



The use of communication services: experiences and perspectives

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Introduction

This report analyses the Italian consumers' experiences and habits about the various communication tools, with a focus on fixed and mobile telephony services, the use of the *Internet* and postal services.

As part of a process of socio-economic development intended to the information society, it is helpful for the Communications Authority (AGCOM) to further analyse such a theme, both to improve aspects related to consumer protection, and to obtain useful information to regulatory decisions in order to improve the functioning of the markets and to provide useful tools to policy makers.

The information provided in this report are intended to foster the debate on current and future trends in consumption patterns in a society more and more inclined to the use of digital communication.

Indeed, with the advent of new technologies and the convergence processes triggered by digital technologies, the modes of communication have radically changed; the Internet plays a key role.

An important concept is represented by the so-called "*consumer empowerment*", regarded as a set of processes that can increase the level of information and knowledge, the bargaining power, the ability to communicate with the company and to transfer its needs and thus, to influence the companies choices, turning consumers into active market players.

However, not all individuals equally benefit from the changed technological and market environment. There is still a margin and a digital exclusion due to the generation gap.

Consequently, in this report it has been adopted an approach that aims at revealing the existence of behavioural differences between different social groups, in particular according to generation and gender.

In this regard, the reported empirical evidences are based on random interviews including individuals aged between 14 and 74¹. As for the generations, the individuals were grouped in four classes: *Millennials*, including the generation of the new millennium (aged 14-34), *the Generation X* to describe the generation of those, approximately, were born in the early '70s and early '80s (aged 35-44), the *Boomers* including those aged 45-64, and *Matures* including older individuals (aged 65-74).

This report focuses on electronic communications services (fixed and mobile) and postal services; the analysis, does not take into account *media* services. Indeed, the use of *media* was already analysed by the Authority by virtue of the close link with the protection of information pluralism².

Based on this premise, the information collected from users' experience are shown so as to, starting from the analysis on the communication tool and access to the *Internet* (Chapter 1), carry out an in-depth analysis providing series of issues related to the experience of consumers such as the choice of communication services (Chapter 2), their importance (Chapter 3), consumer welfare through the analysis of the achieved level of satisfaction when using various communication services (Chapter 4), the "loyalty" of consumers to suppliers (Chapter 5), the level of knowledge of services (connection speed and availability to pay for faster connection) (Chapter 6) and, lastly, new consumer trends (Chapter 7). A final chapter (Chapter 8) contains some concluding evaluations and further reflection for the future.

The information collected have been integrated with a range of information from other sources enclosed in simple and easy "*boxes*" in order to provide the reader with a broader and more complete vision of the topics. Considering the analysis of the use of digital services by the Italians as the core of the survey, including what happens

¹ Younger (under 14) and older (over 74) groups were excluded for the objective detection difficulties. For further details on methodological aspects, see the Appendix.

² In view of the sensitivity of the issues covered, the Authority has conducted several analysis including the *Report Use of information*

and political communication in the election campaign, the survey on the Internet services and online advertising (Resolution no. 19 / 14 / CONS) and the survey *Information and the Internet in Italy. Business models, consumption, professions* (Resolution no. 146/15 / CONS).

in other countries³, AGCOM is willing to produce an annual report aimed at monitoring the consumer experience, in terms of choices, satisfaction and future trends. In this sense, this report represents the beginning of an ongoing monitoring activity of the Italians' use habits.

³ See the report "The consumer experience" produced annually by OFCOM at

<http://stakeholders.ofcom.org.uk/market-data-research/market-data/consumer-experience-reports/>.

1. Technological equipment and access to communication services

Among the tools identified by the European Commission to achieve the objectives of a “*smart, sustainable and inclusive*” socio-economic growth, we find all the initiatives aimed at encouraging the development of digital communication technologies such as the high-speed *Internet* and those aimed at achieving the digital single market.

In this perspective, even before comparing the relationship between consumers and digital services on the market (mobile and fixed phone contracts and use of online postal services), it is interesting to get information on how citizens move between the increasingly many devices enabling the use of digital technologies. Indeed, the access to these services is possible thanks to the use of the so-called *devices* and their spread among the population has major implications both for the producing companies, and for the services that can be distributed.

Owning a device, then, leads to the inevitable use of communication services, both in terms of frequency of use, and in terms of skills growth. In addition, the access to network represents a precondition for many communication services. Therefore, these two features are essential to have a set of useful information to assess whether individuals are more or less inclined to the use of digital services. Hence, this chapter focuses on the analysis of these aspects.

The availability of devices

Figure 1.1 shows the spread (expressed as a percentage) of the devices that can be used to connect to the *Internet*. It is shown that the possession of a smartphone and / or a mobile phone is very high and equal to 94.1%, followed by the fixed phone, owned by 88.4%. PC (portable or fixed location) shows high percentage too: over 75% of individuals. Less common are tablets and smart TVs, with respectively 36.7% and 27.7%; such devices have been more recently introduced and their use, especially smart TV, is expected to increase in the future.

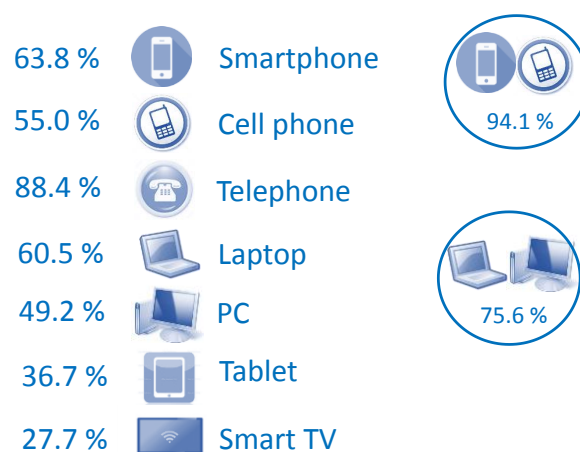


Fig. 1.1 – Availability of devices

The rapid spread of mobile internet technologies makes the analysis very interesting especially in reference to the availability of devices that provide network access to mobile network (*smartphones, tablets* and portable PC), which allows for communication *anywhere* and *anytime*⁴.

About 30% of owns all three devices (**Figure 1.2**). This category of consumers cannot be regarded as a niche segment; conversely, it represents a more and more relevant *trend* involving an ever-increasing number of individuals.

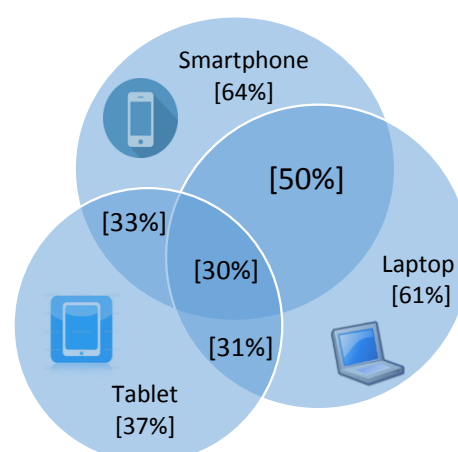


Fig. 1.2 – Availability of devices allowing a mobile Internet connection (%)

⁴ It is important to underline that these devices can also connect through *wi-fi* home connections and, therefore, they can work like a fixed network connection.

A conferma di ciò, la **Figura 1.3** mostra l'andamento, in forte crescita, del consumo di dati in mobilità: ad aumentare non è solo il numero di *SIM* abilitate al consumo dati che rappresenta, a dicembre 2015, il 57,3% del totale *SIM* ma, cresce, in pochi anni (2008-2015), anche il traffico dati, misurato in *petabyte*, di quasi il 3000%. **Figure 1.3** shows the growing trend, of mobile data use: in addition to the increase in network data-enabled *SIM* cards (in December 2015, 57.3% of total *SIM* cards), it is also reported an increase in data traffic (measured in *petabytes* in the period 2008-2015) by almost 3000%.

Internet access

The spread of the Internet among the population is a major factor for economic and social development of modern societies. Numerous scientific works associate many socio-economic benefits both in terms of individuals, and at the local community level, to its spread with specific reference to the broad and ultra-wideband access⁵.

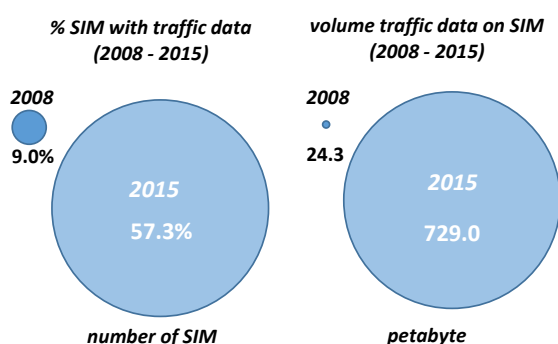


Fig. 1.3 – Data traffic from mobile devices
Source: AGCOM Communication Observatory

From a strictly economic point of view, the spread of the Internet allows for the reduction of transaction costs, i.e. those costs borne by individuals during an economic exchange in order to define, initiate, monitor and complete the transaction. Transaction costs, especially the *search cost* related to time that consumers spend

to determine the best price, to search the product and collect necessary information, have been cut thanks to the Internet in favour of benefits such as saved time and less research.

These savings are not only relevant to economic exchanges, but also to social relations. In fact, typically, the spread of the Internet leads both to economic and social benefits, including economic growth, improved labour productivity, easy match between demand and supply of labour, better access to health care (*e-health*), some benefits for education (*e-education*), reduced bureaucracy in the services provided to citizens by the public administration (*e-government*), and greater social inclusion and civic participation.

Therefore, the boost to economic growth and social cohesion, also involves an improved - in terms of accessibility and frequency of use - use of the Internet among the population, which is also required by the development socio-economic strategies undertaken at Community level. The consumer experience analysis is particularly important, as the use of the Internet has considerably increased over the years (**Details 1**).

Understanding the use patterns, the most used *devices* to access it, the quality of the connection, is particularly important for the definition of social policies and for the safeguard of consumers.

As for the possibility to access the Internet, anecdotal evidence shows that individuals aged between 14-74 who reported having access to the Internet (at home and/or at work), amounted to 74 %, with differences depending on the gender (**Figure 1.4**): men are more likely to have a connection to the Internet regardless of the form (free or paid) and the place where they access the network.

⁵ By way of example, considering the multitude of works on the topic, we can mention the one edited by Czernich, Falck, and Woessmann Kretschmer (2011), on a panel involving OECD countries in the period 1996-2007, which measured the impact of a 10% increase in broadband on the GDP *per capita* around values that can vary from 0.9% to 1.5% (broadband Infrastructure and Economic growth, the Economic Journal, 121 (552)). Another interesting work, albeit with a specific focus on labour productivity, was conducted by Najarzadeh, Rahimzadeh and Reed (2014) in which, again during a *panel* involving 108 countries in the period 1995-2010, it was estimated that an

increase of 1% in the use of the Internet by the population generates an increase in the GDP *per capita* of employees ranging between 8 to 15 US dollars per capita (Does the Internet increase Labor Productivity? Evidence from Cross-country Dynamic Panel, Journal of Policy Modeling 36 (6)). With regard to the Italian case, it is mentioned the recent report titled Assessing the Sectoral Effects of ICT Investments: the Case of Broadband Networks, E. Bequiraj, F. Gazzani, M. Tancioni and coordinated by M. Franzini of the University "La Sapienza" From Rome.

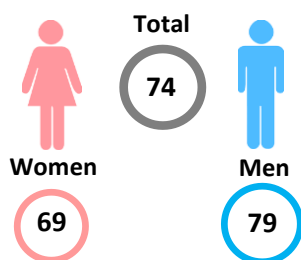


Fig. 1.4 - Individuals who have access to the Internet by gender (%)

The percentage of individuals who access the Internet varies depending on the generation and decreases as users get older: If in the oldest part of the population only 33 people out of 100 have access to the Internet, in the 14-34 age group this percentage rises up to 92% of users (**Figure 1.5**).

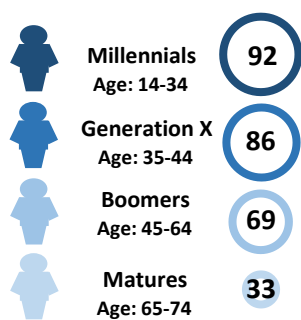


Fig. 1.5 - Individuals who have access to the Internet by age (%)

Internet has great *engagement* power: in fact, among people who own a connection, more than 70% of them connect every day. This tendency is greater for men than for women: in fact, 78% of men, over the last seven days has connected every day or so, compared to 70% of women; likewise, women who stated that they had connected to the Internet only once in the last week amounted to 6% compared with 4% of men (**Figure 1.6**).

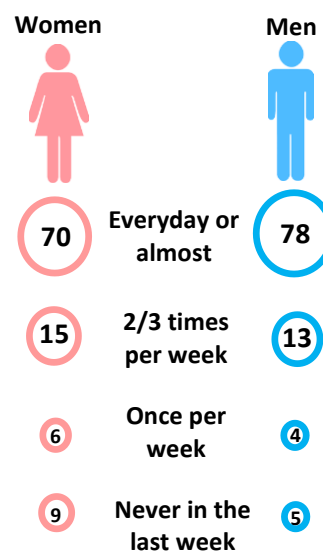


Fig. 1.6 – Connection frequency in the last week regarding Individuals who have Internet access by gender (%)

DETAIL 1: THE SPREAD OF THE INTERNET AMONG ITALIAN FAMILIES

The Istat survey on the spread of Internet services in families shows that, since 1997, the percentage of families with Internet connection at home has increased from 2.3% to 66.2% (**Figure A.1.1**).

Interestingly, Internet keeps spreading relentlessly: in particular, between 2010 and 2015, the proportion of families with Internet access at home has significantly increased from 52.4% to 66.2%. This figure shows that there is still considerable room for development for the spread and use of the web. Moreover, about one-third of Italian families still have no access to the Internet.

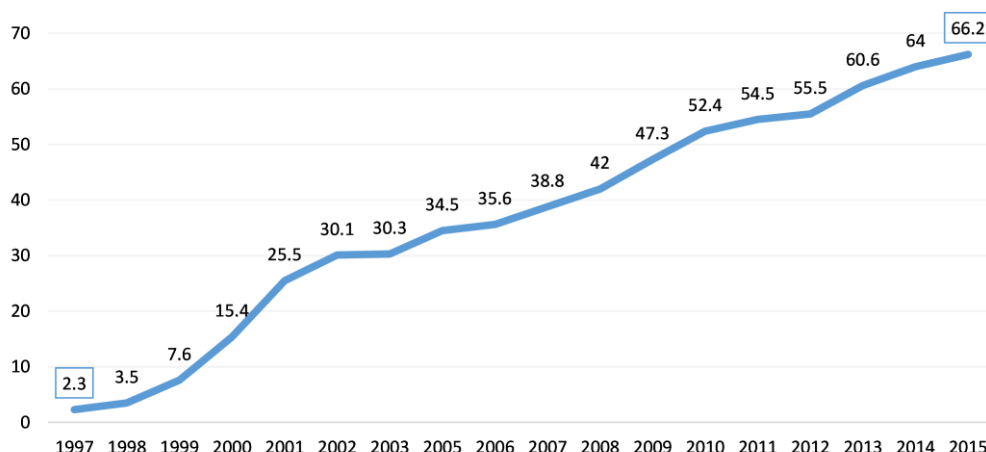


Fig. A.1.1 – Households with home Internet connection (%)

Source: ISTAT - CITIZENS, FIRMS AND ICT of 21st December 2015

It is interesting to notice that, among the reasons for the unavailability of access to the Internet at home for Italian families, the majority indicates the lack of skills as the main reason (56.3% in 2015; **Figure A.1.2**); furthermore, this share is increasing over time.

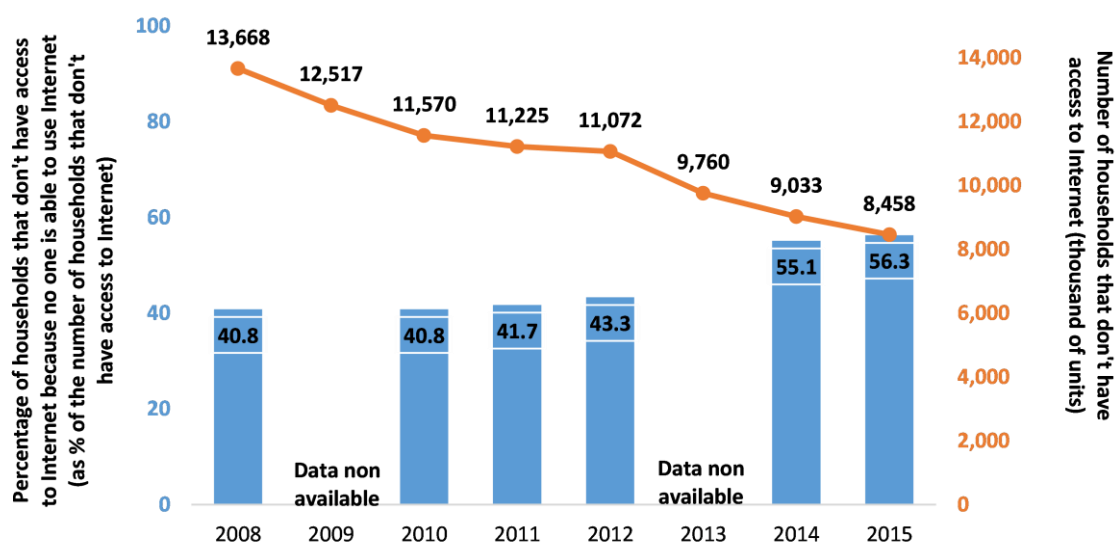


Fig. A.1.2 – Households with no Internet access (absolute values) and households that do not use it due to lack of skills (%)

Source: ISTAT – CITIZENS AND NEW TECHNOLOGIES & CITIZENS FIRMS AND ICT

As for Internet services, age appears to be the key factor in marking the differences in the network frequency of use. In fact, the youngest people represent the majority of the habitual users, about 90%, that is, those users who claim to connect to the Internet every day or so (in the seven days preceding the interview). As the users get older, the intensity of Internet use starts decreasing: just over 80% of individuals in the age group 35-44 and less than 50% among matures, claims to be a regular Internet user. (Figure 1.7).

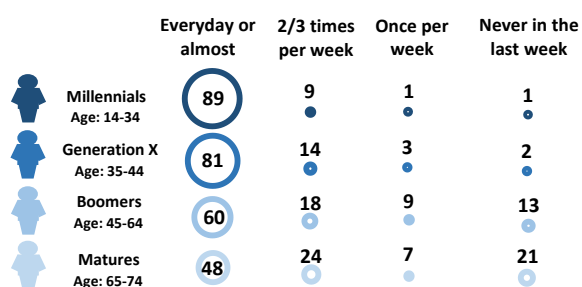


Fig. 1.7 - Connection frequency in the last week regarding individuals who have Internet access by age (%)

As for devices that allow access to the Internet, 65% of the interviewees surf using at least 2 devices including the PC (from fixed or mobile network), *smartphone* or mobile phone, *tablet*, *smart TV* and the *console*. The smartphone, in particular, has become a very popular device for surfing the web, also thanks to the screen size: in fact, among those who say they surf the web, 81% accesses through this device. The PC ranks second when it comes to the use of Internet: both via wireless network (67% of users) and via fixed network (63% of users). The tablet is the device chosen by 40% of users, while the smart TV, as well as the console, is emerging as one still not widespread tool for web access. In particular, with reference to the smart TV, only 16% of individuals uses it to surf the web, although its use is expected to increase (Figure 1.8).

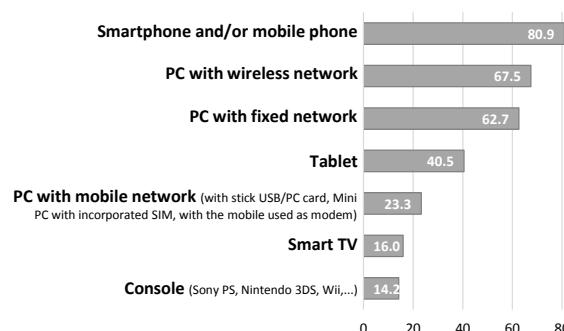


Fig. 1.8 - Devices used to access the Internet (%)

The analysis by generation shows significant differences between the different age groups. The fixed network PC is the main tool used primarily by older generations (77%), while younger generations tend to opt for smartphones: 88% of *Millennials* owns a smartphone and 93% of them accesses the Internet through it. The network access via smartphone or mobile phone has spread even among the older age groups of the population: among the users aged over 65, 62 individuals out of 100 use a smartphone to surf the net (Figure 1.9).

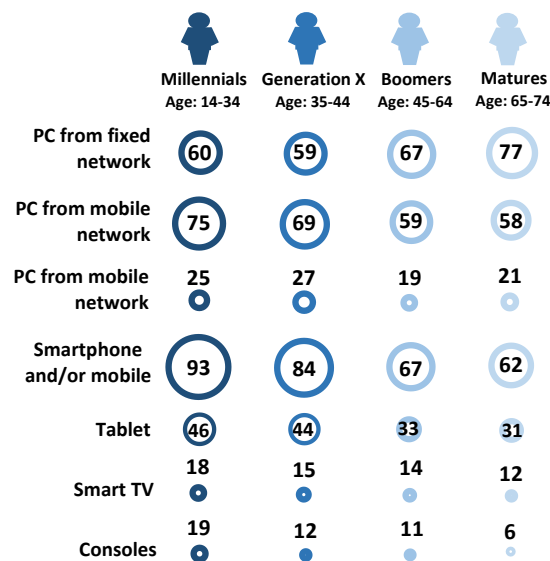


Fig. 1.9 - Devices used to access the Internet by age (%)

The analysis so far conducted is particularly relevant if we take into account the increasing number of citizens using the Internet in order to obtain information, which went from 38% in 2010 to 54% in 2015⁶. This aspect is not secondary, since that information is at the base of the generation

of public opinion and therefore it is necessary to take into consideration the effects of the Internet on information pluralism as evidenced in some of the Authority's work⁷. For a more general overview on why we use the Internet, see **Detail 2**.

DETAIL 2: The use of Internet by individuals in Italy

The main source used for the production of official statistics on the information society and for the evaluation of the implementation of the objectives set by the Digital Agenda, is the form "Use of new technologies of communication and information by families and individuals" integrated, since 2005, within the annual Istat multipurpose survey called "Aspects of daily life" providing, among other items, information on the accessibility of families and individuals to information and communication technologies (Information and Communications Technology, ICT), skills and abilities in the field of ICT and the obstacles to its use.

With regard to 2015, this survey reports^a high levels of use and production of cultural contents on the web: in fact, among individuals with a minimum age of 6, 71% of people who used the internet has used the web to enjoy cultural content; 52.5% has used the network to read newspapers, information, online magazines and 32.7% watched video streaming. Other activities on the net are watching streaming movies (25.1%) or other television programs (22.5%), listening to the radio (23.0%), reading / downloading e-books / online books (14.1%). Almost a third of Internet users (32.1%) uploads and shares web content of their own creation (such as, for example, text, photographs, music, videos, software).

Istat also notes that the use of outsourced infrastructure (cloud) to access or share files anytime and on any device is an ever-growing phenomenon: in 2014, 26.7% of users aged 15 and over used cloud services to save documents, images or other files; in 2015 the figure rose to 29.2%.

^a Source: Istat, 2015, *Citizens, firms and ICT, Statistics Report*, 21st December, 2015

⁶ AGCOM, 2016, *The use of information and political communication in the election campaign*, Tab 1, pag. 4. <http://www.agcom.it/report>.

⁷ Among them, for example, AGCOM, 2015 *Survey on Information and the Internet in Italy. Business models, use, professions* (Resolution no. 146/15 / CONS).

Factors affecting the frequency of use of the Internet

In order to analyse the determiner of the use "frequency" of the net among those individuals aged between 14 and 74, who have access to the Internet, an econometric model was used.

In this way, compared to the analysis carried out so far, it is possible to see how some characteristics of individuals (e.g., gender, age, education level) affect the frequency of Internet connection, while at the same time isolating the individual effects of the variables, as well as overcoming the problems of spurious correlation between the variables.

Based on the number of accesses to the Internet, during the week preceding the survey, three categories of users were identified:

- 1) "regular" users: individuals who connect every day or so;
- 2) "sporadic" users: individuals who use the Internet no more than three times a week;
- 3) "non-users": individuals who despite having access to the Internet, do not use it.

The three categories of users allow for a definition of an ordinal variable representing the dependent variable of an econometric model (*ordered probit*)⁸, while the set of structural variables such as gender, age, level of education, professional status, the geographic distribution and the size of the municipality on the frequency of use of Internet represent the explanatory variables⁹.

The results are summarised in **Figure 1.10** that shows the effect, positive or negative, of the structural variables on the frequency of Internet use.

The most significant factors are gender, age, educational qualifications and professional status. The remaining factors such as the geographical area of residence or the population of the municipality where you live do not have statistical importance. Conversely, they become crucial

elements if we consider many other social phenomena.

Specifically, it is underlined the existence of a positive relationship between male gender and frequency of use of the network; This result confirms the results presented in **Figure 1.6**, where the highest percentages of people who connect to the Internet almost every day are men.

Even by analysing the age that, as seen above (see. **Figure 1.7**) is regarded as one of the factors that adversely affects the frequency of use of the network, the model shows that as the users get older the probability of being a "regular" user of the Internet decreases.

The level of education has a positive effect on the use of the network; however, being "inactive" (retired, homemaker or another inactive status) reduces the frequency of connection to the Internet.

To better define the characteristics of the groups that, while having access to the Internet, do not connect to the network, and therefore to envisage any policy actions, the marginal effects of the explanatory variables on the dependent variable were calculated. The marginal effect indicates the variation of the probability of use of the Internet in the event of a variation of each of the variables considered, such as the upgrade of the academic career, keeping the other variables at their average value¹⁰.

⁸ The probit models represent a generalization of the probit models, which can be applied when the dependent variable shows a number of results (or outcomes) greater than 2. In addition, the dependent variable should be measurable by ordinal method. Winkelman R. and Boes S., 2009, *Analysis of Microdata*, Springer, Berlin.

⁹ In order to minimise the problems of endogeneity of the variables, it was preferred the use of only some structural variables (age,

gender, population density and working condition) for which it is difficult to imagine an influence, on their value, due to the frequency of use of the Internet.

¹⁰ For continuous variables, the variation is considered unitary, while for the dichotomous variables goes from 0 to 1.

Structural variables	Impact of the explicative factors
Gender	
Men	↑
Age	
Generation X (age 35-44)	↓
Boomers (age 45-64)	↓
Matures (age +65)	↓
Qualification	
High school diploma	↑
Degree or higher qualification	↑
Geographical distribution	
North	No impact
Centre	No impact
Professional condition	
Retiree	↓
Other	↓
Unemployed	↑
Dimension of the municipality	
Up to a 20.000 inhabitants	No impact

Fig. 1.10 – Impact of factors on the frequency of use of the Internet¹¹

To better evaluate the marginal effects, it should be noted that, on average, considering the whole population, the probability that an individual falls into the "non-user" group, although he has access to the Internet, is equal to 3%. Instead, the probability of being included in the group of "sporadic" or "regular" is respectively equal to 10% and 87% (**Figure 1.11**).

Starting from the age and considering the group of individuals aged at least 65, i.e. the Matures, the comparison with respect to the medium type shows that the probability for an individual over the age of 65 of being included in the group of "non-users" raises to 14%. Therefore, it is possible to identify a significant and intense "aging effect" result of two forces that move in the same direction: both less need of older people to access the Internet, and less familiarity with the use of new technologies. The probability of being in the group of "occasional" users also increases compared with the average type (25%) and, therefore, it becomes less likely for the Matures to be included in the group of users that connect to the Internet every day or so (61%).

About the qualifications, many empirical studies suggest to consider it as a deciding factor in the use of the Internet. On the one hand, in fact, the educational qualification is intended as a computer literacy level proxy, i.e. the increased learning ability of technological knowledge; on the other hand, a higher cultural level entails greater inclination to interest that can be found on the web. The impact of this variable on the frequency of use of the Internet was also analysed together with the age. The group of people aged over sixty with a middle or lower qualification (shown in **Figure 1.11** for the sake of brevity with "Low education") was compared to the Matures group with at least a degree ("Higher education").

Firstly, the analysis allows to note that, compared to the generic group of the over-65s, a lower level of education further reduce the possibility of being a "regular" user (from 61% to 39%). It is also interesting to note that, among Matures with low education, there are no major differences, in terms of probability, between being a "sporadic" user or "non-user" of the network (30% vs. 31%).

The level of education, combined with the age, seems to have a significant effect on the frequency of use of the Internet. In fact, the introduction of this variable in the Matures group, under equal conditions (i.e. assuming all other variables equal to their average value), strongly affects the different probability of being in one of the three types of users considered in the model. It seems that for individuals aged 65 and over with a high level of education, the probability of falling into the group of those who never access the Internet, although they have a connection, decreases from 31 % to 6% in the case of a low level of education.

More than the master factor, the most relevant variable is the level of education or literacy that make users active players in the consumer market (*consumer empowerment*).

¹¹ Nel modello, per ciascuna delle variabili esplicative, sono state utilizzate alcune categorie di riferimento quali, ad esempio per il genere, la modalità "femmina". In the model, for each of the

explanatory variables, some reference categories such as, for the gender, the mode "female", have been used.

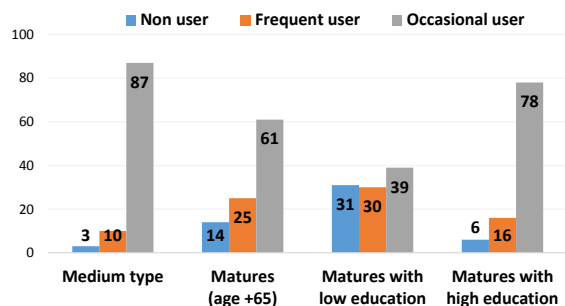


Fig. 1.11 –Probability to be regular user, sporadic user or non-user of the Internet for certain types of users (%)

These analysis have allowed not only to identify the effects, positive or negative, resulting from a number of structural variables on the Internet frequency of use, but also to simulate possible changes in the same frequency of use, as a result of changes of certain conditions concerning the social status of users.

In particular, the effect exerted by age and education level is very clear. The greater familiarity with digital technologies, hence, is also connected to the enhancement of user training. Based on these results, it is possible to draw some policy indication: increasing the level of education, not just computer science, also produces positive effects on categories of individuals, such as the older ones, less inclined to the use of network. For example, benefiting from computer training programs, they would improve the dialogue with the younger generation, such as their grandchildren.

2. The choice of communication services by consumers and some features of use

The spread of electronic communications services

The data examined in the previous chapter confirm the wide spread of a plurality of devices to communicate, in particular of telephones (fixed and mobile phone, smartphone, etc.) among the Italian population. The widespread availability of telephone has also be reported in numerous

studies whose subject of the survey was the family rather than the individual (**Detail 3**).

DETAIL 3: The tendency toward the universal telephone access for families

In Europe, according to the data from the recent Eurobarometer survey, almost two-thirds (59%) of European families have both fixed and mobile telephone access; one-third (33%) only has a mobile access, while 6% of families only has a fixed access. However, 2% does not have any type of access^a.

The data analysis regarding Italy (**Figure A.3.1**) shows that in recent years the number of families that have a whether fixed or mobile access has decreased: from 60% (2005-2006) to 48% (October 2015). The proportion of families with a fixed telephone but not a mobile one appears to be stable in time (around 5%). Equally stable (2%), starting from 2011, is the share of families without a fixed or mobile access. On the increase, between 2011 (31%) and 2014 (43%), and then stable in 2015, is the share of families with a mobile phone, but not a fixed one.

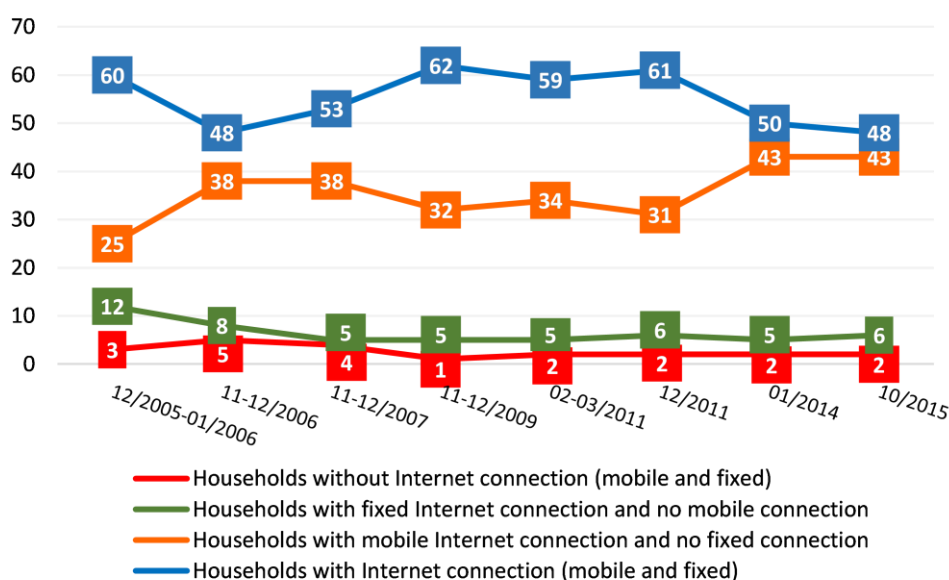


Fig. A.3.1 – Access to the telephone network in Italy

Source: European Commission

^a Source: European Commission, 2016, Special Eurobarometer 438, *E-Communications and the Digital Single Market*

The type of subscription shows a substantial uniformity for both fixed and mobile telephony: in fact, almost the same percentage of users opted for a subscription including voice and data service (**Figure 2.1**): this result further demonstrates the importance of the Internet in modern societies.

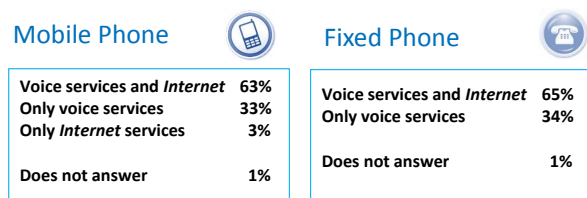


Fig. 2.1 – Types of mobile and fixed telephone subscription (%)

Fixed Telephony

As far as fixed telephony is concerned, the market structure, as monitored by the Authority through the Observatory on communications, proves to be still very concentrated, as usual in these markets, which are characterised by the presence of “barriers” (i.e. fixed costs including considerable *sunk cost*).

Despite the presence of more than 50 operators, many of which operating at a regional level, the majority of the market focuses on a few large operators. As **Figure 2.2** (left side) shows, 93% of fixed network is held by four operators; among these, TIM holds about 58% of the market segment of fixed telephony¹². Comparing such percentage with the choices made by the consumers during this market survey (right side of **Figure 2.2**) it is clear that the sample under investigation, excluding marginal differences, represents the competitive environment at national level¹³. Approximately 64% of the fixed network users claimed to have entered into a contract with TIM; 10% of the users with Wind; 16% is equally divided between Fastweb and Vodafone.

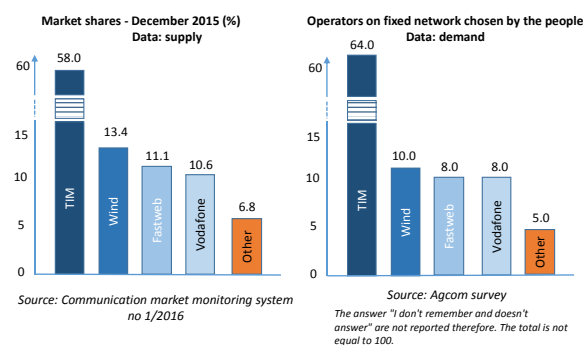


Fig. 2.2 – Market shares and fixed network operator choices (%)

The reliability of data obtained through the market survey adds some further detail about the network operator choice made by consumers; considering the analysis to those who said they have a fixed network, almost two-thirds (65%) of individuals chose package subscription (or *bundle*) jointly providing voice and data services. Gender differences are relevant (**Figure 2.3**): the bundle is signed by 70% of men, while its use decreases for women (59%) who tend to choose an only-voice service subscription.

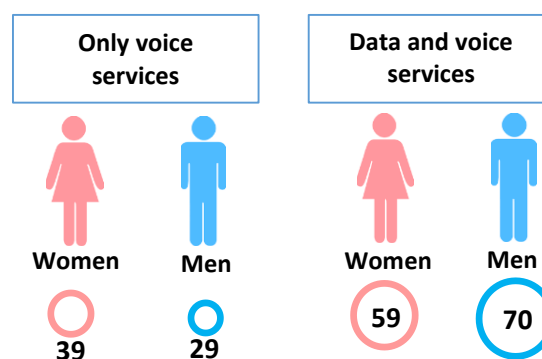


Fig. 2.3 –Types of mobile and fixed telephone subscription by gender (%)

The different types of subscription also vary according to the age group (**Figure 2.4**). A subscription including Internet services is very common among the youngest age group, the *Generation X* and the *Millennials*: for the latter it is observed that 82% of people opted for the internet + voice package, while, also as a result of

¹² The figure provided by the Observatory on communications on fixed networks does not separate residential and business segment.

¹³ A comparison of the data reported by the operators and the data collected through the consumer survey on the experience of individuals, in the same period (September-October 2015) shows a 6% difference in the TIM's market share, compared to the self-declarations of individuals, while for the other operators, Wind,

Fastweb and Vodafone, this discrepancy is reduced to marginal values. The differences between the market shares calculated on the supply and on the demand can be attributed in part to the sampling technique used in research that stratifies the sample according to some demo-social variables and not according to the competitive conditions of the territory, split between *unbundled* areas and not *unbundling* areas.

the reluctance of older classes to use Internet (see Chapter 1), only 30% of *Matures* opted for this plan.

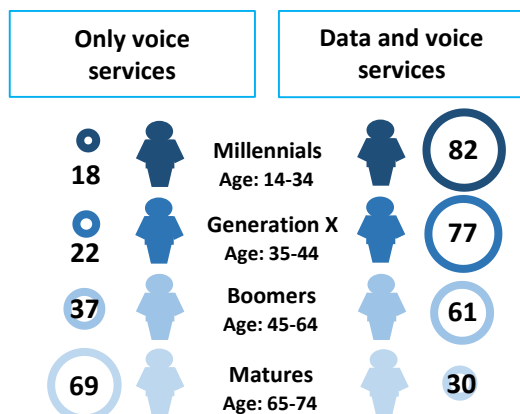


Fig. 2.4 – Telephone subscription types on fixed network by age (%)

Mobile telephony

As for mobile services, the market, similarly to what was have seen for the fixed telephony, shows an oligopolistic concentration¹⁴ of roughly 91% of the market among the four main operators (**Figure 2.5** - left side).

Compared to the fixed sector, it is important to emphasize the presence of two elements that differentiate the competitive dynamics: i) the number of operators which, in absolute terms, is lower in the mobile phone industry, because of the regulatory constraints arising from scarcity of frequency resources, and ii) the potential more differentiated demand in the mobile network market.

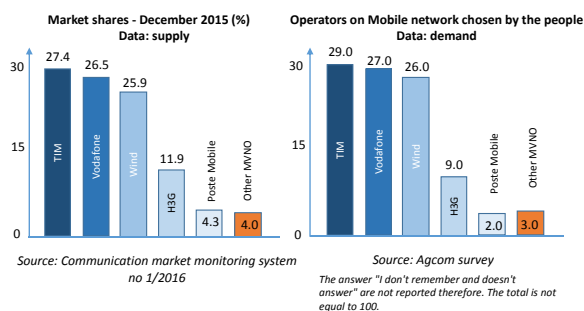


Fig. 2.5 - Market shares and choice of mobile network operator (%)

As far as the number of operators in the mobile market is concerned, there are about 20 operators: 4 of them are structured operators (MNO - Mobile Network Operator), that is they own a mobile network; the remaining ones are so-called mobile virtual operators (MVNO - Mobile Virtual network operator), i.e. operators that rely, for the supply of their services, on the network of structured operators¹⁵.

From the perspective of the potential demand of users, the mobile phone contract refers, generally, to a single individual, whereas the fixed telephone contract, in most cases, refers to families, although from a formal point of view the subscription is always signed by the individual.

Consequently, the actual demand in the mobile network market is much more differentiated than in the fixed network. This is important in determining the decision-making processes of the users regarding the operator to choose; in the case of mobile telephony, the decision is most often up to the individual consumer and therefore turns out to be less bound to influences (the family) which by its nature must try to reconcile the different needs expressed by individual family members.

As shown in **Figure 2.5**, the mobile network market has a higher competition level than the fixed one since the market shares of the three main operators are more balanced. That finding is also supported by the index concentration value HHI (*Herfindahl-Hirschman Index*) amounted to 2,299 in the mobile sector compared to a value of 3,825 in the fixed telephony market. This increased competition has above all benefited consumers through a substantial reduction in prices over time¹⁶.

In particular, Figure 2.5 (right side) shows the consumer's choices about mobile operators: almost one-third of the interviewees (29%) chose TIM, 27% of them chose Vodafone and 26% opted for Wind; approximately 82% of the interviewees chooses the principal fixed network operators,

¹⁴ BEREC (2015), *BEREC Report on Oligopoly analysis and Regulation*, BoR (15) 195.

¹⁵ The number of operators is also related to market dynamics: mergers, acquisitions, business closures are only a few examples that can affect the number of market players. The latest market trends in the mobile industry are characterised by mergers between operators such as Wind/Infostrada and H3G (3 ITALY), followed by the entry of

a new operator, the French Iliad (in this regard please refer to the decision of the European Commission 1st September 2016, Case M. 7758 - ITALY HUTCHISON 3G / WIND / JV).

¹⁶ The price index of mobile services, as reported by the Observatory on communications, decreased by 18.3% from December 2010 (base year) to December 2015, See. Observatory on Communications, n. 1/2016

even for mobile network. H3G covers a considerable area with 9% of individuals and Poste Mobile with 2%, while other smaller operators collect marginal units, which together reach about 3%.

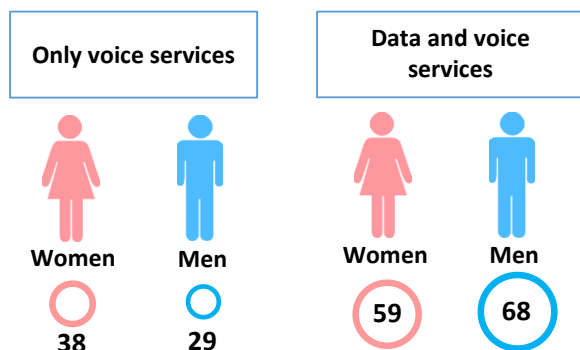


Fig. 2.6 - Telephone subscription types on mobile network by gender (%)

As for the services subscribed by users, including individuals who have a traditional phone or a smartphone, the general trend is in line with what we have already reported for fixed telephony, i.e. a higher propensity among men to choose voice and data service packages (68% vs. 59%) and the tendency for women (38%) of opting for only-voice service subscriptions (**Figure 2.6**).

A very small percentage (about 2-3% without gender difference), declares opting for Internet-only services in particular through portable *modems* and *tablets*, among the most common devices to access the web on the move¹⁷.

With regard to the difference depending on the age, it is worth noting that the percentage of those who opted for a type of subscription or pre-paid card only for voice services is related to the age (**Figure 2.7**): in fact, the percentage of individuals who rely on this type of service increases as users get older. Conversely, the use of a subscription or pre-paid card including both voice and data services decreases, as users get younger: in fact, while for the *Millennials* the percentage of individuals is 85%, among the over-sixty-five it drops to less than one-fourth.

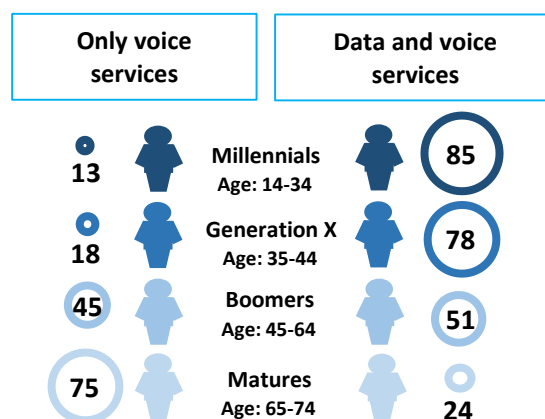


Fig. 2.7 – Telephone subscription types on mobile network by age (%)

The analysis shows the importance of the mobile phone no matter where the user is; the importance gained by mobile devices and related services over time, makes them almost inescapable even when users are not on the move (to play games, listen to music, interact with other communication equipment such as TV and surf the Internet).

In fact, about 70% of users interviewed stated they use the phone both inside and outside their home. No significant gender differences are shown (**Figure 2.8**): both men and women tend to use the phone either at home or outside.

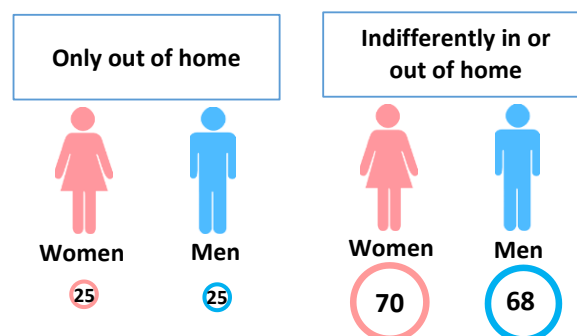


Fig. 2.8 – Places of mobile phone by gender (%)

As for the age, however, many differences are reported; once again, the typical trend with younger generation more inclined to use their mobile/smartphone regardless of their location, compared to the older generation (**Figure 2.9**).

<https://www.agcom.it/osservatorio-sulle-comunicazioni>.

¹⁷ Data provided by the Observatory on communications show that in December 2015, only-data SIM cards (*modems/cards/keys*)

amounted to 8% of the total SIM cards, 19% more compared to December 2014.

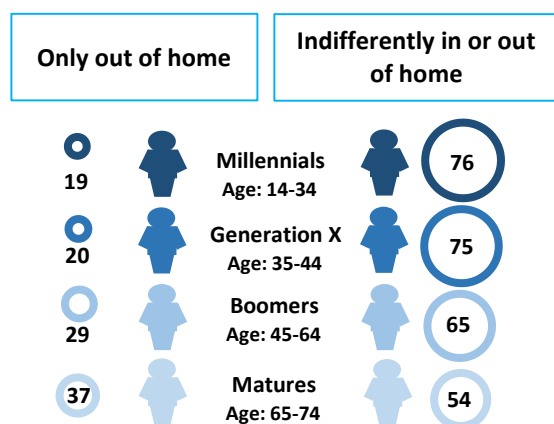


Fig. 2.9 – Places of mobile phone by age (%)

Postal services

Postal services, such as the delivery of mail and parcels services provided by private or public companies, play a very important role in modern societies, although significantly different from the past.

Indeed, the spread of digital technologies has drastically changed the relationship between citizens and postal services: on the one hand, the use of traditional postal services (sending letters, newspapers, advertising, etc.) is constantly and rapidly on the decrease due to the dominant role of electronic communications (*e-substitution*), on the other hand, we are witnessing the growth in demand for express courier services for delivery of parcels as a result of the spread of online purchases by consumers (*e-commerce*).

Between 2012 and 2015, revenues from the traditional postal services (universal service, exclusive services and other postal services) decreased by 43.8% (from 3.663 billion euro in 2012 to 2.059 billion euro in 2015); conversely, the express courier services show, in the same time period, an increase of 20% (from 2,845 million € in 2012 to 3,416 in 2015). These trends are even clearer when considering the volumes: the reduction for traditional postal services is just under 15% from 2012 to 2015, while the increase in shipping by express courier increased by 28%.

The data presented above pave the way for a future where the express courier sector gain more and more importance, as it will benefit from the *e-commerce* and the resulting physical dispatch.

The variety of the current postal services (universal postal services, other postal services and courier services), does not allow a comparison, in terms of market share, similar to the one carried out for fixed and mobile telephony services¹⁸.

By focusing the analysis to the demand for postal services, it is possible to note that the majority of people relies on the services of the *former* monopolist: 84% of the population relies on Italian Post Office (Poste Italiane) to meet its own needs. All other operators are chosen in smaller percentages (**Figure 2.10**). We can assume that in the near future users will have a greater number of operators to rely on as the liberalisation process in the postal sector has only recently begun, in 2011, compared to that of electronic communications, begun in 1998.

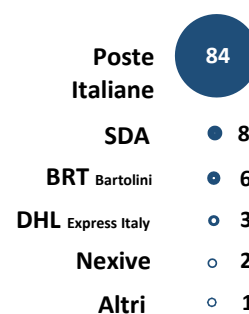


Fig. 2.10 – More frequently used operator for delivering postal products (multiple-choice questions) (%)

However, the process of convergence between electronic communications and postal services, as described above, faces a number of constraints attributable to cultural factors, including the different levels of digital literacy among generations. These structural features represent an obstacle to the use and spread of modern postal services, many of which are based on the use of electronic communications.

In general, it is interesting to note the high percentage of the population that usually does not

¹⁸ For a more detailed analysis, see AGCOM, Annual Report 2016, Chapter 2, paragraph 2.3 Market conditions in the postal services sector, p. 111 and following.

use any postal service for shipping: on average, more than one in two people say they do not send any type of mail (**Figure 2.11**).

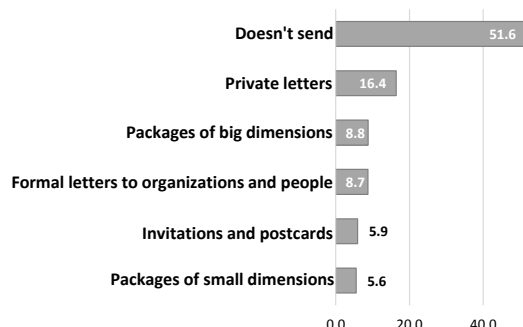


Fig. 2.11 – Products shipped by postal service (%)

The most common type of shipment in Italy is still represented by private mail (16.4%), followed by shipment of parcels of size exceeding the dimension of a typical mailbox (8.8%), and then falling in the couriers category expressed; then we find the sending of formal letters to organisations/individuals (8.7%). Less used services are those relating to invitations and postcards (5.9%) and small package shipments fitting the mailbox size (5.6%).

Overall, the market for postal services is the least influenced by gender variables: there are no significant differences in behaviour between men and women, while there have been some interesting differences between generations (**Figure 2.12**).

Considering individuals not carrying out any type of delivery, the percentage is close to 60% for *Matures*, and reaches its minimum value (43%) for the *Generation X*. The latter age group uses, more than other groups, the sending and dispatch of private letters (20%), formal letters (11%) and big parcels (12%), often for job reasons. The shipping of small parcels is more common among young individuals (9%).

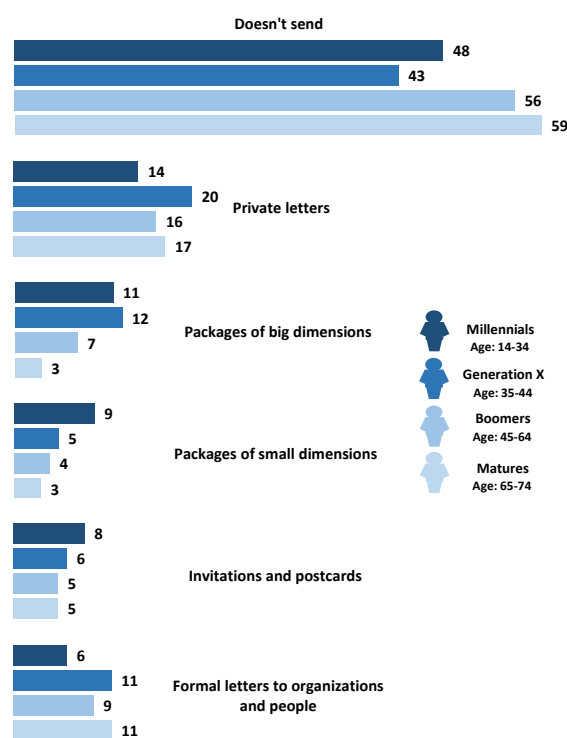


Fig. 2.12 – Products shipped by postal service by age (%)

As for the number of postal products (letters, parcels or postcards) on average shipped in a month, approximately 75% of individuals carries out less than five shipments, 6% between 6 and 10 shipments and only 3% of individuals more than 10 shipments.

Nevertheless, the high percentage of those who do not use traditional postal services is not balanced by the use of online postal services. The use of any type of digital postal service, such as the certified mail, registered mail or the online telegram is still not widespread: in fact, less than one-fifth of the Italians say claim to use online postal services¹⁹.

However, it is interesting to observe that there is a positive correlation between the average number of shipments made in a month and the inclination to use of innovative postal services: the greater the user's propensity to use traditional postal services, the greater its propensity to utilise online postal services (**Figure 2.13**).

¹⁹ For further study on the spread of online postal services, see Chapter 7.

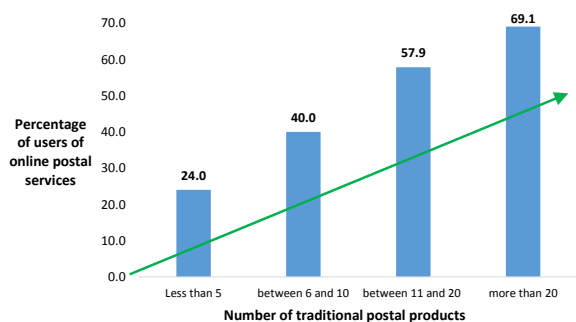


Fig. 2.13 – Relationship between the number of traditional shipment and the use of online postal services (%)

It seems that the ability to make the most of online postal services represents one of the medium-term challenges that will shape the development scenarios of postal services sector. Simultaneously, the growth of the *e-commerce* will represent a crucial step for the enhancement of express courier sector.

In order to provide a better understanding of consumer's choices, past and predictable information about the change in the use of traditional postal services was collected; In fact, it was asked how the use of postal services has changed in the recent past, and a prediction of possible changes in the near future.

Considering the possible changes that occurred during the last year (**Figure 2.14**), the majority of Italians (61%) said that there have not been significant changes. There were no gender differences, but there is a greater dynamism in the 14-34 years old groups: the number of individuals who classify as "almost stable" their use of traditional postal services in the last 12 months, increases with age.

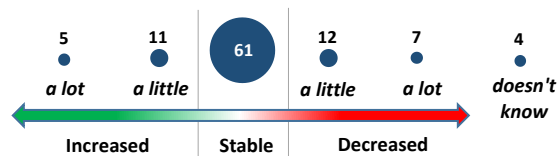


Fig. 2.14 – Changes in the use of traditional postal services in the last 12 months (%)

The statements that in the following 12 months of postal services use habits remain unchanged, belong to the 65% of the individuals, while 12% of individual is unable to make predictions (**Figure 2.15**).

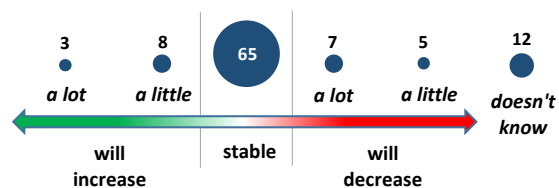


Fig. 2.15 – Changes in the sending / receiving of traditional postal products in the next 12 months (%)

3. The importance of communication services for consumers

With the advent of the market liberalisation, the legislators have to understand how to secure the provision of a Universal Service, which is the provision of a baseline level of services at an affordable price. In fact, while historically the universal service was ensured through cross-subsidies between the various services offered by the *incumbent*, with the liberalisation such an approach did not appear sustainable since it would have facilitated the entry of inefficient operators mainly attracted by the most profitable classes of users (*cream skimming*). As a result, the issue was to safeguard the universal service and make it compatible with the new competitive structures²⁰.

The aim of universal service is to guarantee social inclusion to all citizens; this goal is achieved both by ensuring affordable access to the services and through benefits for disadvantaged social groups (low-income groups or people with disabilities). It is a widely shared objective at European level since nearly all countries provide for a Universal Service. In fact, communicating represents a primary and vital need for citizens, a right that must be safeguarded even under competitive market conditions.

The key feature for a communication service to be considered Universal Service is the nature of “essential” service.

The essentiality of a communication service depends primarily on its spread among the population; the greater the spread of a service among the population, the greater the risk of social exclusion for those who do not use it. This is true especially if such exclusion is not voluntary but rather generated by unfavourable economic and social situations, or even linked to factors of disability. Therefore, in the light of a link between

spread and *essentiality*, it is clear that the second is a concept bound to change over time²¹. For some types of services, the essential nature depends on demographic factors - such as fitting into a specific age group - and cultural factors²². Finally, with regard to postal services, we also need to consider legislation-related factors such as, for example, the sending documentation for participation in public competitions by mail.

By combining essentiality with service accessibility in terms of impact on spending (*affordability*), it becomes possible to identify specific user groups (social groups) to which ensure improved access to communication services, through the so-called social tariffs, in order to minimise the social exclusion.

Essentiality and affordability have a dynamic dimension induced by technological and social change that, in everyday life, introduces new communication tools and new needs. As a result, the main problems relate to the need for continuous review of the services included in the universal service, taking into account qualitative and quantitative *standards*.

With regard to electronic communications services, two phenomena have had a strong impact on the essentiality of the services included in the Universal Service: i) the increased use of devices and mobile services and ii) the spread of the broadband.

A similar idea, although slightly different, regards the postal service. In fact, technological development, has introduced new tools and new models of communication that often replace traditional tools and models. Internet, for example, is one of the major innovations of the communication tools and, as widely noted (see.

²⁰ With regard to electronic communications, universal service is established by Article. 53 of the Electronic Communications Code (Legislative Decree 259/2003, updated in 2015), which transposes Directive no. 2002/22/EC. As for postal service, the European Union legislation was transposed into Italian law by Legislative Decree. N. 261/1999, amended by law no. 384 of 23 December 2003 and, finally, by legislative decree. N. 58/2011, which transposed the Directive 2008/6/EC. Finally, the legislation was amended by Law no. 190 of 23 December 2014, (so-called “2015 Stability Law”).

²¹ As for electronic communications, a recent OFCOM study has highlighted the significant changes in the ways of communicating that

have characterised the last 10-15 years; the services currently considered essential by consumers are those voice-based, especially the mobile ones (including text messages) and, starting from a few years ago, even Internet services available from a fixed location. OFCOM, 22 July 2014 *Results of research into consumer views on the Importance of communications services and their affordability*.

²² By way of example, we may consider browsing the Internet via mobile devices as a need for many young and old people. However, the regulator is required to consider a broader concept; it is considered essential only a communication service deemed as such by society as a whole and not only by some groups of users.

Chapter 2), it is also emerging as a key factor for socio-economic development of modern societies.

In order to analyse the perception of consumers about the essentiality of communication services, here we show the results on the importance of communications services for citizens.

Consumers confirm the importance of the Internet in everyday life; access to the network is indeed considered an indispensable service for over 90% of individuals. The pre-eminence of the Internet, compared to traditional communications services, such as "voice" services and traditional postal services, is also evident by looking at their lowest level of importance for consumers (**Figure 3.1**).

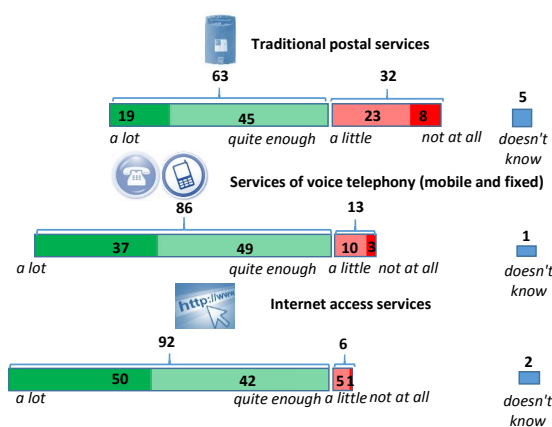


Fig. 3.1 – Importance of communication services (%)

The traditional postal services are those presenting the lowest value in the scale of importance for consumers. This perception does not vary with age and gender, with the sole exception of those *Millennials* who consider the traditional mail service less useful in comparison with other age groups.

Fixed and mobile telephony services still retain a very important role as a form of communication and, while the gender differences are negligible, generational differences are more interesting. In fact, 42% of individuals belonging to the age group 14-34, consider voice services to be very important, while less than 40% is reported as percentage for other generations (**Figure 3.2**).

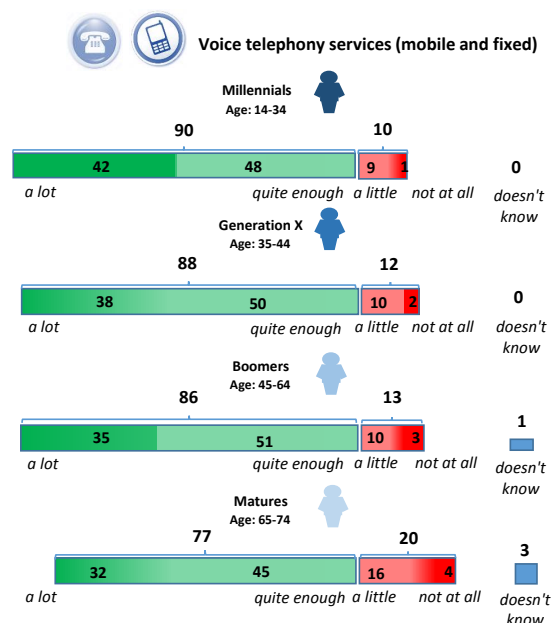


Fig. 3.2 – Importance of voice telephony services by age (%)

As for access to the network, the Internet is regarded as highly addictive for the user; hence, its importance widely increases among generations (**Figure 3.3**). In this regard, the data show a substantial homogeneity in the responses among the age groups, with a slightly higher rating on the importance of the Internet among the younger generations (*Millennials* and *Generation X*). As for the gender, minimal differences are reported.

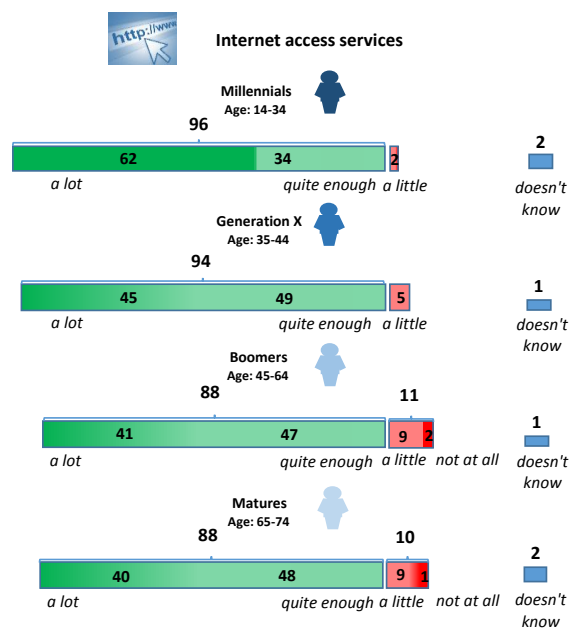


Fig. 3.3 – Importance of Internet access services by age (%)

It is clear a real need to adapt the services included in the Universal Service to the technologies and the current needs and, at the same time, to carefully evaluate the potential distortive effects that such operations may have on the competitive environment.

Based on what we have observed so far, the digital ecosystem²³ development increases the need of access to communication services, especially to those services related to Internet access, which becomes a relevant issue especially for disadvantaged groups.

²³ The profile of the digital ecosystem and its value chain, are the subject of numerous studies and an unambiguous definition is still not available, although the cornerstones involve the telecommunication sector, radio-television and publishing, the

Internet, along with other sectors such as ICT manufacturing industry, including hardware and software products. For a more details, see the Screen Research Report "The value chain and business models of the digital ecosystem."

4. The consumer welfare: an analysis on satisfaction with communication services

Consumer surplus is one of the measures most used by economists to evaluate alternative economic choices. This measure is particularly

important for regulation since it reaches its climax in a scenario of strong competition (**Detail 4**).

DETAIL 4: CONSUMER *SURPLUS* AND WILLINGNESS TO PAY (1/2)

Consumer *surplus* is a measure of well-being that the consumer gets from participating in economic exchanges: it is a net benefit corresponding to the difference between the amount a consumer would be willing to pay for a good/service (willingness to pay) and the actual cost borne for its purchase. Therefore, the willingness to pay calculates the actual value that consumers attach to good and depends on the benefit expected by the consumer.

The demand curve identifies, for each amount of good, the price the consumer would pay (its different willingness to pay). In **Figure A.4.1**, for example, the maximum price Marco is willing to pay for 1 litre of milk (his willingness to pay) is 2 euros; the price on the market (what actually 1 litre of milk costs Marco) is 1 euro. The difference between the willingness to pay and the actual price paid provides a measure of consumer *surplus*; in this case, Marco's *surplus* is equal to 1 euro. Same thing applies to Sara and Luce: they gain a net benefit (*surplus*) from participating in the market.

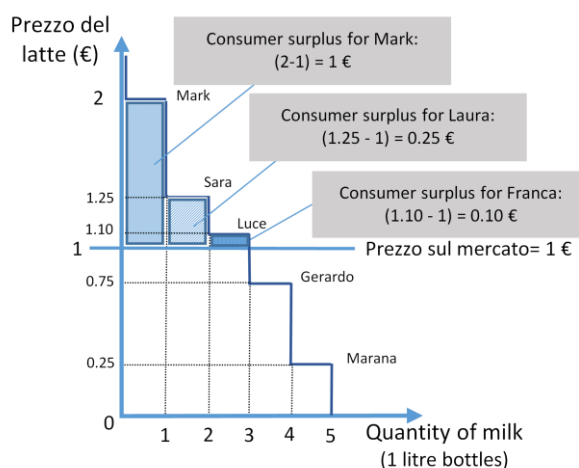


Fig. A.4.1 – Consumer *surplus* and willingness to pay

Conversely, Gerardo and Marana prefer not to participate in the market since their willingness to pay is lower than the market price; by purchasing unit of a good, they would incur in a negative net benefit and thus choose to maximise their welfare by not buying the good.

DETAIL 4: CONSUMER SURPLUS AND WILLINGNESS TO PAY (2/2)

The total consumer *surplus* is represented by the sum of the individual *surpluses* of consumers participating in the exchange, hence, all those who purchase at least one unit of good. Considering the more general case of a linear demand function (**Figure A.4.2**), the total consumer *surplus* is represented by the triangle **a** when the market price is equal to **P1**.

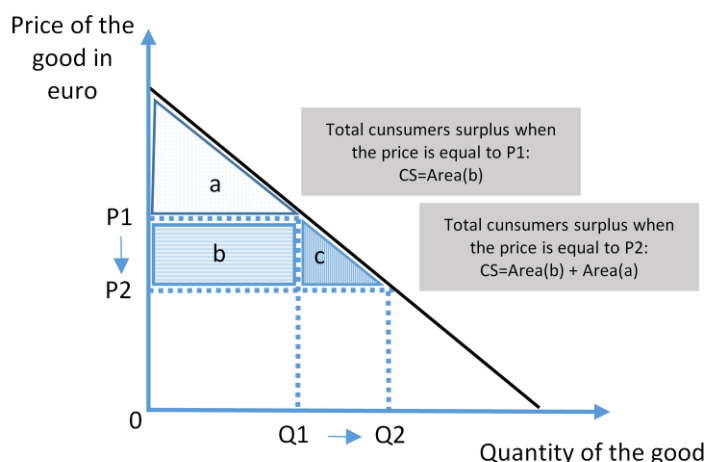


Fig. A.4.2 – Consumer surplus and market price variations

A decrease in price up to **P2** increases the total consumer surplus in **b** area plus **c** area: such a welfare increase derives from both the increased benefit for the consumers who would purchase the good even at the old higher price (**P1 > P2**), **b** area, and from the benefit for consumers who, following the price reduction, report a willingness to pay greater than the new market price, **c** area.

The relationship between consumer welfare and market forms suggests that the greater the competition between producers, the greater the consumers welfare. In fact, market forces act in such a way as to improve the efficient allocation of resources, both by distributing goods to consumers who value them the most (higher willingness to pay), and allowing the sale of goods to companies producing at lower costs. Therefore, competition ensures that all mutually beneficial transactions are finalised, whereas those not engaged in exchanges attaches a value to the good (willingness to pay) that is lower than the offer price.

Consumer welfare, hence, plays a key role in market regulation: ensuring fair competition between companies is critical to get an efficient allocation of resources and maximise consumer welfare.

Initially, the opening of network markets was mainly based on the implementation of supply policies, with particular attention to the removal of entry barriers in order to welcome new firms in the market. In more mature market environments, the introduction of regulatory demand-support policies is even more significant. In particular, this happens through the promotion of transparency and dissemination of quality knowledge and necessary information to convey and guide consumer's decisions. In particular, given the same level of knowledge (familiarity with new technologies), the information can be disseminated to a greater or lesser degree, resulting in a different level of consumer *empowerment*.

Consumers' active participation of consumers in the decisions of products and services purchase able to better meet the quality/price ratio is, indeed, essential to ensure the development of an actual and not just potential competition. Well-informed consumers, able to choose among the many options available on the market today, affect the propensity of firms to innovate in order to improve the quality of their services; in other words, the presence of a varied offer strongly depends on the action/reaction ability of the demand. Consumers need to turn, from passive beneficiaries of the liberalisation processes, into active beneficiaries, hence, capable of promoting efficiency and effectiveness in the firm production processes.

The consumer welfare if only regarded in terms of price and quantity (**Detail 4**), appears to be limited. In their everyday life, consumers face problems not always directly linked to price and quantity but also other aspects such as the quality of services (products to be purchased) and, above all, the lack of information. Sometimes consumers are not fully aware of the various opportunities provided by the market.

As for information, asymmetries between service providers and consumers represent one of the causes of market failure: a situation where market

forces fail to allocate the resources efficiently²⁴. If the consumer cannot properly assess the quality/price ratio of the goods, maybe because he is not as informed as the seller, the exchange might not occur or might only benefit the seller, resulting in allocative inefficiencies.

When consumers are not properly informed about the quality of goods before the purchase, or do not have the information necessary to make a comparison between products, they incur in a situation of "contractual weakness". Numerous measures of the Authority to protect consumers originate from the need to rebalance the level of information between the contracting parties (e.g. the rules on transparency and obligations to safeguard the quality of services provided by companies).

Moreover, due to psychological and behavioural factors, the consumer may overestimate its existing position because of the so-called *status quo bias*: an inertial force that pushes him to give greater importance to its current condition and that obstruct a possible change, even if more convenient.

Using the perception of consumers concerning their level of satisfaction with communication services as a measure of consumer welfare, the **Figure 4.1** shows a high average level of satisfaction with the analysed communication services²⁵.

²⁴ One of the assumptions underlying the proper functioning of perfect competition markets is that both consumers and companies are properly informed about the costs and benefits of each exchange (perfect information assumptions).

²⁵ In the questionnaire, in order to determine the different levels of satisfaction as precisely as possible, indicative answers in satisfaction

were divided into four categories: *very satisfied*, *fairly satisfied*, *not very satisfied* and *extremely unsatisfied*. In order to facilitate the reading of data, the answer have been grouped together two by two so as to obtain two macro-categories of consumers: i) *satisfied* (including *very* and *fairly*) and ii) *unsatisfied* (including *not very* and *extremely*).

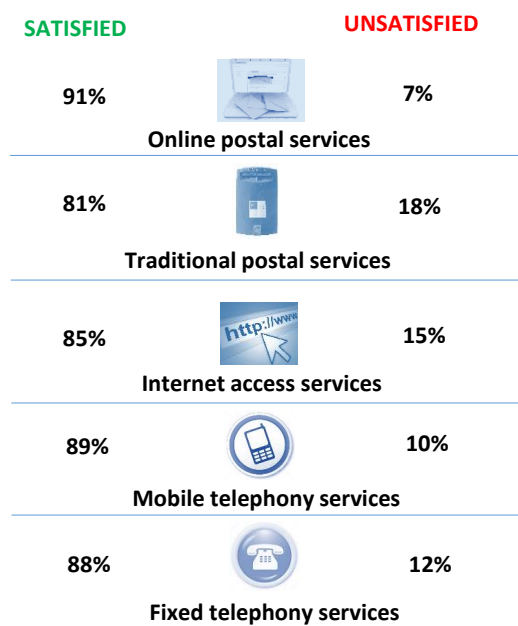


Fig. 4.1 – Level of satisfaction for communication services (%)

The degree of satisfaction is certainly one of the main issue for the consumer, especially when it comes to consumption of services because it reflects the link between consumer and service provider.

High levels of satisfaction can be considered as symptom of a very strong link between consumer and supplier, based on trust and loyalty. The suppliers are strongly interested in meeting a certain level of satisfaction, therefore, in order to "keep" the customer (*retention*). On the other hand, considering the perspective of the regulator, the level of satisfaction can be seen as a measure of consumer welfare level that, as above mentioned, represents both the goal and the tool to promote competition. Moreover, the analysis of the degree of consumer satisfaction can be useful to identify the steps needed for ensuring consumer protection considering both the offer (rules on contracts, transparency of information, certain rules for the transition from one operator to other, etc.), and the demand (training courses, *vouchers* to promote sales, etc.).

The highest percentage of satisfied users can be observed for online postal services and for mobile services. The services for which there appears to be the most unsatisfied customers are the

traditional postal services and the Internet access services (**Figure 4.1**).

The analysis by age shows that 56.2% of *Matures* (oldest population), are very satisfied with *online* postal services. Considering the fixed and mobile telephony services, the most common form of communication used by older age groups, the share of individuals rises to about 90% for fixed network services and over 95% for mobile network services. However, the *Millennials* show a high degree of satisfaction with postal services, whether traditional or online (**Figure 4.2**).

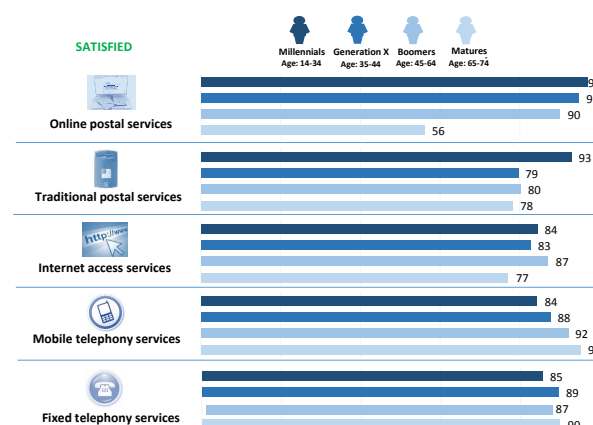


Fig. 4.2 – Level of satisfaction with communication services by age (%)

This perception of satisfaction may partially be the result of different use of these services and then mismatches between expectations and consumer experience. For instance, young people may find easier and convenient to use online postal services than having to go to the post office; conversely, older people are not enough familiar with innovative services that require special skills.

If we only consider one group of consumers satisfied (*very* or *fairly*) with the various communication services, there are no substantial differences in the level of satisfaction among men and women.

Looking at the other side of the coin, (dissatisfaction with communications services), it appears that its main reason lies under the lack of quality of service (**Figure 4.3**). This issue affects over 40% of unsatisfied customers regardless of the used communication service, reaching 58% for Internet access services and 55% for traditional mail services.

UNSATISFIED






	 Online postal services	 Traditional postal	 Internet access services	 Mobile telephony services	 Fixed telephony
The service is of poor quality	46	55	58	43	34
There have been interruption in the service	19	17	39	18	27
The service lacks of the characteristics that were advertised	11	15	19	14	14
There are mistakes in the charging	21	5	7	8	9
There are unexpected changes in service condition	7	10	8	18	14
Other	32	23	16	29	37

Fig. 4.3 – Reasons for dissatisfaction for communication services (%) (multiple-choice questions)

Downtime is a cause of dissatisfaction for 39% of the Internet users and 27% of fixed telephony services users. Both for the poor quality of service and downtimes, the younger age groups show a greater degree of dissatisfaction than older classes. The mismatch between the actual service and the advertised features reaches its maximum value among Internet users (19%). Errors in tariffs do not represent one of the most common reasons for dissatisfaction (generally less than 10%), with the exception of users of online postal services users, among which just over 20%

reported dissatisfaction because of errors in the tariffs. However, mobile services users (18%) report unexpected changes in the service conditions.

In addition, consumers have also reported additional causes of dissatisfaction. These include, in particular: i) high prices of fixed network services, mobile and traditional postal services, ii) problems related to poor coverage of mobile network, iii) slow connection problems for Internet services, and iv) delays in delivery of traditional postal services.

5. The level of "loyalty" of consumers in the sector of mobile and fixed telephony

The electronic communications sector (fixed and mobile), as repeatedly mentioned, is a market in which, thanks to technological development and the process of liberalisation, consumers have the opportunity to choose between several suppliers and different services. The choice may also lead them to replace their supplier with another one that provides higher quality services at a lower price²⁶.

Therefore, one of the main goals is to establish specific and transparent rules to allow easier operator switching without undue additional costs. This is extremely important especially when considering the telecommunications market structure which, as stated in chapter 2, still has a certain level of concentration, but especially because it provides clear rules for new providers when acquiring customers from pre-existing operators.

Once the fair change of operator has been secured, the actual migration depends on a number of factors connected to individual users; these factors affect a greater or lesser willingness to change operator. The levels of migration are certainly an important indicator of involvement in market demand. However, the reasons that lead consumers to change their operator are related to the perception that the consumer about the provider and the presence of viable convenient alternatives. If the market poorly differentiated and/or the current supplier is considered the best choice on the market, there will be no actual benefit for the consumer in the event of operator switching²⁷. The extent of the participation in the market, hence, is not only represented by the percentage of those who change operator; rather, the degree of participation in the market seems to be strongly correlated with the level of information available to consumers, an

information background that allows them to better choose the combination supplier-services.

Operators' objectives are opposites: they are interested in ensuring a long-lasting relationship with the user. In fact, as shown by numerous studies, it is less expensive for them to try to retain a customer than to search for new ones²⁸.

Consequently, as for *churn* and *switch* phenomena, we can assume the presence of a *trade-off* between the consumers behaviour and the firms. On the one hand, consumers are becoming more informed about the quality of the services, a fact that might push them to change operator if needed. On the other hand, considering the current level of maturity of these markets, operators are competing one another especially in order to win customer loyalty and avoid termination of the contractual relationship (*churn*).

At the outset, the percentages of those who switch operator are connected to the degree of overall satisfaction with the operator in use (see. Chapter 4). In fact, 87% of those who is satisfied with the relationship with their service operator did not change fixed telephony provider; this percentage rises to 90% in the case of mobile operator switching. Many consumers, as shown above (see. Chapter 4), appear to be satisfied with their current supplier, with no need for change of contractual relationship.

Focusing on those who have switched operators in the past 12 months, we note that 11% have switched supplier in the fixed telephony market and 14% in the mobile services market (**Figure 5.1**).

²⁶ The analysis on the loyalty does not take into account postal services as allegedly the consumers (residential users), do not sign contracts for the supply of such services, but rather choose each time the more appropriate operator for their needs.

²⁷ OFCOM (2006), *Consumer Experience Research*, Annex 4, *Consumer Decision-Making in the Telecoms Market*, Report on research findings, Research Annex, November 16th.

²⁸ It is quite difficult to assess the actual saving; some surveys suggest that they might be 10 to 15 times the cost of acquiring a new customer. (Gillen T., 2005, *Winning New Business in Construction*, Gower Publishing Ltd., John L. Daly, 2002, *Pricing for Profitability: Activity-Based Pricing for Competitive Advantage*, John Wiley and Sons, Strouse K., 2004, *Customer-centered telecommunications services marketing*, Artech House Inc.).

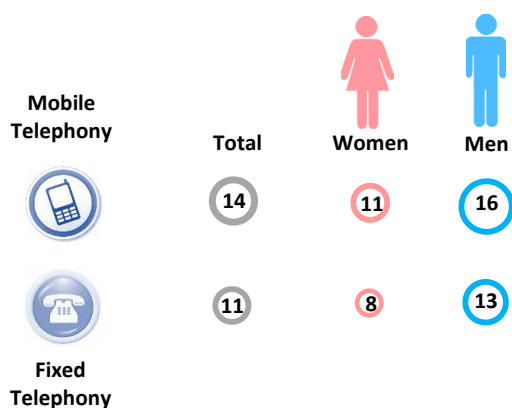


Fig. 5.1 – Consumers who switched operator in fixed and mobile telephony by gender (%)

An interesting aspect is the identification of the demographic characteristics of consumers who more prone to switch and the reasons that pushed them to replace the previous supplier. Both for fixed and network services, men are more likely to switch operator compared to women: this difference is related to several factors including a different technological knowledge (**Figure 5.1**).

As for the age group (**Figure 5.2**), the greater propensity to switch operator is observed for younger age groups (14-34). In general, the mobile market is the more dynamic: 21% of the *Millennials* said they had changed, compared to 14% in the fixed market. For certain age groups (*Boomers* and *Matures*), the price does not seem to act as the main *driver* in the choices of the operator. The obstacles preventing a greater dynamism of the people belonging to these age groups can be attributed to several factors, including a lack of interest in the market innovations due to low levels of information, but also to cultural reasons resulting in consumption patterns different from the younger age groups.

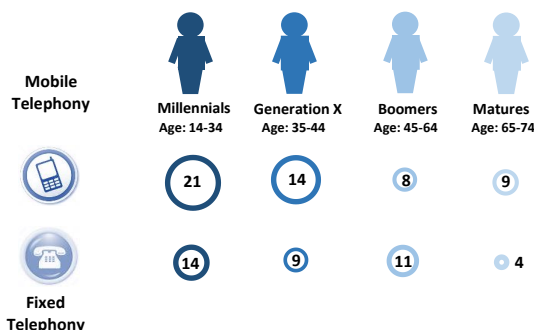


Fig. 1.2 – Consumers who switched operator in fixed and mobile telephony by age (%)

These variables strongly affect consumer's decision. As above-mentioned, for example, the choice of a fixed telephony provider, in most cases, is a choice that involves the entire family, whose decision-making processes typically require longer times and in which, very often, the subscriber of the contract is the "head of the family".

However, as for the mobile operator, the choice is individual and not influenced by the family. It occurs after purchasing a SIM card (typically parents who take out a subscription for their children). Furthermore, the possibility to switch mobile service provider is made faster also thanks to the existence of more suitable and less binding contracts compared to the fixed telephony. Same rule applies to prepaid cards that, the Communication Observatory estimates to be four times the subscription SIM cards.

In particular, mobile number portability (MNP), represents the free-of-charge procedure allowing mobile services users to switch operator while keeping their number. Although the measures introducing the mobile number portability in Italy date back to 2001 (see. Resolution no. 12/01/CIR and Resolution no. 19/01/CIR), more recently (Resolution no. 147/11/CIR), the Authority took action to further reduce the time to complete the operation of portability (from 3 to 1 business day) and introduced the possibility for the customer to apply for compensation in case of delays. In doing so, the Authority set the conditions for improving the quality of service, improving the flow of users between different operators in the mobile market. Conversely, in the fixed telephony sector, despite the possibility of number portability (Resolution no. 274/07/CONS and resolution no. 611/13/CONS), users tend to opt for longer lasting service contracts over time, making the operator switching less likely to occur, as it would technically be more difficult compared to the mobile telephony.

As seen, the differences in age-related choices are very important. Authority's experience also shows the need to attach special attention to certain social categories that, by their nature, are not inclined to switch operator, although the change might entail a net benefit.

Bearing in mind these specific features, the data seem to suggest an increase in consumer awareness in their choices. Indeed, although the economic factor still represents the key element that drives consumers to switch, there are also other items to look at (**Figure 5.3**). Nearly 70% of individuals considers the economic conditions of service provision as the main factor when choosing both fixed and mobile network. The presence of inefficiency represents the leading cause for switching for 28% of individuals who have changed their fixed network operator and 21% of those who have changed mobile network operator. Moreover, the presence of more appropriate services to meet customer's needs influenced 26% of mobile operator *switchers* and a lower percentage, 23%, of the fixed operator users. When choosing the operator, especially for mobile network services, the consumer appears to be very careful in the choice of telephony services that are more able to meet his needs.

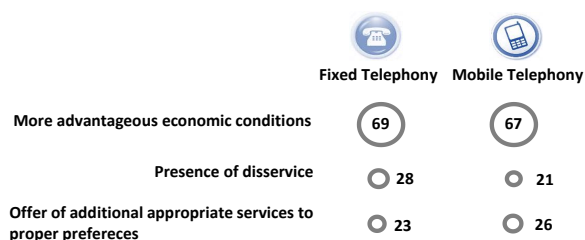


Fig. 1.3 – Leading causes of operator switching (%)

The survey also outlined the consumer switching from one operator to another. Since the sample provides a picture of the distribution of market shares among the different players (see. Chapter 3), the analysis of the consumer moving from one operator to another, is particularly interesting to properly understand the market dynamics.

As for fixed telephony services operators, including those who switched operator, 38% said their previous provider was Tim, 24% Infostrada / Wind, Vodafone 13% and 8% Fastweb. If we examine the customer's origins and destinations among the main fixed network operators, such as the consumer switching from one provider to another, in the case of former TIM users we note the following operator switching: 33% switched to Fastweb, 32% to Vodafone, 23% to Wind/Infostrada. For ex Infostrada/Wind users, 68% switched to TIM, while 22% to Vodafone (**Figure 5.4**).

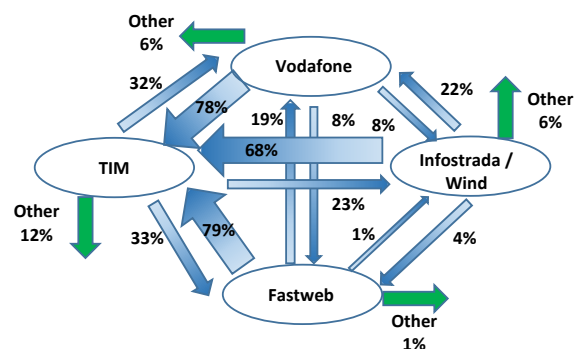


Fig. 1.4 – Consumer switching between some fixed network operators (%)

As for the analysis of switching between mobile network operators, it should be noted that 31% of individuals Vodafone users, 23% Wind users, 20% by TIM and 12% by H3G. Former TIM clients grew 43% to Vodafone, 30% to 14% for Wind and H3G (**Figure 5.5**). Former Wind users, however, are equally distributed over TIM, Vodafone and H3G. Half of former Vodafone users moved to Wind, 30% to TIM just over 11% to H3G. Former H3G users have mainly chosen Vodafone (46%), then TIM (37%) and Wind (11%).

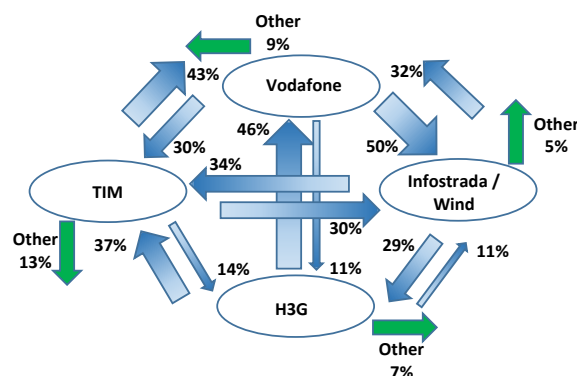


Fig. 1.5 – Consumer switching between some mobile network operators (%)

Operators' business strategies also affect switching dynamics of consumers. Promotional campaigns, which are generally pro-market competition (they promote competition), are able to foster such operator switching. Competition between operators, particularly in the mobile sector, appears to be particularly intense on prices. This competition, however, faces great limitations as the customer will always be attracted by new better offers from other operators; therefore, the benefits obtained by

reduction in prices are often bound to be limited in time.

6. Internet: speed connection awareness and willingness to pay for a “fast” connection

When it comes to the supply of the service offered, the spread and the importance of high-speed connections (*broadband* and *ultra-broadband*) strengthen the aspects related to the Internet connection service from a fixed location and in particular to the connection speed and the availability of the service.

The availability of many offers on the market providing faster connections at higher costs, and the various problems experienced by users of such services, make it crucial to consider the aspects related to the networks and services quality especially to safeguard consumers.

In this regard, with the introduction of the Charter of Internet access services, aimed at limiting both the deceptive Internet services offers and the difficult comparisons due to the lack of transparent information on the type of connection, AGCOM took action to protect consumers starting from 2006 (Resolution no. 131/06/CSP)²⁹. Moreover, in 2008, the MisuraInternet project was launched (Resolution no. 244/08 / CSP) in order to monitor the quality of the connections.

Despite the Authority's actions and although most of the users who connect to the Internet every day, in Italy, as well as in much of Europe³⁰, 45% of individuals do not know their connection speed (Figure 6.1).

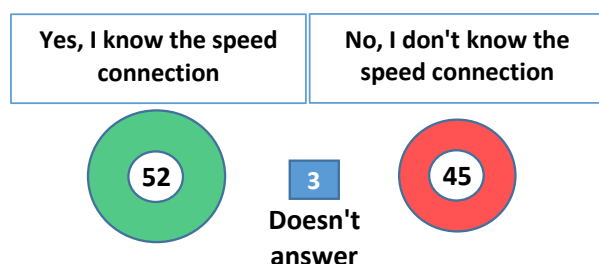


Fig. 6.1 – Users by awareness of their speed connection (%)

²⁹ Resolution no. 131/06/CSP "Approval of the directive on quality and service charters for internet access services from a fixed position, under Article 1, paragraph 6, letter b), number 2 of the Law of 31st July 1997, n. 249. "

³⁰ At European level, the Commission measures and analyses, thanks to the Eurobarometer, also the theme of knowledge, by users, of the

This data provides food for thought, not only to regulator, but also to mobile operators, especially when considered in the light of the population age groups. In fact, the percentage of users who do not know their Internet connection speed increases with age: for the *Millennials* the percentage is 39%; this value reaches 43% for *Generation X*, 52% for *Boomers* and 61% for *Matures* (Figure 6.2).

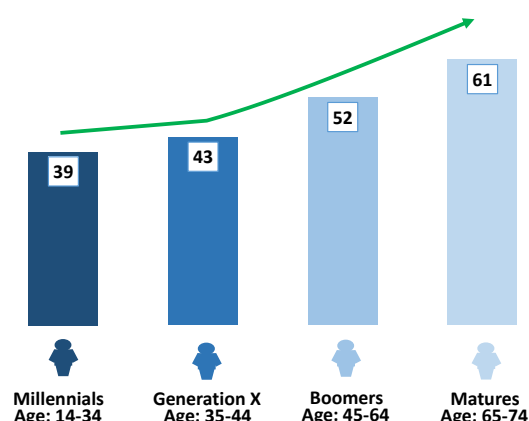


Fig. 6.2 – Users who DO NOT know their connection speed by age (%)

Two further aspects are to be highlighted: i) the lack of information regarding the connection speed is reduced as the level of educational qualification increases: the percentage ranges from 51% for those who have a lower secondary education, 44 % for those with a upper secondary education, up to 39% for those who declares a higher qualification such as, for example, a degree (Figure 6.3). This result proves that lack of education and information are often interrelated.

maximum download speed of the Internet connection provided by the supply contract with their operator for the provision of Internet services. The data show, for some years, that approximately 60% of European citizens are not familiar with such speed (See European Commission, 2016, Special Eurobarometer 438, *E-Communications and the Digital Single Market*).

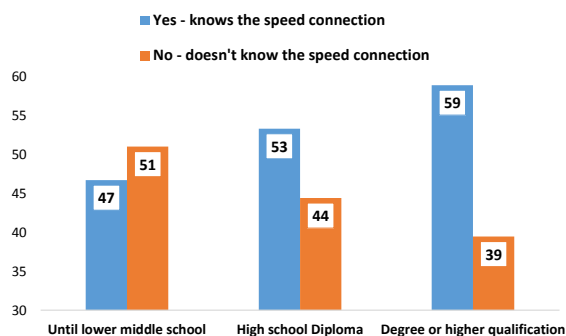


Fig. 6.3 – User's connection speed awareness by educational qualification (%)

Moreover, ii) the percentage of women who do not know the connection speed is twice as males: 61% vs. 32%, as shown in **Figure 6.4**. Again, this result could be related to the greater propensity of "men" to use technology.

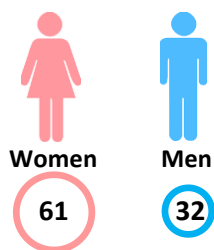


Fig. 6.4 – Users who do not know their speed connection per gender (%)

Among individuals who claimed to know their Internet speed connection, the majority declares speed ranging between 2 and 10 Mbps (64% of those who claim to know the connection speed), followed by those reporting a speed ranging between 10 and 30 Mbps (24%). Only a few users reported a connection speed exceeding 30 Mbps (**Figure 6.5**).

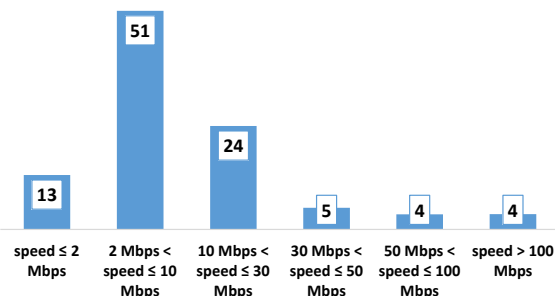


Fig. 6.5 – Users who know their speed connection by speed band (Mbps) (%)

If we combine the Internet connection speed to with the type of municipality of residence, we note as the connection speed up to 10 Mbps are declared especially in cities with less than 20,000 inhabitants, while connection speeds above 10 Mbps are common in cities with a population of over 20,000 inhabitants and metropolitan cities. This result is not surprising given that the population density is one of the main factors that drives the competition and, therefore, pushes telecommunication operators to invest in building infrastructure. In fact, the plans for investment in new generation networks are primarily focused near high-density cities in order to recover the high fixed costs borne to install fibre-based networks (**Figure 6.6**) and where *unbundling* is available³¹.

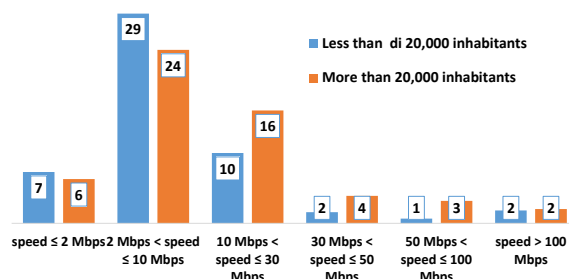


Fig. 6.6 – Internet connection speed and type of municipality (%)

The analysis shows not only that 45% of individuals do not know the Internet connection speed, but also that 2/5 of the population is not even aware of the existence of software to test its speed (**Figure 6.7**). Again, the categories reporting unawareness of such software are primarily women (51%). The younger generations are better informed: while 34% of individuals aged between 14-34 say they are not aware about the availability of software to test Internet connection speed, the percentage grows to 49% in older population.

³¹ AGCOM, 2016, *Le determinanti degli investimenti privati in infrastrutture di telecomunicazione*, www.agcom.it.

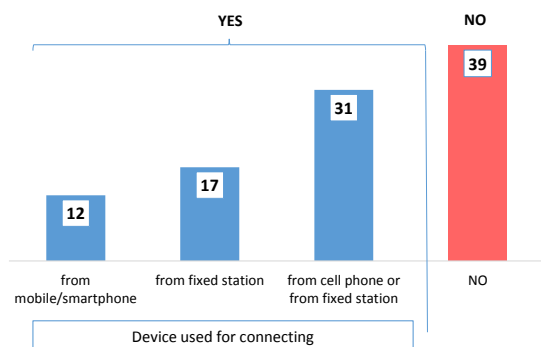


Fig. 6.7 – Knowledge of software to measure the Internet connection speed among those who said they have connected in the last 7 days (%)

Among those who said they have knowledge of software designed to test the connection speed from a fixed and/or mobile location or smartphone, 59% of people have used them. Such use is particularly considerable among men (65%) and among younger individuals (67% of Millennials) (Figure 6.8 and Figure 6.9).

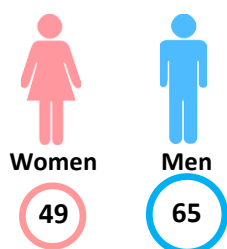


Fig. 6.8 – Users who have used the software to test Internet connection speed by gender among those who said they have connected in the last 7 days (%)

As before mentioned, the aspects related to the knowledge of the connection speed are of particular interest for the regulator. On one hand, the lack of knowledge of such important aspects can foster a sort of “indifference” of the consumer; in most cases, users avoid switching operator (which would provide a wider range of services at higher costs) because of lack of information regarding the possible benefits, and not because of the switching costs. On the other hand, the service providers might take advantage of this knowledge gap to drive users toward offers not entirely in line with consumer’s needs, hence, non-convenient.

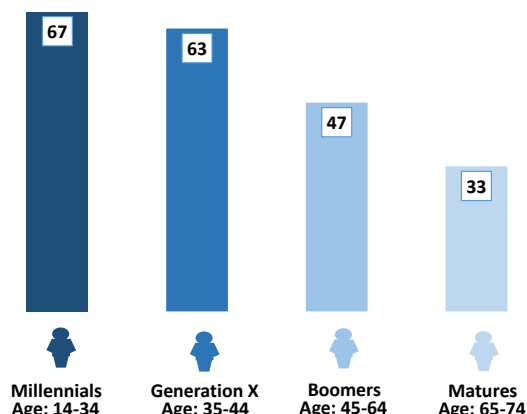


Fig. 6.9 – Users who have used the software to test Internet connection speed by age among those who said they have connected in the last 7 days (%)

Therefore, the Authority needs to control the effects of the *trade-off* between protecting the consumer and, at the same time, stimulating him through increased knowledge of the services available on the market, in order provide him with a greater ability to choose and bargaining power, which can be used choose the most convenient offers. An informed consumer is always a positive factor for the increase in market competition (see Chapter 4).

The analysis on the level of perception of greater utility connected with faster fixed Internet connections among consumers, was carried out using data on willingness to pay by consumers collected during the survey.

The willingness to pay identifies the amount of money that an individual would be willing to pay for a faster Internet connection such as, for example, an ultra-wideband³². In general, the willingness to pay depends on socio-economic, individual and psychological factors (see Detail 4). In order to benefit from faster connections, the user should be willing to pay an additional amount of money, as he would get an increased utility³³. The outcomes of the analysis on the willingness to pay are very relevant for a cost-benefit analysis of the increase connection speeds.

From the perspective of service providers, knowledge of the willingness to pay of consumers represents an important information as it can

³² By ultra-wideband connections, we mean all network technologies allowing for connectivity from 30Mbit/s to over 1Gbit s.

³³ Hanemann W.M., 1991, *Willingness to Pay and Willingness to Accept: How Much Can they differ?* The American Economic Review, 81(3), 635-647.

influence the choice of packages offered. The correct identification of the economic value that consumers attach to communications services, in particular to faster Internet connections, becomes an essential information for businesses considering that knowledge of the willingness to pay, in accordance with a certain level of product differentiation, allows companies a pricing leeway. The effect is the presence of a series of packages on the market, which typically provide voice and data services, among which the user can choose according to his preferences.

In relation to the willingness to pay to get a faster Internet connection than the one currently owned, **Figure 6.10** shows that nearly 4/5 of the individuals believe that switching to a faster connection should cost no more than 5 euro more per month. About 3% is willing to pay more than 10 euro. 10% of the individuals do not have a clear idea of their willingness to pay as they claim not to know how much more they are willing to pay for a faster connection.

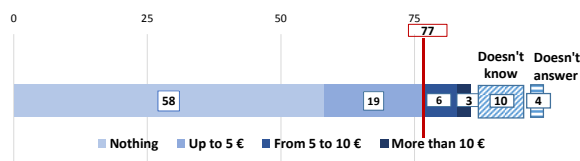


Fig. 6.10(*) – Willingness to pay to get a faster connection (%)

Consistently with what has been described in previous chapters, the willingness to pay up to a maximum of 5 euro is higher among men (22% compared to 15% of women), but the gender gap decreases as the price increases. In relation to age, in general, it is possible to note a negative correlation between age and willingness to pay; in fact, in the *Millennials*, 39% of individuals are willing to pay at least 5 euro to get a faster connection, only 11% of the *Matures* is willing to increase its monthly spending (**Figure 6.11**).

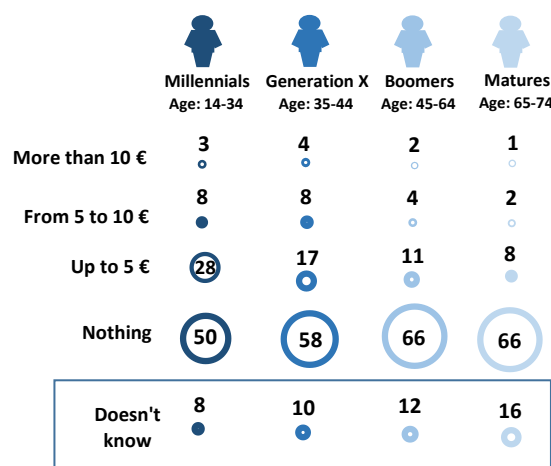


Fig. 6.11(*) – Willingness to pay to get a faster connection by age (%)

A further indication of the consumer perception about the connection speed value can be obtained by crossing two pieces of information: the current connection speed and the willingness to pay for a faster connection. In fact, access to the Internet, especially at an initial stage, is included among the so-called *experience goods*, meaning that its value can only be determined after, or during, the consumption. In this regard, it is plausible to suppose that some of the users who use faster connections, are better able to identify their benefits and, therefore, show a greater willingness to pay for an additional increase in speed.

The data seem to confirm what has just been noticed; in fact, users who have low Internet speed connection (up to 10 Mbps) are also those with the lowest propensity to increase their budget to get a faster connection. Conversely, users who already benefit from a high-speed service (over 50 Mbps) are the ones who, more than others, are more likely to spend. In fact, 61% of them is willing to pay at least 5 euro more per month: in particular, 27% of individuals would spend up to 5 euro, 15% between 5 and 10 euro and 19% would be willing to spend more than 10 euro (**Figure 6.12**).

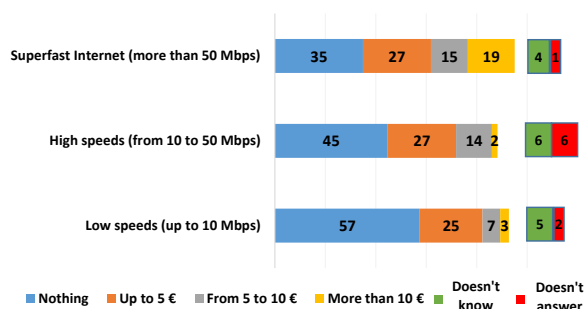


Fig. 6.12^(*) – Willingness to pay for current speed connection (%)

However, it is clear that the low willingness to pay is also visible in individuals who attach importance to the Internet access services, although it is higher among those who attribute little importance to these services (65% vs. 58%) (**Figure 6.13**).

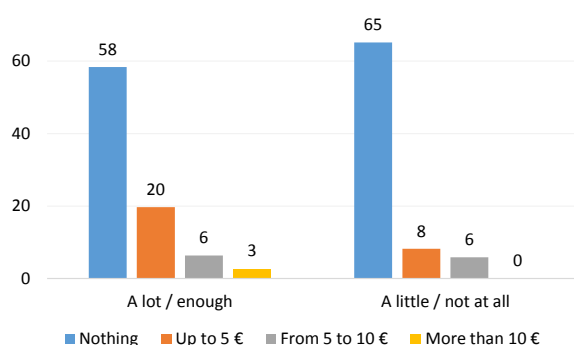


Fig. 6.13 – Willingness to pay and importance of the Internet (%)

The low willingness to pay associated with lack of knowledge of the current connection speed along with the low availability of ultra-broadband and price reduction in Italy could be indicators of poor demand. In this regard, it is noted that the British OFCOM regulator in the last international report on the communications markets shows the outcomes of a price comparison model between 2014 and 2015 - developed on Teligen information - for some communication services between different countries³⁴.

Examining the fixed broadband service and in particular network *the “lowest available pricing”* on the market that a consumer could pay for three baskets of services (>5Mbit/s, >10Mbit/s and ≥30Mbit/s), we note that Italy ranks third among

the countries with the lowest pricings. However, in four of the six countries compared, at the total level, meaning without making any distinction between the different baskets of services, the lowest price of broadband connections on fixed networks increases, whereas only in Italy (5%) and in the UK (4%) decreases.

Also comparative analysis of the mobile broadband service prices (which for some consumers can be considered an alternative to fixed broadband services), shows that Italy in 2015, as well as in 2014, reports the lowest pricing among the countries surveyed.

Considering such data, it appears that the AGCOM's regulatory activities is showing its effects on prices and therefore the attention to digital gap-related problems should be more focused on the demand. In particular, an effective measure would be the reduction of people who do not use the Internet, as well as the dissemination of knowledge and awareness of digital culture through targeted instruction for those users considered most at risk of social exclusion, such as older people. In this regard, information campaigns and/or the introduction of computer *vouchers*, at the individual or households level, can be helpful as already proven in the context of digitisation of small-medium enterprises.

In other words, the Authority believes that by supporting the demand, both through financial support policies, and through information policies, the spread of ultra-wideband will significantly be encouraged.

³⁴ The countries taken into account, for Europe, are the UK, France, Spain, Italy and Germany, and a federal state of the United States, see OFCOM *International Communications Market Report 2015*.

7. New trends

As earlier reminded, the technological development often introduces new forms and new communication tools. In this sense, we also focused on the consumer experience concerning the most recent communication tools, with particular reference to the spread of the new messaging services among the population (such as *Whatsapp* or *Messenger*), which represent an alternative to traditional voice telephony (such as calls made using Skype) and online postal services replacing the traditional ones.

In general, it is possible to observe that while the messaging services have a great popularity among the population - in fact, 63% of individuals aged between 14 and 74 said they use them - the alternative voice telephony services are very less common and only used by the 21% of individuals (Figure 7.1).

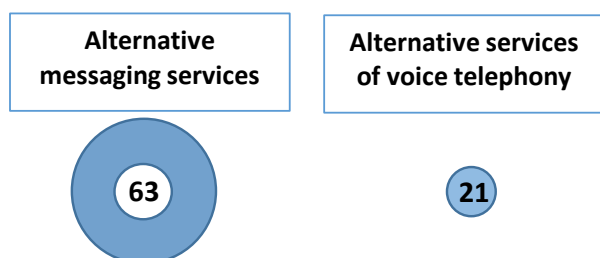


Fig. 7.1 – Spread of alternative messaging services and voice telephony (%)

Alternative services are mainly used by men, with a 7% gap between the two groups surveyed for alternative messaging services (Figure 7.2). However, the gap is linked to age rather than gender.

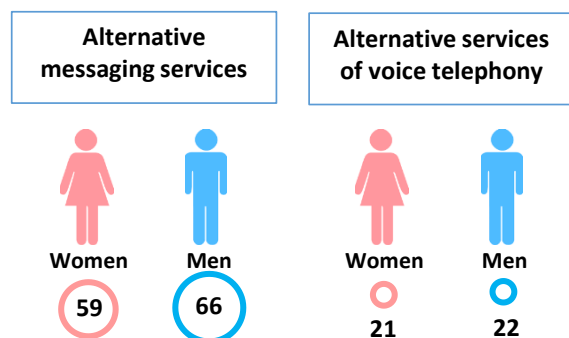


Fig. 7.2 – Spread of alternative messaging services and voice telephony by gender (%)

To better describe the phenomenon, the age group has been considered in a more unbundled way. The analysis shows that the use of these services decreases with age: in fact, if among the youngest groups the spread of new digital messaging services is quite homogeneous - 9 out of 10 users aged between 14 and 24 – among people aged over 65 the *instant messaging* is still uncommon - about 2 out of 10 users (Figure 7.3).

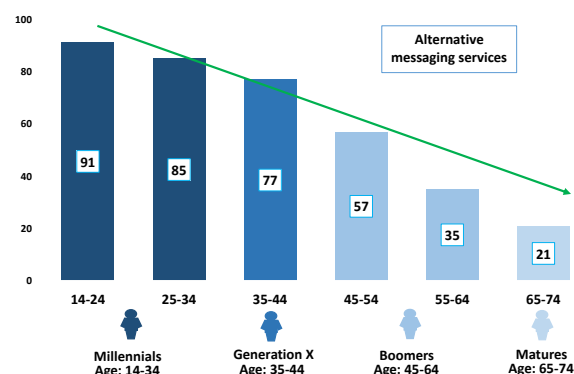


Fig. 7.3 – Spread of alternative messaging services by age (%)

A different trend applies to alternative services for voice telephony: in the age group 14 – 24, a third of individuals says to make calls via *VoIP*, while individuals aged over 55 are more inclined to traditional forms of voice call: only 1 in 10 individuals uses alternative voice telephony services (Figure 7.4).

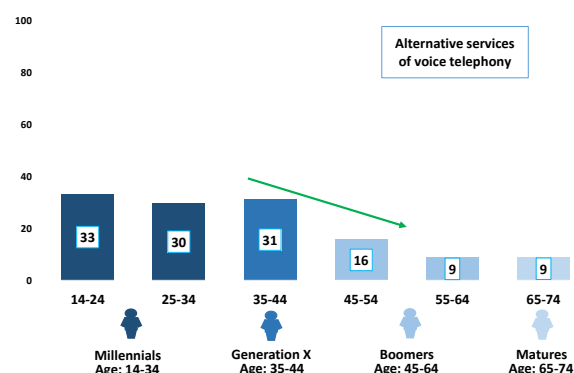


Fig. 7.4 – Spread of alternative services of voice telephony by age (%)

The percentage of people using alternative services, both messaging and voice telephony, is positively correlated with the level of the qualification. For example, among those with lower secondary education, the percentage of use of *instant messaging* services is 43%, whereas the use of voice telephony services is 10%; these percentages rise to 77% for the messaging services and 38% for alternative voice telephony services among those who have at least a degree.

Analysing the changes in the use of alternative services over the past twelve months, it is possible to collect information that partially explain what previously stated about the spread of alternative communication services replacing the traditional ones. Specifically, it is possible to detect an increase in the use of alternative messaging services. In fact, about 40% of individuals stated they had increased the use of alternative messaging services in the last year (**Figure 7.5**); this increase is particularly marked for the age group 35-44 years (48%).

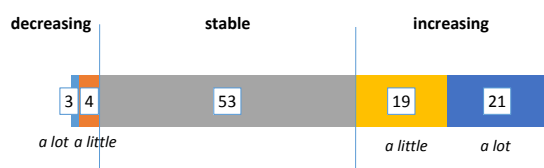


Fig. 7.5 – Changes in the use of alternative messaging services in the last 12 months (%)

For just over half of the individuals no change in the last year has been reported; considering that these services are already widespread (see. **Figure 7.1**) we can say that instant messaging already plays a crucial role among modern forms of communication.

As for the alternative voice telephony services (**Figure 7.6**), 34% reports a reduction in their use and interestingly such decrease was more pronounced in the younger age groups (14-24) where 45% of young people reports a reduction in the use of alternative services of voice telephony in the last 12 months.

In this scenario, it should be noted that the differences in the use of new forms of communication, although depending on different factors, could be attributed in particular to the different degree of maturity of services, their simple use, and the fact that such forms of

communication are much more common among young people as they tend to prefer messaging over voice telephony.

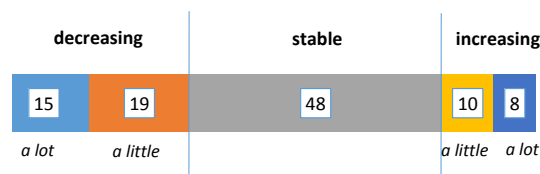


Fig. 7.6 – Changes in the use of alternative voice telephony services in the last 12 months (%)

As for postal services sector, the advent of the Internet and the subsequent free communication (e-mail) has seriously reshaped the sector; in particular, traditional mail service (letters, postcards, etc.) has been strongly affected by this change, while the delivery sector is characterised by a higher level of competition compared to the exclusivity of the traditional services.

A fifth of the individuals said to have reduced, over the last year, the use of traditional mail services. The e-mail (70%) or certified mail (20%) and social networks (18) represent the communication tools that have replaced the sending of letters, postcards and parcels. The number of individuals who said they have not used any form of alternative communications is still relevant; therefore, the process of replacement of traditional postal services is real but, rather than being an ongoing process of introduction of new services, it seems to be an outright reduction in the use of traditional services (**Figure 7.7**).

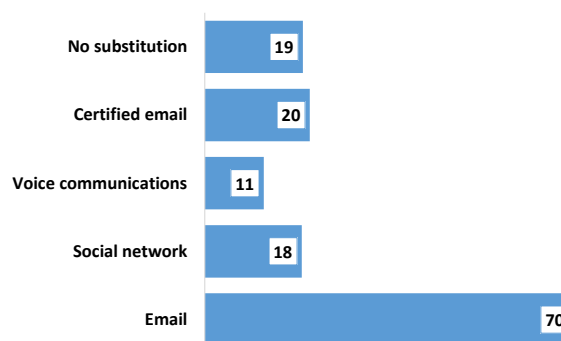


Fig. 7.7 – Alternative forms of traditional postal services among those who have reduced the use of traditional postal services (%)

The differences among alternative forms of communication, for those who have declared to replace traditional postal services with innovative services, can vary depending on the age. In fact,

email is the most widely used tool by individuals in the middle-age groups (87% of *Generation X*), while social networks are mainly used by the younger generations.

The use of any type of digitalised or online postal service is still uncommon; in fact, only 16% of the population states to use them (**Figure 7.8**). This type of service is primarily used by men (19%) and individuals belonging to *Generation X* (24%).

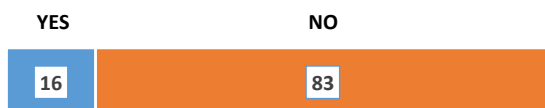


Fig. 7.8 –Use of online postal services (%)

8. Conclusions

Understanding the needs of consumers is one of the most interesting aspects for both the regulator and for stakeholders (businesses, associations, international, national and local institutions). The report painted a picture of the Italian experience in the consumption of communications services - fixed/mobile telecommunications and postal services - with particular attention to the use of the most modern tools, including the use of services today available thanks to the Internet.

Owning a device is the prerequisite for the use of communications services: the analysis shows the wide penetration among individuals of a smartphone and/or mobile phone (94%) and that about 30% of individuals has three devices allowing access to the mobile network (smartphones, tablets and laptops). However, as for the Internet, we report the existence of a digital exclusion issue caused by the presence of several factors, including the generation gap. In fact, while in the older class of the population, only a third of individuals accesses the Internet, more than nine out of ten young individuals access it (see. Chapter 1).

As reported, the technological evolution and the gradual liberalisation of regulated markets - first of telecommunications (fixed and mobile) and, more recently, of the postal services - have fostered competition and economic growth, through diversification of the offers by operators and innovation of products which have ensured a continuous and steady decline in the benefit of consumers prices over time (see. Chapter 2). In particular, product innovation in the telecommunications sector, is pushing operators to introduce new account management tools for the consumer (such as apps), supported by the Authority as long as they do not disadvantage those groups of users unaccustomed to the use of new tools or services. Product innovation is supposed to benefit the consumers, not penalise those generations who cannot keep up (the so-called *Matures*).

As for the services purchasing methods, it is shown that over 60% of users choose to subscribe bundle services including voice or data services. It also points out that over 70% of *Matures* keeps the phone line (fixed and/or mobile) without purchasing Internet access, a similar trend is clear at the gender level, where it is found that women, regardless of their age, prefer subscriptions providing voice services only.

The welfare is an indicator of consumer benefits; in this report, the degree of satisfaction with the various services among individuals has been the tool used to assess the level of welfare. Overall, the analysis shows a good level of satisfaction among the Italian consumers. In fact, over 80% of people say they are satisfied with all the services analysed, and the percentage even reaches 91% in the case of online postal services. The satisfaction of consumers also partially stems from the different use of communication services and, therefore, from the mismatch between expectations and consumer experience. For example, for young people the use of online postal services may be easier and more convenient, in terms of time, in comparison with the idea of having to go to the post office; conversely, older people are less familiar with innovative services requiring special skills.

As far as fixed and mobile telephony are concerned, the results about the level of satisfaction may be considered as indicators of proper functioning of communication markets, where services are offered to the public at a fair quality/price (see Chapter 4 and Chapter 5). This outcome is also proven by the fact that nearly 90% of those who are satisfied with their service provider has not changed provider.

As for switching to another service provider, the main actions taken by AGCOM focus on the establishment of clear and transparent rules to allow quick switching without incurring in undue costs. In this way, the migration depends on a number of factors attributable to individual users. Among those who have switched operators, the

data suggest that in addition to the economic factor, called into question by nearly 70% of consumers, there are also other factors to be considered, such as the presence of inefficiencies or inclination towards more suitable services, reported by about a quarter of the users.

Both for fixed and mobile network services, men are more likely to switch operator than women (15% men vs. 9% women): this difference seems to be related to a number of factors such as those related the propensity to use the technologies. As for the age, the greater propensity to change operator is reported among individuals belonging to the younger age groups (14-34 years old).

The results also show a number of critical issues that require a continuous and careful monitoring activity and regulatory enforcement by the Authority both for the supply (not taken into account in this report) and for the demand.

In particular, this report shows the importance of limiting some distorting effects ("market failures") generated by the presence of information asymmetries between consumers and service providers. The presence of incomplete or inaccurate information, especially on particularly complex issues, from the technical (e.g. network access methods) and economic (e.g. the difficulties of comparing commercial alternatives) point of view, is likely to negatively affect the decisions made by consumers and to reduce the efficiency of market transactions.

For instance, in Italy, as well as in much of Europe, 45% of users do not know their Internet connection speed; however, such lack of information decreases with higher educational qualifications and it is much lower among the youngest. This result proves that lack of knowledge and lack of information are often interrelated. Quite surprisingly, about 40% of users are not aware of any software that can be used to test the connection speed, and over 50% of users is not willing to pay extra money to get a faster connection (Chapter 6).

Therefore, an informed consumer is a crucial condition for the proper functioning of markets, but it is not sufficient. In fact, in a situation of poor skills, the information, especially if complex, as in the case of products and technology services, may be insufficient to steer consumer choices effectively. Moreover, lacking knowledge, the negative effect of asymmetric information is amplified, with subsequent reduction in social welfare.

Hence, it is necessary to disseminate available and clear information among consumers, which represent the weakest economic agents.

In this framework, AGCOM has and will continue to take action on two fronts: information transparency and simplification of the information offered to the public. The first front includes actions aimed at making contract terms transparent, like the recent promotion of the so-called bill 2.0, containing more clear and comprehensive information, both for fixed and mobile post-paid and prepaid services³⁵. The Authority shall also ensure that the price reduction will fully benefit consumers by monitoring that operators are not encouraged to introduce unclear options leading to additional costs for consumers. The second front, includes measures such as those aimed at enabling price comparison (through browsers able to simplify search, comparison and choice of the service), as well as assessing the technical conditions of Internet access services.

In this regard, an active role must be carried out by consumer associations, which by their nature are to be able to disseminate as much as useful information to guide consumers in their choices.

Problems related to asymmetric information and expertise are amplified in our country due to the peculiar demographic structure as well as the general poor level of technical and technological knowledge reached by the Italian population.

In fact, Italy, compared to other European countries, has a higher incidence of mature age

³⁵ See Agcom, 2016, annual report on its activities and on the work programs, www.agcom.it.

groups (**Figure 8.1**). The population up the age of 29, meaning that part of the population more inclined to use information technologies and services related as evidenced by the results (see Chapter 2), only covers the 29% of the entire Italian population: the lowest percentage among the countries surveyed and 8% lower compared to the European average (37%). Conversely, looking at over sixty-five segment, the Italian percentage (21.7%) was the highest and almost 3% higher compared to the European average (18.8%).

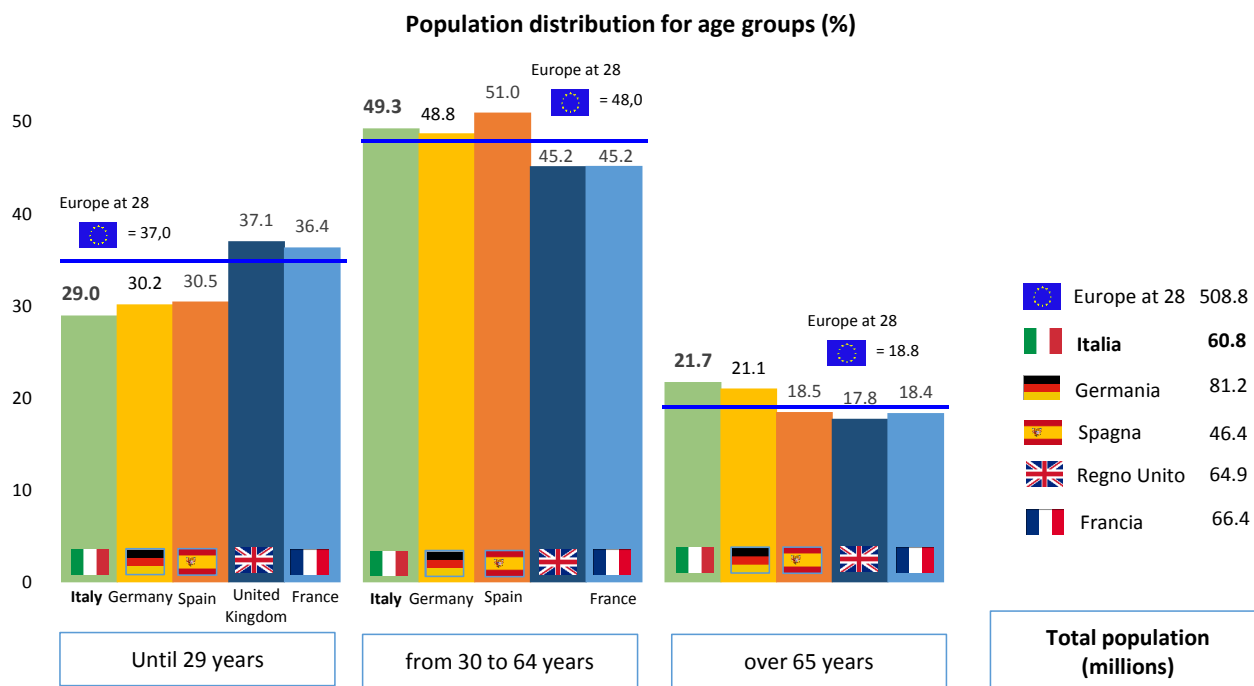
Taking into account not only the percentage of the generational diversities but also their absolute value, which provides guidance on the size of the "potential market" of those benefiting from services related to information technology, the

picture becomes more complicated. In fact, the major European countries are not homogeneous with regard to both the total population and the relative distribution into age groups³⁶.

Ultimately, it is observed that if the Italian population had the same average age structure as the other countries analysed, we would get a higher penetration of broadband services by about 2-3 % compared to the current situation (**Figure 8.2**). However, if the structure of the population was the same as the one of UK, the penetration rate would be even greater and higher than 5%, approaching the 60% which is still much lower than the European average (72%) and the British one (85%).

³⁶ In absolute terms, the weight of the younger segment of the population (up to the age of 29) in Italy is considerably less significant than that of older age groups (over-65). For example, the Italian population (60.8 million) is almost equal to 75% of that of Germany (81.2 million), but the difference of more than 20 million individuals, about 33%, involves age groups younger than 29 years old - 6.9 million people more for Germany. In the case of the comparison with Spain (total population of 46.4 million), which has about 14.4 million

inhabitants less than Italy, only 23% of this difference, equal to 3.45 million individuals, involves young people, compared to 32% (or 4.63 million individuals) in the population over the age of 65. As for the comparison with France and the UK, in particular, in Italy there are about 6.5 million young people less, but in spite of the smaller population, the elderly are much more (by about 1 million compared to France and 1.7 million compared to the UK).



Differences in absolute terms between the age classes in Italy and in other countries (millions of people)

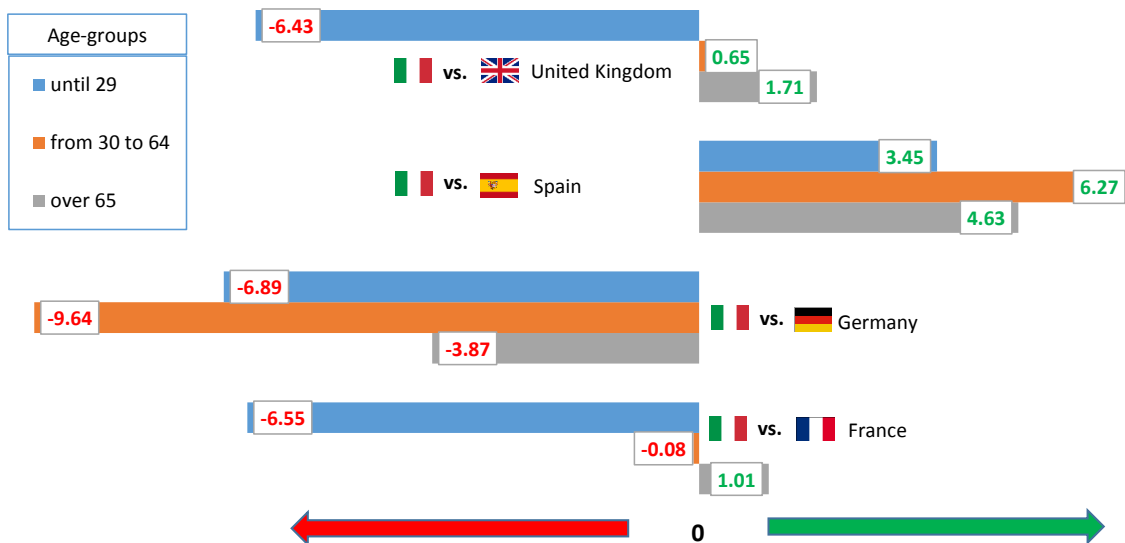


Fig. 8.1 – Population structure by age (2015)

Source: AGCOM processing on European Commission data

Therefore, the different population structure only partially explains the gap with Europe in the spread of broadband and ultra-broadband (**Figure 8.2**) and the delay in the adoption of the services available via (ultra) broadband connections, including the ability to shop online (e-commerce), communication with the public administration (e-government), access to certain healthcare services (e-health), education and training (e-education), with consequences in terms of social inclusion and civic participation.

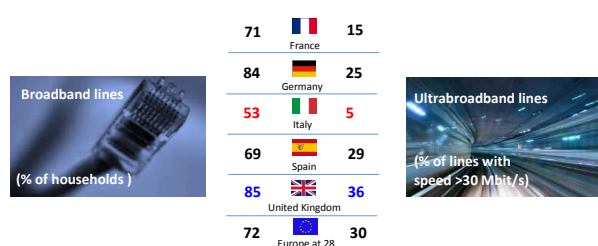


Fig. 8.2 – Spread of broadband and ultra-broadband (2015)

Source: AGCOM processing on Digital economy and society index data (DESI)

Firstly, the comparison with other European countries shows a delay in the level of education in Italy, in particular concerning university (with an index value of 56 against the European value of 100; **Figure 8.3**). Secondly, when taking into account the age group 55-74, considering the increased incidence of this age group in Italy, the negative effects on the spread of "digital culture" tend to expand (the index value drops to 52). Finally, with regard to the dissemination of technical knowledge among the age group 20-29, only 14 individuals in 1000 in Italy have a diploma or a degree in science, against a European average of 18 in 1000 and 23 in 1000 in France and the UK (**Figure 8.3**).

As shown in the report, features related to education, and more generally to knowledge, generate a significant impact on the spread of "digital culture": given the same age group, a higher level of education (in particular technical) increases the likelihood of being a regular web user.

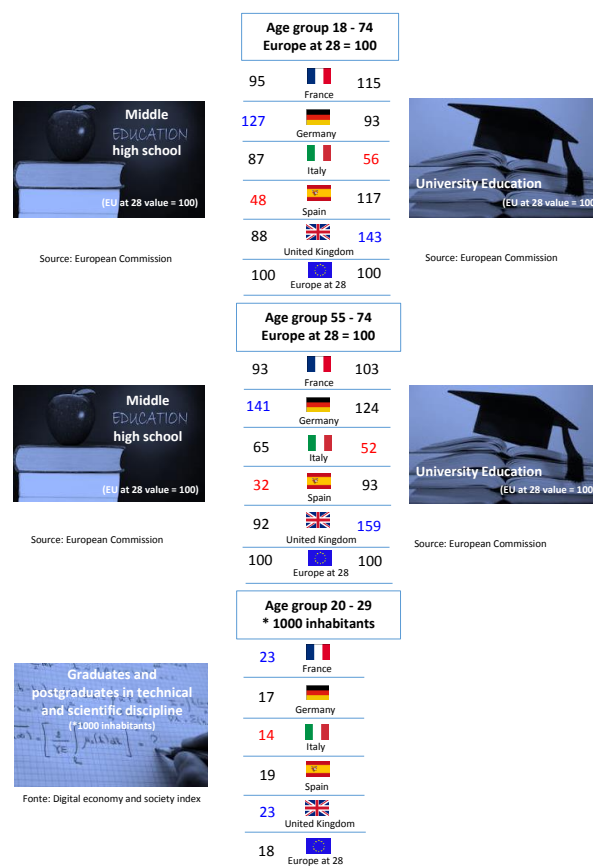


Fig. 8.3 – Cultural and professional skills (2015)

Source: AGCOM data processing

A spread of skills is possible when consumers, as shown in Chapter 3, identify the Internet as an essential tool to communicate. In fact, over 90% of individuals considers the network access as indispensable, regardless of the age. In this regard, it is interesting to note that 88% of Matures, although less inclined to use the Internet, still recognises its importance. In this scenario, a code of conduct involving both operators and consumer groups - as defined by Article. 83, paragraph 2 of the Electronic Communication - could further encourage the spread of the Internet also among this category of users.

In this sense, also at European level, there is a very strong debate on whether to include the "fast" Internet as part of the universal service, meaning a minimum set of communication services ensuring social inclusion to citizens. On one hand, the importance of such services (see Chapter 3), makes them essential for the pursuit of public welfare goals. On the other hand, it is important to emphasize that such actions, if not

consistent with the evolution of the competitive structure, could lead to distortions in the functioning of the free market. The Authority is therefore trying to evaluate whether and how to include the broadband in the context of the universal services.

Besides the essentiality, an additional criterion to consider is the accessibility, in terms of price, to these broadband services. In this regard, the protection of the most vulnerable groups, meaning those who are in economic (in terms of absolute and relative poverty) and physical (people with disabilities) hardship, is a fundamental element in the regulatory policies to ensure social inclusion.

In view of the fact that, as demonstrated in this report, the lack of knowledge and familiarity with the technological tools prevents the consumer from joining this world, the Authority is in favour of supporting the regulatory activity, aimed at ensuring transparent information, with the creation of public social policies.

Such policies are likely to support the spread of broadband and ultra-broadband networks use through the distribution of computer voucher to the neediest Italian families. In a period of economic downturn, this measure could be a valid and immediate support to the spread of digital culture in Italy. The Authority is willing to define methodologies and criteria for the economic definition of vouchers and to evaluate the potential beneficiaries.

This analysis also highlights the need to implement a set of medium/long-term initiatives. In particular, these policies should aim at increasing the level of computer literacy, to ensure that even older segments of the population are able to reap the economic and social benefits of the web. In addition, these initiatives could lead to greater awareness, especially in younger cohorts, about the use of digital platforms and social sharing services. Ultimately, the Authority calls for the collaboration with other institutions responsible for the promotion of an ongoing culture and digital skills education program.

Once obstacles related to knowledge have been overcome, a real "virtuous circle" where the use of the Internet "feeds on itself" begins, contributing to the Italian economic and social development.

Methodological Appendix

The results presented in this report are based on a research project³⁷ carried out with some Italian Universities and in particular on a sample survey designed to identify the use and consumption of different communication services by individuals (fixed and mobile telecommunications, Internet services, postal services).

The survey has been conducted by the IZI Company - *Methods, analysis and economic evaluation* of a sample of about 3.000 Italian citizens aged between 14 and 74. The collected data have been subsequently processed in order to get a representative sample of the Italian population by age, gender and geographic area.

The sample survey on the use and consumption of digital communication services by individuals, has undergone data validation processes with the official Italian sources and, where necessary, a re-weighting procedure.

The following methodological note represents the choices made to define the survey methodology, the sample design, the administering of questionnaires, the estimates as well as the evaluation of the level of reliability of the estimates.

Sampling plan

The population taken into account in the survey encompasses people aged between 14 and 74 (approximately 46 million 150 thousand units) on the Italian territory. Considering that the consumption habits and use of communication services by teenagers play a crucial role in the reconstruction of consumer profiles in Italy, also underage individuals were included in the survey³⁸.

The units of analysis are represented by individuals aged 14-74, while the units of survey are represented by families, or rather the family

member who has been chosen to respond to the survey.

The plan of the sample design considered the sources of variation that are more likely to determine the diversification of the phenomena, in order to maximize the efficiency of the estimates. Under this assumption, the design included a non-probabilistic sample with the prior definition of the units - according to an appropriate stratification of the population - and takes on the ex-ante planning of the surveyed categories. The choice of non-probabilistic sample, frequently made in the surveys to families, has been explained by the lack of availability of the lists of the Italian population, stratified according to the characteristics required by the sample design. About 3000 units have been included in the sample.

The sampling plan, as previously mentioned, has assumed the ex-ante planning of the surveyed categories³⁹, identified as aggregations of elementary strata, defining the sample size, bound to the default size of the sample, in order to ensure a predetermined level of reliability of the estimates in the category. The ex-ante planning of analysed categories allows a proper inclusion of little segments of the population, which, in the case of a proportional design, would not be represented with the necessary reliability.

From an operation perspective, this procedure has used the appropriate allocation techniques in the strata of a fixed sample size. The planning of the surveyed categories is configured as a sample allocation problem in the strata, considering the constraint on the reliability of the estimates. The allocation problem has been solved by using a specific procedure to ensure the homogeneity of sampling errors among categories. Allocation is also taken into account in the estimates and construction of the weighting factor, which

³⁷ The project Services and Content for the Next Generation Networks (*Screen*), is one of the AGCOM research on issues related to economic, technical and socio-legal aspects of next generation networks, with particular emphasis on issues related to services, content and applications accessible via the new networks.

³⁸ This choice is necessarily compares with the requirements of the protection of children as a sensitive and protected category in the

Italian legal system. Hence the need to obtain informed consent from the parent or adult who exercises parental authority before the interview procedures with the underage person.

³⁹ The analysed categories are specific subpopulations of interest for where the aim is to obtain a predetermined level of reliability of the generated estimates.

allowed to adjust the sample to the distribution observed in the reference population.

The surveyed categories are defined by geographical area (region of residence), by age group, by gender and by the size of municipality of residence, assuming that these elements allow recovering part of the variability of the data analysed.

The layering has been defined by the nesting of the categories surveyed. The definition of the strata, the categories and the partitioning of the variables considered in the project has been based on the study of the reference population.

Below are the methods used in the stratification and planning of the surveyed categories:

- Geographical distribution (Northwest, Northeast, Centre, South and Islands)
- Age groups (14-34, 35-54, 55-74)
- Gender (male, female)
- Size of the municipality of residence (metropolitan cities, municipalities with a population greater than 20,000 inhabitants - excluding metropolitan cities, municipalities with populations of less than 20,000 inhabitants)

Pilot survey

The pilot survey, conducted in order to verify the installation of data collection tools and the quality of the sampling scheme, was completed in the first week of September, after 104 telephone interviews. Overall, the pilot survey was successful, confirming the substantial functionality of data collection tools, considering both telephone and web modalities.

The initial questionnaire was only minimally adjusted without any structural change. For example, to prevent the results from being affected by the season (e.g. August), resulting in a clear distortion and a lack of reliability of the data collected as many people go on holiday, altering the typical consumption habits.

In telephone surveys the effectiveness and pertinence of the questionnaire has been confirmed by the generally positive assessment of the questionnaires distribution trends by operators in charge of conducting the surveys.

Overall, the assessment of the availability of the individual contacted was positive: 88 cases out of 104. In 13 cases, the trend was unstable and in only 3 cases interviewee's availability was overall has been classified as poor by the assessment personnel.

The survey

The survey was conducted with CATI (*Computer Assisted Telephone Interviewing*) and CAWI (*Computer Assisted Web Interviewing*) methods on the extracted units. Specifically, 1.600 individual have been contacted by fixed network call, 1.399 responded to the survey via the web.

The combination of survey tools enables the representation, through the introduction of CAWI interviews, of a population including young families and individuals who do not have a fixed network or social categories not likely to answer the phone at home in working hours, and another population represented by fixed network habitual users (including especially women and elderly people in residential areas). In this way the two potential distortions inherent in CATI and CAWI methods, mutually moderates and, potentially, rebalance. The adoption of a mixed method, *telephone + web* is confirmed as the most operationally correct solution to deal with the generational mismatch in the use of technologies for interpersonal communication.

The contact data was edited to highlight the nature of the survey, which has institutional knowledge purposes, the enable Authority to understand how the company is evolving in the use of technology in communication. The communication method has been aimed at reducing the total number of non-response, thus limiting estimates distortion issues due to self-selection of the sample of respondents.

The monitoring of the field phase included a periodic check of completed questionnaires according to layering and allowed to guide the missing interviews in the allocation of the sample. The interviews were conducted between September and December 2015.

Estimates

The sample of respondents obtained at the end of the survey and of the phase of verification and data normalization has been complemented with an estimator, a weighting coefficient able to connect the results of the detection to the reference population.

The construction of the estimator envisaged the use of calibration techniques, particularly powerful to both allow the sample to reconstruct the profile of the population which is reported, and to correct any distortion phenomena on the sample of respondents induced by the non-random trends of total non-response.

The implementation of the estimation strategy has therefore envisaged the use of indirect estimators using auxiliary information related with the surveyed variables. In particular, the calibration weighting estimator has been used⁴⁰. This methodology, based on model-assisted estimators⁴¹, enable to bind the sample to the structure of the reference population used in the stratification phase. Being a non-probability sample, the calibration procedure has not assumed the existence of an initial weight, but it is totally entrusted to the model estimates, forcing the estimator to respect of the number and the structure of the reference population.

Therefore, the model-assisted estimators approach allowed the development of calibration estimators based on a series of additional information (in this specific case it refers, in addition to the information adopted as the stratification variables, the level of education of individuals, the employment status and the profession). In addition to using the information of the additional variables reducing the sampling variance, such class of estimators has a number of properties including the calibration, according to which the total estimates of the auxiliary variables are equal to the totals known in the population. In this way, it is possible to calibrate the estimated population compared to the known totals derived

from the reference population, classified according to specific characteristics.

The reference aggregates, used as total known from the calibration procedure, were taken from Istat structural statistics on families⁴².

The auxiliary information used in the calibration estimator development are:

- Geographical distribution (Northwest, Northeast, Centre, South and Islands)
- Age groups (14-34, 35-54, 55-74)
- Gender (male, female)
- Size of the municipality of residence (metropolitan cities, municipalities with a population exceeding 20,000 inhabitants - excluding metropolitan cities, municipalities with populations of less than 20,000 inhabitants)
- Educational qualification (lower secondary school, 3-year Certificate, upper secondary school, University diploma/Degree)
- Employment (Employed, Jobseekers, Students, Homemakers, Retired, Other inactive)
- Occupation: (None, Manager/Directors, Employee, Workman and similar, Entrepreneur, Professional, Other independent)

The calibration plan was structured by imposing the respect of nested constraints and checking that the partitions did not contain an insufficient number of sample units risking an excess of variance of the estimates.

The estimator obtained, applied as a multiplying coefficient to the sample unit, allows to generate estimates of the reference population so that the aggregates relating to each nesting reported in the calibration plan coincide with the corresponding total known derived from ISTAT structural statistics on families. The size of the municipalities, despite being used as a stratification variable, is not included the surveyed categories. However, it is believed that this characteristic is strongly correlated with the

⁴⁰ Deville J.C., Särndal C.E., 1992, *Calibration Estimators in Survey Sampling*, in Journal of the American Statistical Association, vol. 87.

⁴¹ Dorfman A.H., Royall R.M., Valliant R., 2000, *Finite Population Sampling and Inference: a Prediction Approach*, New York, John Wiley & Sons.

⁴² The data source used is the Istat labour force survey.

attitude of the population towards the new technologies: the constraint imposed in the calibration procedure allows reducing any element of distortion of the estimates. Additional calibration constraints, related to features not included in the survey (in order not to complicate the stratification diagram) have also been used. These characteristics (level of education, employment status and occupation) have had a great impact in connecting the sample to the target population through the calibration procedure. In particular, the procedure has allowed adjusting the asymmetry of non-response compared to additional variables to those considered in the sampling design, in order to considerably reduce the distortion of the estimates.

Evaluation of the estimates reliability

Like any sampling survey, the estimates provided are subject to sampling error. The procedure for the calculation of the error associated with the sample estimates produced is based on the typical techniques arising from the choice of the proposed estimator. Specifically, the key property of the calibration estimators is the asymptotic convergence to the generalised regression estimator. Thanks to this property, it is possible to use all known analytical results for the generalised regression estimator, among which there is the analytical form of the variance of the generalised regression estimator that can be used to calculate the error of the estimates generated by the calibration weighting estimator⁴³.

The reliability of estimates is measured through the coefficient of variation, $CV(p)$ related to a general estimate of a relative p frequency in the population. Through the variation coefficient, the 95% confidence intervals were constructed.

Given the small sample size, the results obtained from the evaluation of the reliability of the estimates suggest the production of estimates only referred to the planned categories, geographical area, age group and gender, with a known level of confidence.

⁴³ Deville J.C., Särndal C.E., *ibidem*.