(4), pp. 430-450.

BOUWMAN H., LOPEZ NICOLAS C., MOLINA-CASTILLO F., VAN HATTUM P. (2012), *Consumer lifestyles: alternative adoption patterns for advanced services*, "Int. J. Mobile Communications", 10(2), pp. 169-189.

CAPE P. (2018), *Ten Things You Need to Know About Gen Z,* in "Research World".

CASTALDI L., ADDEO F., MASSARO M., MAZZONI C. (2011), *A consumer Perspective on Mobile Market Evolution*, in J.P. Maicas (ed), *Recent Developments in Mobile Communications-A Multidisciplinary Approach*, InTech, Rijeka, Croatia.

CRESSWELL J. W. (1999), *Mixed method research: Introduction and application*, in T. Cijek (Eds.), *Handbook of educational policy*, Academic Press San Diego.
CRESWELL J. W., PLANO CLARK V. L. (2011), *Designing and Conducting Mixed Methods Research*. (2nd ed.), Sage Publications Ltd, London.

DI FRANCO G., MARRADI A. (2013), *Factor Analysis and Principal Component Analysis*, FrancoAngeli, Milano.

DICKSON P. R., GINTER J. L. (1987), *Market segmentation, Product Differentiation, and Marketing Strategy*, in "Journal of Marketing", 51(2), pp. 1-10.

DIMOCK, M. (2018), *Defining generations: where millennials end and post-millennials begin*, in "Pew Research Center".

DOUGLAS M., ISHERWOOD B.,(1979), *The World of Goods. Towards an Anthropology of Consumption*, in "New York: Basic Books."

DROTNER, KRISTEN. (2000), *Difference and Diversity: Trends in Young Danes' Media Uses*., in "Media, Culture and Society" 22 (2): 149–166.

FALAKI H., MAHAJAN R., KANDULA S., LYMBEROPOULOS D., GOVINDAN R.; ESTRIN D. (2010), *Diversity in Smartphone Usage*, in "MobiSys' 10", June.

FRANK R. E. (1968), *Market Segmentation Research: Findings and Implications*, in F. M. Bass, W. C. King, A. Pessemier (eds.), *The Application of the Sciences to Marketing Management*, John Wiley & sons, New York.

FRANK R. E., (1967), *Is Brand Loyalty a Useful Basis for Marketing Segmentation?* in "Journal of Marketing Research", 7(2), pp. 27-33.

FRANK R. E., MASSY W., WIND Y. (1972), *Market Segmentation*, Prentice-Hall Inc., Englewood Cliffs, NJ.

FRANK R. E., STRAIN C. E. (1972), *A Segmentation Research Design Using Consumer Panel Data*, in "Journal of Marketing Research", 9(4), pp. 385-390.

GANGURDE S. R., AKARTE, M. M. (2015), *Segmentation based product design using preferred features*, in "Benchmarking: An International Journal", 22(6), pp. 1096–1114.

GONZALEZ A. M., BELLO L. (2002), *The Construct "Lifestyle" in Market Segmentation: The Behavior of Tourist*, in "European Journal of Marketing", 36(1), pp. 51-85.

GREEN P. E. (1977), *A new approach to market segmentation*, in "Business Horizons", 20(1), pp.61-73.

GREEN P. E., DESARBO W. S. (1979), *Componential Segmentation in the Analysis of Consumer Trade-offs*, in "Journal of Marketing", 43(4), pp. 83-91.

GREEN P. E., KRIEGER A. M. (1991), *Segmenting Markets with Conjoint Analysis*, in "Journal of Marketing", 55(4), pp. 20-31.

GREEN P. E., RAO V. R. (1971), *Conjoint Measurement for Quantifying Judgmental Data*, in "Journal of Marketing Research", 8(3), 355-363.

GREEN P. E., SRINIVASAN V. (1990), *Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice*, in "Journal of Marketing", 54(4), pp. 3-19.

GREEN P. E., SRINIVISAN V. (1978), *Conjoint Analysis in Consumer Research: Issues and Outlook*, in "Journal of Consumer Research", 5(2), pp. 103-123.

GREEN P. E., WIND Y. (1975), *New way to Measure Consumers' Judgments*, in "Harvard Business Review", 53(4), pp. 107-117.

GREEN P., KRIEGER A. M., ZELNIO R. N. (1989), *A Componential Segmentation Model with Optimal Product Design Features*, in "Decision Sciences", 20(2), pp. 221-238.

GUNTER B., FURNHAM A. (1992), *Consumer Profiles. An Introduction to Psychographics,* Routledge, London.

HALEY R. I. (1968), *Benefit Segmentation: A Decision-oriented Research Tool*, Journal of Marketing, 32(3), pp. 30-35.

HALEY R. I. (1971), *Beyond benefit Segmentation*, in "Journal of Advertising Research", 11(4), pp. 3-8.

HALEY R. I. (1983), *Benefit Segmentation - 20 years later*, Journal of Consumer Marketing, 1(2), pp. 5-13.

HALEY R. I. (1984), *Benefit Segments: Backwords and Forwards*, in "Journal of Advertising Research", 24(1), pp. 19-25.

HAMKA F., BOUWMAN H., DE REUVER M., KROESEN M. (2014), *Mobile customer segmentation based on smartphone measurement*, in "Telematics and Informatics", 31, pp. 220-227

HELSEN K., JEDIDI K., DESARBO W. S. (1993), *A New Approach to Country Segmentation Utilizing Multinational Diffusion Patterns*, in "Journal of Marketing", 57(4), pp. 60-71.

HOWE N., STRAUSS W. (1991), *Generations: The History of America's Future*, in "Perinnial".

JEONG N., YOO Y., HEO T. (2011), *Marketing Segmentation Strategies for Future Telecommunications Services*, IEEE.

KAHLE L. R., BEATTY S. E., HOMER P. (1986), *Alternative Measurement Approaches to Consumer Values: The List of Values (Lov) and Values and Lifestyle (Vals)*, in "Journal of Consumer Research", 13(3), pp. 405-409.

KAHLE L. R., KENNEDY P. (1989), *Using the List of Values (Lov) to Understand Consumers*, in "The Journal of Consumer Marketing", 6(3), pp. 5-12.

KAMAKURA W. A., WEDEL M. (1995), *Life-style segmentation with tailored interviewing*, in "Journal of Marketing Research", 32(3), pp. 308-321.

KATZ J. AND SATOMI S.. (2006), *Mobile Phones as Fashion Statements: Evidence from Student Surveys in the US and Japan*, in New Media and Society.

KATZ J.E., AAKHUS M. (eds.) (2002), *Perpetual Contact. Cambridge* in "Cambridge University Press".

KIMILOĞLU H., NASIR V.A., NASIR S. (2010), *Discovering behavioral segments in the mobile phone market*, in "Journal of Consumer Marketing", 27 (5), pp. 401-413.

LASTOVICKA J. L., MURRY J. P., JOACHIMSTHALER E. A. (1990), *Evaluating the Measurement Validity of Lifestyle Typologies with Qualitative Measures and Multiplicative Factoring*, in "Journal of Marketing Research", 27(1), pp. 11-23.

LAYCAMP H. J., MASSY W. F. (1968), *A Theory of Marketing Segmentation*, in "Journal of Marketing Research", 5(4), pp. 388-394.

LEE Y., PARK I., CHO S., CHOI J. (2017), *Smartphone user segmentation based on app usage sequence with neural networks*, in "Telematics and Informatics".

LEECH N. L., ONWUEGBUZIE A. J. (2009), *A typology of mixed methods research designs*, in "Quality & Quantity", 43(2), pp 265–275.

LING R., YTTRI B.. (2002), *Hyper-coordination via Mobile Phones in Norway,* in "Perpetual Contact" ,Cambridge: Cambridge University Press.

LISSITSA S., KOL O. (2016), *Generation X vs. Generation Y–A decade of online shopping,* in "Journal of Retailing and Consumer Services".

LUTHAR B., KROPIVNIK S. (2011), *Class, Cultural Capital, and the Mobile Phone*, in "Czech Sociological Review".

MADERER D., HOLTBRÜGGE D., SCHUSTER T. (2014), *Professional football squads as multicultural teams: Cultural diversity, intercultural experience, and team performance*, in "International Journal of Cross Cultural Management".

MASSY W. F., FRANK R. E. (1965), *Short Term Price and Dealing Effects in Selecyed Market Segments*, in "Journal of Marketing Research", 2(2), pp. 171-186.

MAZZONI C., CASTALDI L., ADDEO (2007), *Consumer behavior in the Italian mobile telecommunication market*, in "Telecommunications Policy", 31, pp. 632-647.

MCDONALD M., DUNBAR I. (1995), *Market Segmentation. A Step-by-step Approach to Creating profitable Market Segments*, MacMillan Business, London.

MCDONALD M., DUNBAR I. (2004), *Market Segmentation: How to Do it, How to profit from it*, Elsevier-Butterworth-Heinemann, Burlington, Massachusetts.

MICHMAN R. D. (1991), *Lifestyle market segmentation*, Praeger Publisher, New York.

MILLER D., (1987), M*aterial Culture and Mass Consumption,* in "Oxford: Basil Blackwell"

MITCHELL A. (1983), *The Nine American Life-Styles*, Warner, New York.

MOORE M.,CARPENTER J. M. (2008), *Intergenerational perceptions of market cues among US apparel consumers,* in "Journal of Fashion Marketing".

NOVAK T. P., MACEVOY B. (1990), *On Comparing Alternative Segmentation Schemes: The List of Values (Lov) and Lalues and Lifestyles (Vals)*, in "Journal of Consumer Research", 17(1), pp. 105-109.

PARMENT A. (2013), Generation Y vs. Baby Boomers: Shopping behavior, buyer involvement and implications for retailing, in "Journal of Retailing and Consumer Services".

PETRUZZELLIS L. (2010), *Mobile phone choice: technology versus marketing. The brand effect in the Italian market*, in "European Journal of Marketing", 44(5), pp. 610-634.

PLUMMER J. T. (1974), *The Concepts and Application of Life Style Segmentation*, in "Journal of Marketing", 38(1), pp. 33-37.

RANGAN V. K, M. CHU, PETKOSKI (2011) *The globe: Segmenting the Base of the Pyramid*, in "Harvard Business Review", Issue JuneSTEENKAMP J. E. M., HOFSTEDE F. T. (2002), *International Market Segmentation: Issues and Perspectives*, in "International Journal of Research in Marketing", 19(3), pp. 185-213.

RATNESHWAR S., WARLOP L., MICK D. G., SEEGER G. (1997), *Benefit salience and consumers' selective attention to product features*, in "International Journal of Research in Marketing", 14(3), pp. 245-259.

SCHIFFER B.M., (1992), *Technological Perspectives on Behavioral Change,* in "Tucson and London: University of Arizona Press".

SELL A., MEZEI J., WALDEN P. (2014*), An attitude-based latent class segmentation analysis of mobile phone users*, in "Telematics and Informatics", 31, pp.209-219.

SELL A., WALDEN P. (2012), *Segmentation Baes in the Mobile Services Market: Attitudes In, Demographics Out*, 45th Hawaii International Conference on System Sciences, IEEE.

SELL A., WALDEN P., CARLSSON C. (2010), *Are you Efficient, Trendy or Skilful? An exploratory segmentation of mobile service users*, in "Ninth International Conference on Mobile Business", IEEE.

SHIN Y., JEON H., CHOI M., HAN E., JUNG S. (2013), *An Empirical Analysis on a Predictive Method of Systematic Segmentation in Volatile High-Tech Markets*, in "ETRI Journal", 35(2), pp. 321-331.

SILVERSTONE R., HIRSCH E., (1992), *Consuming Technologies,* in "London: Routledge" SKOG B. (2002). *Mobiles and the Norwegian Teen: Identity, Gender and Class,* in "Perpetual Contact" Cambridge: Cambridge University Press.

SMITH W. (1956), *Product Differentiation and Market Segmentation as Alternative Marketing Strategies*, in "Journal of Marketing", 21(1), pp. 3-8.

SOHN S: Y., KIM Y (2008), *Searching customer patterns of mobile service using clustering and quantitative association rule*, in "Expert Systems with Applications, 34, pp. 1070-1077.

TRIPATHI S. N., SIDDIQUI M. H. (2009) *An empirical investigation of customer preferences in mobile services,* in "Journal of Targeting, Measurement and Analysis for Marketing", 18(1), pp.49-63.

TSIPTIS K.-CHORIANOPOULOS A. (2009), *Data Mining Techniques in CRM: Inside Customer Segmentation,* Wiley Chichester, West Sussex, United Kingdom.

VYNCKE P. (2002), *Lifestyle Segmentation*, in "European Journal of Communication", 17(4), pp. 445-465.

WEDEL M., KAMAKURA W. (2003), *Market Segmentation. Conceptual and Methodological Foundations*, Kluwer Academic Publishers, Norwell, Massachusetts.

WEDEL M., KAMAKURA W. (2002), *Introduction to the Special Issue on Market Segmentation*, International Journal of Research in Marketing, 19(3), pp. 181-183.

WELLS W. D. (1975), *Psychographics: A Critical Review*, in "Journal of Marketing Research", 12(2), pp. 196-213.

WELLS W. D. (ed.) (1974) *Life Style and Psychographics*, American Marketing Association, New York.

WELLS W. D., TIGERT D. J. (1971), *Activities, Interests and Opinions*, in "Journal of Advertising Research", 11(4), pp. 27-35.

WIND Y. (1978), *Issues and Advances in Segmentation Research*, in "Journal of Marketing Research", 15(3), pp. 317-337.

WU S. (2001), *Benefit segmentation: an empirical study for on-line marketing*, in "Asia Pacific Journal of Marketing and Logistics", 13(4), pp. 3-18.

YANG K. C. C. (2004), *A Comparison of Attitudes towards Internet Advertising among Lifestyle segments in Taiwan*, in "Journal of Marketing Communications", 10(3), pp. 195-212.

YANKELOVICH D. (1964), *New Criteria for Market Segmentation*, in "Harvard Business Review", 42(2), pp. 83-88.

ZIFF R. (1971), *Psychographics for Market Segmentation*, in "Journal of Advertising Research", 11(2), pp. 3-9.

ZIFF R. (1974), *The Role of Psychographics in the Development of Advertising Strategy and Copy*, in W. D. Wells (ed.), *Life Style and Psychographics*, American Marketing Association, New York.