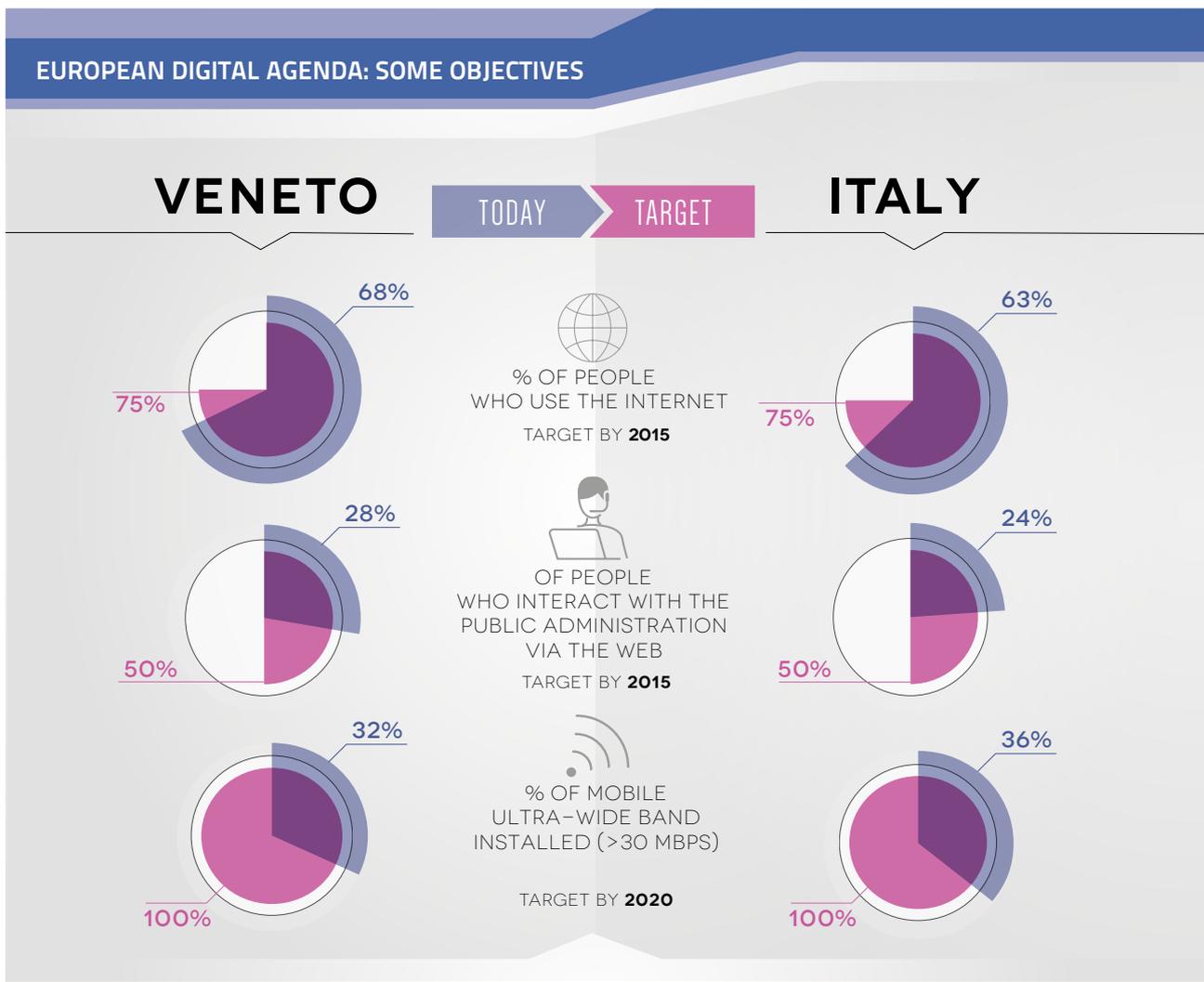


Cap.9 – Tuning to the digital network

The enhancement of new technologies represents a large opportunity for social and economic growth. In this regards, the European Digital Agenda sets a series of strategic objectives in order to favour investments in digital infrastructure, to improve the life quality of the people, to maintain competitiveness of businesses and to increase the efficiency level of the digital public services.

In a European overview, Italy is one of the countries with the lowest digital performance, with a certain lateness in terms of development of the network and a lack of digital literacy of citizens and the companies. Just like Italy, Veneto has not reached the European benchmark yet; however, the region does show higher performance than the national average and is accelerating to close up the remaining gap: over 398 million euros of public investments for the extension of the ultra-wide band in order to create a network infrastructure which is "future-proof".





Italy is still behind

Italy finds itself among the last, with a ranking of 0.49, in 25th place in the table out of the 28 countries in the EU, ahead only of Bulgaria, Greece (0.37) and Romania (0.35).

Considering not only the reached level of digital development but also the speed with which each country is growing, the European Commission pinpoints 4 different situations. Among the countries with the best digital performance, it recognizes those "early", that is to say which continue to grow at a higher speed than the average, and which see how much their gap from the others is increasing, and those who "remain ahead" although they are progressing less.

Thus, in the lower part of the ranking, you can see the countries which are digitally late but are "recovering", which means they are growing at a faster rate than the average, but side by side with those which "remain behind", still demonstrating a low commitment in digital development.

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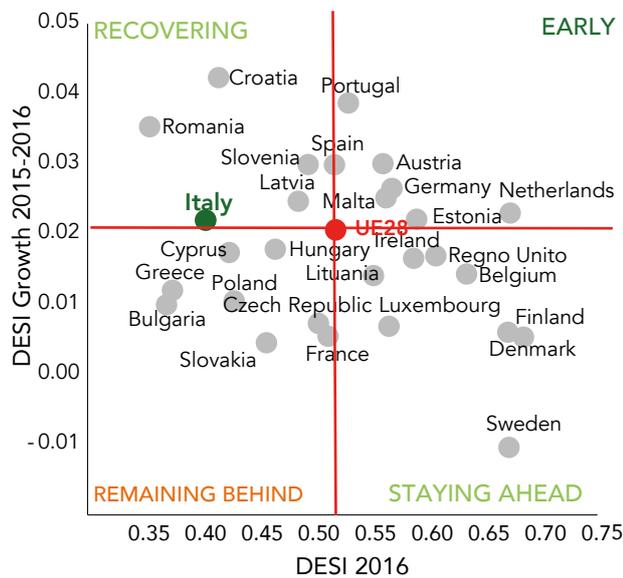
...but it is one of the countries recovering

Italy is part of the group of countries which are recovering: even though its performance is still lower than that of the European Union as a whole, in the past year there has been a marked progression which slightly tops the EU28 average.

But it still isn't enough, so that even though there has been an improvement in the DESI score, overall it slipped down a place in the ranking compared to last year. If we look at the single breakdown⁵, it maintained the same position concerning the coverage of the infrastructure (27th place), and the use of network among businesses (20th), whilst it lost places in the "use of the internet", slipping into last place, since there is still a limited amount of people which proves to be able to fully take advantage of the opportunities offered by the services online, diversifying their activity in the web. Worsening, but only slightly, is the digital Public Administration, even though it remains the most advanced sector (17th place). The only advancement is in the "human resources", managing to bring a larger percentage of people to the network.

The performance of Italy is lower than that of the group of countries to which it belongs (countries under recovery), which overall has a DESI of 0.45 and an increase by 0.04 points as opposed to 2015, whilst Italy's increase was only of 0.2 points.

Fig. 9.1.2 – Digital Economy and Society Index (DESI): synthetic indicator of digital performance of countries. EU28 – Year 2016 and 2012-2016 variation (*)



(*)The synthetic indicator DESI takes values between 0 and 1: the higher is the score and the better the digital performance of the country. The 2015 DESI was re-calculated by the European Commission to take into account the updates and corrections. Source: Veneto Region Processing - Regional Statistics System on European Commission data

Veneto's digital profile

Also at the regional level the digital development of the country seems to be fragmented and non-consistent. The 2015 DESI calculated for every region, aiming to use, as much as possible, the same method used by the European Commission⁶, as well as mapping out the digital presence of each region, provides a referral to measure the impacts of the regional Digital Agendas. It highlights, straight away, a net gap between the Centre-North, which generally have higher levels than the national average, and the South, which is still behind in terms of digitalization, even in spite of certain exceptions such as the high level of infrastructural coverage in Campania and Calabria.

⁵ The synthetic indicator DESI and its breakdown can take values between 0 and 1: the higher is the score and the better the digital performance of the country.

⁶ Tim – Telecom Italia. Italian Connessa. Agende digitali regionali 2015. December 2015.



Tab. 9.1.2 - Objectives of the European Digital Agenda : progress made. Veneto, Italy and EU28 – Years 2014 and 2015

| Objectives to achieve | by | Veneto | | Italy | | UE28 | |
|---|----|--------|--------|--------|--------|--------|--------|
| | | 2014 | 2015 | 2014 | 2015 | 2014 | 2015 |
| Fast broadband | | | | | | | |
| <i>Fast broadband</i> broadband coverage of at least 30 Mbps for 100% of citizens | | 16 | 33 | 21 (b) | 36 (c) | 62 (b) | 68 (c) |
| <i>Ultra-fast broadband</i> subscription to services with a speed higher than 100 Mbps for at least 50% of domestic users | | n.d. | n.d. | 0 (b) | 0 (c) | 5 (b) | 9 (c) |
| Digital inclusion 2015 | | | | | | | |
| <i>Regular use of the Internet</i> by at least 75% of the population | | 61 | 68 | 59 | 63 | 75 | 76 |
| <i>Internet use by disadvantaged groups</i> by at least 60% of the disadvantaged population (d) | | 45 (b) | 47 (c) | 47 | 52 | 60 | 63 |
| <i>Digital divide</i> reduction in the number of people who have never used internet to 15% of the population | | 30 | 24 | 32 | 28 | 18 | 16 |
| Single digital market 2015 | | | | | | | |
| <i>E-commerce for citizens</i> online purchases for at least 50% of the population | | 26 | 30 | 22 | 26 | 50 | 53 |
| <i>E-commerce for citizens</i> abroad online purchases for at least 20% of the population | | 10 (b) | 13 (c) | 10 | 12 | 18 | 20 |
| <i>E-commerce for businesses online</i> purchases worth more than 1% of the total purchases for at least 33% of the SME's | | n.d. | 20 (c) | 20 | 20 | 22 | 23 |
| <i>E-commerce for businesses online</i> sales worth more than 1% of the total sales for at least 33% of the SME's | | n.d. | 5 (c) | 5 | 7 | 15 | 17 |
| Public services 2015 | | | | | | | |
| <i>E-government</i> use of e-government by at least 50% of the population | | 25 | 28 | 23 | 24 | 47 | 46 |
| <i>E-government filled-in forms</i> online return of Public Administration forms for at least 25% of the population | | 12 | 14 | 11 | 12 | 26 | 26 |

(a) For Italy and the EU the coverage was calculated based on families. For Veneto these are buildings reached by FTTN, FTTH, FTTB and FTTDP.

(b) Year 2013

(c) Year 2014

(d) People who find themselves in at least one of the following conditions: 55-74 years old, low level of education, unemployed, retired or inactive.

n.d. = not available

The figures in green are objectives already achieved

Source: Veneto Region Processing - Regional Statistics System on European Commission, Eurostat, Infratel and Istat data



As far as the development of digital infrastructure is concerned, attention is turned to the high-speed and ultra high-speed broadband. The European Digital Agenda has set two ambitious objectives for 2020: make sure that all European citizens have access to connections higher than 30 Megabites/second (Mbps), and that at least 50% of European families have a subscription to services with a connection speed higher than 100 Mbps.

In this regard, Veneto, as Italy in general, is very far behind compared to Europe. The national plan "Italian Strategy for "ultra-wide band" adopted by the government in March 2015, with a public investment in the coming years of around 6 billion euros, aims to close up the gap and to develop an ultra-wide band network infrastructure across the whole nation, reaching the objectives of the European Digital Agenda. Besides the public investments aimed to the "market bankrupt" areas, that is to say areas where the telecommunication operators haven't any interest in intervening, there are resources and development industrial plans by private operators for the extension of the high-speed broadband in the most attractive areas, where higher is the possible demand and thus the economic return. In the following paragraphs we will follow in more detail the objectives set by the EU and outline which has been the digital path of Veneto and what the prospects are for the future.

9.2 Chasing High Speed Veneto's digital infrastructure

Veneto's digital infrastructure⁴

In the last 5 years the Veneto Region, has took active part in the digital infrastructure programme according to what set by the European Digital Agenda, by implementing the "Guidelines for Veneto⁵ Digital Agenda", which aim to cancel the digital divide and enhance the connectivity services in line with the European and national objectives. In this path, programmes and plans concerning broadband (up to 20Mbps), public Wi-Fi and recently ultra-wide broadband (up to 30Mbps) came in succession, besides to the themes of digital culture spread among citizens and businesses, the development of digital services by the Public Administration and the support of



The regional plans: from broadband...

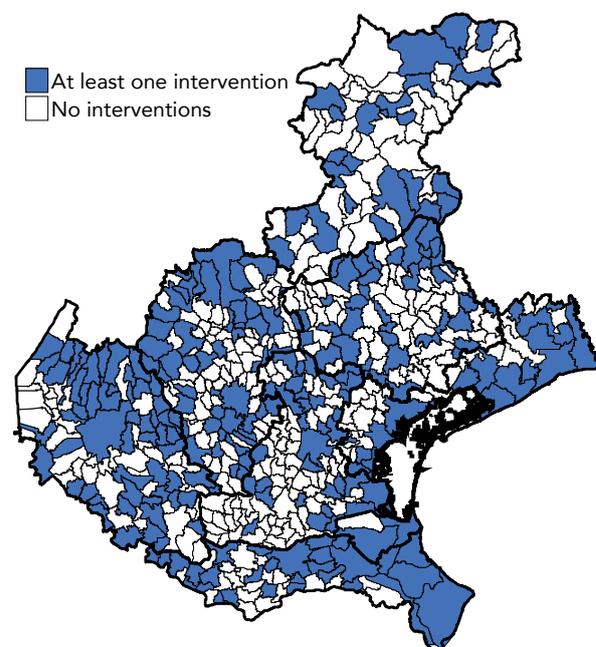
⁴ By the Veneto Region Processing Section.

⁵ 5DGR No. 2414 of the 4 August 2009

the "digital transformation" for businesses.

At the end of 2011, within the Programme agreement for the Development of broadband across the region of Veneto⁵, the operational convention was approved between the Veneto Region and the Minister for Economic Development (MISE) in order to overcome to the regional digital divide guaranteeing all Veneto citizens and businesses a connectivity between 2 and 20 Mbps by 2014, and simultaneously to create the conditions for the realization of a new generation network (NGN), which will allow to connect with speeds higher than 20Mbps. By implementing in Veneto the policies defined in the National plan, the projects activated with the Veneto Plan for the spread of broadband, are of two different types. The first concerns the spread of the fibre optic network (backhaul infrastructure) of public property, available for the activation of the service by private telecommunication operators (type A); the second concerns the upgrade of infrastructure and instrumentation in the central access points through an incentive for private operators to activate the broadband connection service for end-users, businesses and consumers, in "market bankrupt" area.

Fig. 9.2.1 – Regional broadband development plan. Fibre optic infrastructure realization by municipality (type A) Veneto - Year 2015



Source: Veneto Region Processing - Regional Statistical System on Veneto Region data

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Over 40% of the interventions took place in the province of Verona (23% of the interventions) and Vicenza (19%), less in Venice (8.5%). 43% of the Veneto municipalities were interested, with some differences among provinces: in Rovigo and Verona more than 55%, whilst Padua was 32%.

The invested resources were put into different financial areas, as the table below shows.

Tab. 9.2.1 – Investments for the realization of interventions for public fibre optic networks. Veneto – Year 2015

| Finance source | Investment budget (in euros) |
|--|------------------------------|
| Veneto Region – Industrial districts | 5,074,650 |
| MISE – Industrial districts | 5,074,650 |
| Veneto Region – FAS | 1,831,280 |
| Veneto Region – FEASR | 22,048,822 |
| Veneto Region – FESR | 9,449,148 |
| MISE – Other areas than the industrial districts | 10,000,000 |
| Total | 53,478,550 |

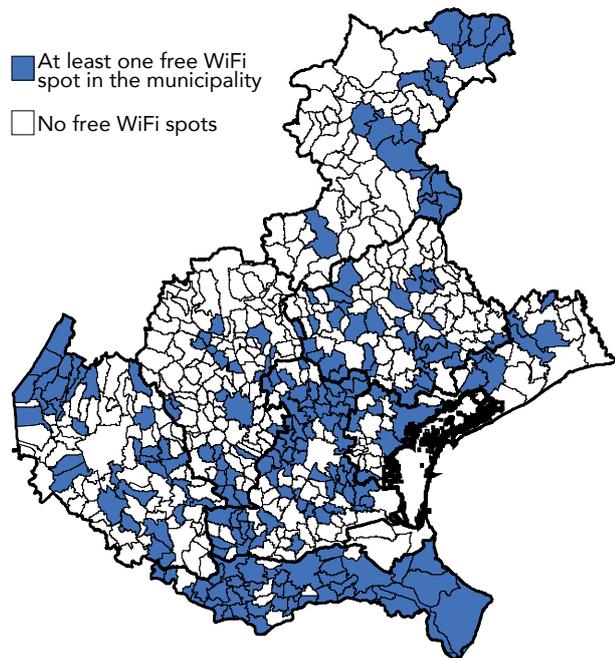
Source: Veneto Region Processing - Regional Statistics System on Veneto Region data

Type B was realised by the activation of the service for end-users, i.e. citizens or businesses, by the telecommunication tenderer (Telecom Italia) of the call organised in 2014 by the MISE, through the re-

the realization of projects.

Overall, 225 Public Administrations participated in the public call, of which 132 were single municipalities and 11 aggregations of municipalities. 142 projects were financed in the main areas of public interest of the beneficiary municipalities, which made public access to WiFi available for a user base of over 2.5 million Veneto citizens.

Fig. 9.2.2 – Municipalities with free WiFi. Veneto – Year 2015



Source: Veneto Region Processing - Regional Statistics System on Veneto Region data

Connections for the future

Even though Italy is intensifying its efforts to recover, it is behind in terms of digital infrastructure: in 2014, Italian families covered by fast broadband (at least 30Mbps) were 36%, a value which is growing compared to the year before (21% in 2013), but which remains a long way from the EU average (68%). In particular, according to Infratel data, 26% of Italian property have FTTN architecture on average, that is to say services with a speed higher than 30Mbps and generally lower than 100 Mbps, and 10% have a FTTH, FTTB or FTDP architecture, with a speed of at least 100 Mbps.

Southern regions show the highest level of FTTN coverage, such as Calabria and Campania with 78% and 66% of property possessing it respectively,

whilst the network at 100 Mbps is most developed in Lombardy (25%) and Lazio (22%). In Veneto, the FTTN infrastructure serves 29% of the property, whilst the highest speed only 4%.

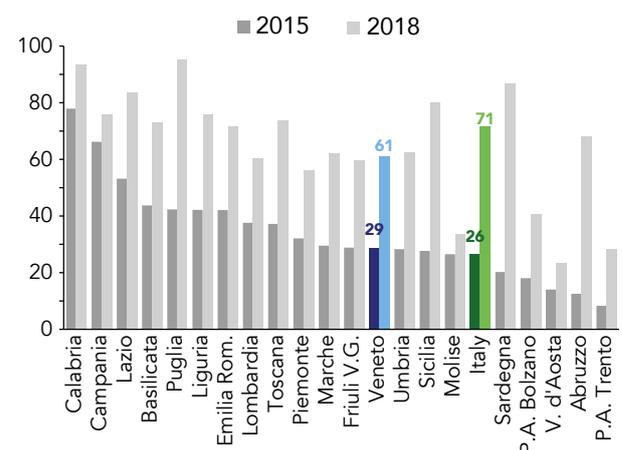
Even if the gap between the actual level of coverage and the European objectives remains in all regions, on the basis of the forecasts for 2018 thanks to the enforcement of private plans and public investments already implemented or still being implemented during 2015, one can see a significant improvement. In these forecasts, it must be highlighted that the effects of the coverage from the future public investments defined in the ultra-wide band Broadband plan and the resolution (CIPE) 65/2015 are excluded.

In 2018, 8 Veneto families out of 10 have access to ultra-wide broadband

As shown in the last public consultation carried out in 2015 by Infratel to measure the availability of the connectivity offered by the telecommunication operators and their investment intentions,

in 2018 the wide broadband (30Mbps) will cover, on

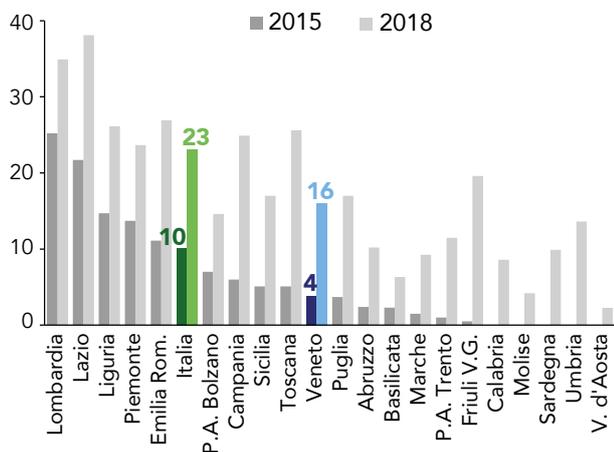
Fig. 9.2.3 – Percentage of property with FTTN architecture. Current situation and coverage expected for 2018 based on private and public plans which are implemented or still being implemented in 2015, by region (*)



(*) The FTTN architecture guarantees services with speeds higher than 30 Mbps and lower than 100 Mbps: the fibre ends at an intermediary hub of the access network on an existing physical carrier (copper) or close to a hub of access systems on radio carrier. Coverage data refers to the results of the previous public consultation by Infratel in 2015.

Source: Veneto Region Processing - Regional Statistics System Infratel and the Minister of Economic development data.

Fig. 9.2.4 – Percentage of property with FTTH, FTTB, or FTTDP architecture. Current situation and the coverage expected for 2018 based on private public plans which are implemented and being still implemented in 2015, by region (*)



(*) The FTTDP/FTTB/FTTH architecture guarantees services with speeds higher than 100 Mbps: the fibre ends close to an optic distribution point, placed at a distance lower than or equal to 50 metres from the property. Coverage data refers to the results of the previous public consultation by Infratel in 2015. Source: Veneto Region Processing - Regional Statistic System on Infratel and the Minister of Economic development data.

average, 71% of property in Italy, whilst the services for at least 100Mbps will cover 23% of them. For Veneto, the performance expected is slightly below the national average: 61% of the property will have FTTH architecture and 16% FTTH, FTTB and FTTDP. However, these results don't take into account the most recent investments which are described in the previous paragraph, which are being realized this year.

9.3 Inclusion means online too Citizens even more connected

Citizens even more connected

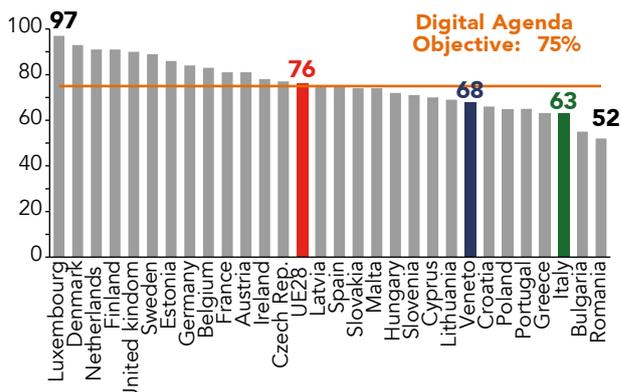
The opportunities provided by the network can give fast, efficient and cheaper answers to the different needs of the citizens, with a general upgrading in terms of quality of life. The process of digital literacy and the increase in digital competence can be seen, therefore, as a type of social inclusion.

To this end, the European Digital Agenda set some strategic objectives to be achieved by 2015: on one

hand, reducing the number of people who never used the internet to 15%, on the other hand, making sure that at least 75% of people have access to the internet, with a particular focus on the more disadvantaged, such as unemployed, elderly people with a low level of education, and disabled people (target of 60%).

In Europe, many countries have already exceeded the objective of bringing the internet to at least 75% of the population on a regular basis, especially in North Europe, where the percentages show a trust in the network by almost everyone. Compared to an EU average of 76%, Italy is still behind in terms of digital literacy, since in 2015 the regular users were only 63% of the population of 16-74 year olds. It is true that also in the last year there was good progression (59% in 2014), but the data is still the third lowest. Digitally excluded people, that is to say people who never connected to the internet, account for 28% of the population, a figure which is improving compared to the previous year (32%) but which remains too high compared to the European average (16%) and the objective which should have been met by 2015. The lack of usage of the network services in Italy is due to the late implementation of the necessary infrastructure, but also to a cultural problem with the fundamental generation characteristics, as well as a geographical problem.

Fig. 9.3.1 – Percentage of people who use the internet regularly (at least once a week over the last 3 months). Veneto and EU28 – Year 2015



Source: Veneto Region Processing - Regional Statistic System on Eurostat data

With reference to the digital inclusion objectives of the citizens, Veneto is placed better than the national average, even though it isn't close to meeting

The identikit of the internet users: young people, males, students

the set targets of the EU. In 2015, the regular users of the internet were 68% of the population (2

and a half million), whilst those who had never been connected to the internet were 24%, values which have improved strongly over the last year (+7% and -6% respectively), which shows an encouraging positive trend. If this would maintain that intensity, it could meet the aforementioned objectives within two years.

Tab. 9.3.1 – Percentage of people aged 16-74 that regularly use the internet (at least once a week over the last 3 months) by some social-demographic characteristics. Veneto, Italy and EU28 – Year 2014

| | Veneto | Italy | UE28 |
|-------------------------------|-----------|-----------|-----------|
| Total | 61 | 59 | 75 |
| <i>Gender</i> | | | |
| Male | 65 | 64 | 77 |
| Female | 57 | 55 | 72 |
| <i>Age</i> | | | |
| 16-19 anni | 90 | 89 | 96 |
| 20-24 anni | 87 | 85 | 93 |
| 25-29 anni | 83 | 81 | 92 |
| 30-34 anni | 86 | 78 | 91 |
| 35-44 anni | 72 | 71 | 85 |
| 45-54 anni | 63 | 60 | 75 |
| 55-64 anni | 42 | 43 | 59 |
| 65-74 anni | 17 | 19 | 38 |
| <i>Occupational condition</i> | | | |
| Employed | 75 | 74 | 86 |
| Searching for a job | 61 | 62 | 69 |
| Student | 95 | 91 | 97 |
| Housewife, retired or other | 27 | 26 | 46 |

Source: Veneto Region Processing - Regional Statistic System on Istat and Eurostat data

Who are the Veneto internet users and what do they do online? Almost all of the very young people use the internet regularly, more or less the same as their European peers; as the age grows, the use of the

web declines: among 45-54 year olds the percentage is a little over 60%, whilst in Europe it is 75%, and it drops to 42% among those who are 10 years older. Among the eldest then, only 17% are familiar with the internet (the EU28 average is 38%). Men use the internet more than women, and differences can be observed also if we consider the occupational condition: regular use of the internet is almost total for students, sufficiently high for those who are employed, whilst it is very low in the case of retired people and housewives, among whom only 27% connect to the internet regularly.

The deficit for those in the disadvantaged categories⁹ is evident, for which the percentage of regular users dropped to 47%.

The type of services used is another reason for differences compared to other EU countries. Even if in Italy activity linked to communication and information shows high levels of diffusion, the use of the internet for transactions, such as online banking, is much less (43% of Italians as opposed to 57% of European citizens that have used the internet in the last 3 months).

If 4 out of 5 Veneto people communicate and keep up to date using the internet, with generational differences that aren't that marked, other activities fluctuate more depending on age. For example, 80% of young people under 30 years of age, as opposed to 42% of the over 55's, use social networks, i.e. virtual platforms where you can exchange and share ideas and opinions, make comments on facts, and meet people who are a long way away. Young people also use more other recreational functions of the web, such as downloading games, listening to the radio online, and watching films or videos via streaming. On the contrary, among 30 and 54 years old people, who are probably more busy with work and family, the internet is mainly used for the management of banking activities from home and to communicate with the Public Administration. Young people show also to have higher competencies: most of them are able to create websites or blogs, and also know how to use cloud computing services. This is already much more rare among 30 year olds. Finally, it is surprising that only 33% of young internet users state to use the web to find jobs.

⁹ For disadvantaged category we mean people who belong at least to one of these conditions: 55-74 year old, people with a low level education (a first-level secondary school certificate as maximum), unemployed, retired or inactive (housewife or unable to work).

Tab. 9.3.2 - Percentage of people aged 16-74 that used the internet in the last 3 months by type of online activities and age group. Veneto – Year 2014

| | 16-29 anni | 30-54 anni | 55-74 anni | Total |
|---|------------|------------|------------|-------|
| To find out information, daily reading, magazines etc... | 91.2 | 87.7 | 84.8 | 88.1 |
| Sending/Receiving e-mails | 85.5 | 84.1 | 77.6 | 83.3 |
| Social activity (in social networks, blogs etc...) | 80.0 | 65.1 | 42.3 | 64.8 |
| Downloading software, games etc... | 78.5 | 52.8 | 34.1 | 55.7 |
| Listening to the radio online, watching tv, films, videos in streaming | 72.1 | 47.0 | 22.1 | 48.8 |
| Recreational activities (downloading e-books, holidays) | 46.2 | 47.1 | 44.7 | 46.5 |
| Online banking services | 39.4 | 51.5 | 37.8 | 46.4 |
| Online purchase and sale | 39.3 | 36.9 | 21.5 | 34.9 |
| Engaging with Public Administration | 27.9 | 37.1 | 36.1 | 34.7 |
| Uploading own material online (texts, photos, videos,...), creating websites or | 50.5 | 31.8 | n.s. | 33.3 |
| Using archiving services online to save or share files | 40.1 | 28.7 | 19.4 | 29.8 |
| Finding work | 32.9 | 20.6 | n.s. | 21.2 |
| n/a = not applicable | | | | |

Source: Veneto Region Processing - Regional Statistic System on Istat data

The digital market

The quick spread of the new technology is also profoundly changing the habits of consumption. Shopping online is becoming more and more common: entering and choosing producers from virtual markets and bazaars, succeeding in finding whichever type of product you need whilst in the comfort of your own home, whilst also benefiting from certain discount advantages compared to 'traditional' shopping. The web, with a high potential in terms of sharing of content, enables the participation and aggregation among users/buyers, who have, through the internet, not only the possibility to choose a vast selection of products, but also to compare prices and products, and also to discuss and exchange information and opinions on a certain product before buying it.

Italians are still reluctant and rather not trusting in e-commerce, even though the knowledge of its advantages has grown. In Veneto, 30% of people aged 16-74 order or shop online, which is slightly higher than the national average, but it is 20% less than the European average and away from the target of 50% set by the European Digital Agenda for 2015.



Citizens are shopping online more and more

However, e-commerce is starting to spread also here, so much that since 2010 the percentage of online shoppers has increased by 12% (11% in Italy). Online shoppers are above all men (30%

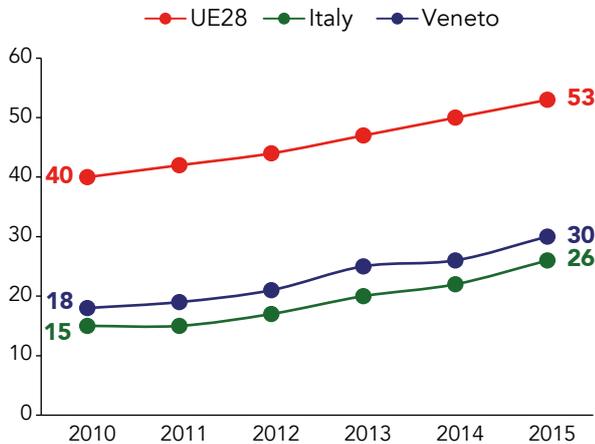
as opposed to 23% of women), young people (39% of people aged 30 or less), students or employed (39% and 35% respectively) and people who have a high level of education on average (58% of those who has a degree as opposed to 11% of those who only have a first-level secondary school certificate). Generally, on the internet people book a trip or a holiday, they buy books, newspapers, magazines, films, music, or tickets for shows or IT material such as hardware, software, video games or electronic furniture.

A large majority of those who buy goods or services online turn to national rather than foreign sellers, also due to technical reasons, since many cross border orders cannot be completed because non national credit cards are not accepted.

The realization of a digital single market, which Europe is aiming at, still shows all of the limits, requiring precise operations to remove legislative barriers, which prevent the European businesses to make cross-border exchanges, and in order to facilitate electronic payments outside of the national borders. The internet doesn't have borders, but this is not true for the online markets yet: the fragmentation is stifling the competitiveness of the digital European economy; furthermore, it prevents consumers from benefitting from the advantages that a digital single market could offer, both in terms of price and choice.

With the view to create a digital single market,

Fig. 9.3.2 – Percentage of people aged 16-74 who have ordered good or services online for private use in the last 12 months. Veneto, Italy and EU28 – Year 2010:2015



Source: Veneto Region Processing - Regional Statistic System on Istat data

cross-border e-commerce plays an important role within the Digital European Agenda, and Europe intends to increase this, putting the quota of the population which shop online abroad to 20%. This is becoming more and more common among European citizens (20% in 2015), whilst Italy is struggling to keep up: only 12% of the population participate in the cross-border e-commerce, one of the lowest percentages in Europe. For Veneto the last data available date back to 2014 and indicates participation by 13% of the population.

Encouraging e-commerce among businesses

Businesses too do not fully exploit the potential of the e-commerce yet, even if they are aware that this represents the main driver for development, a channel for export that enables businesses to embrace the opportunities emerging from the evolution of global demand.

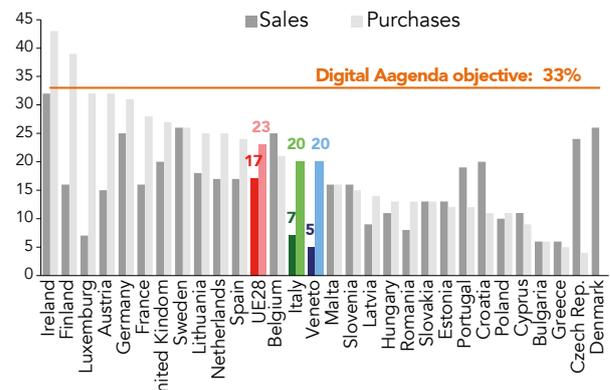
The European Digital Agenda has set two objectives to meet on this regard: by 2015, 33% of businesses should have bought online for an amount of more than 1% of the total online purchases and they should have sold online for at least 1% of the total sales. Up to now, no country has reached the target for online sales and only a few have reached the objective for purchases.

Among the businesses that have 10 employees or more, 23% buy online and 17% sell online on average in Europe. For Italy, the percentages are less:

20% of businesses buy online for at least 1% of purchases, whilst only 7% sell online for at least 1% of sales. The positioning of Italy is even more critical if you consider that the data refer only to those businesses with at least 10 employees, and more oriented to the technological innovation, whilst microbusinesses are excluded, whose weight in the national economic and productive fabric is higher than the European average.

Veneto businesses show similar results to the national ones, with 20% of businesses buying online for more than 1% of the total purchases and 5% selling online for more than 1% of the total sales.

Fig.9.3.3 – Percentage of businesses with at least 10 employees that sell/buy online for more than 1% of the total sales/purchases respectively. Veneto and EU28 countries – Year 2015 (*)



(*) The data for Veneto refer to 2014, whilst the data for the online purchases for Denmark is not available.

Source: Veneto Region Processing - Regional Statistic System on Eurostat and Istat data

9.4 Cloud computing services

For cloud computing we mean a set of technologies that that allow you, as a service offered by a provider, to save, file or elaborate data thanks to the use of hardware or software which is virtually distributed online. Data and programs don't have to necessarily be stored on the computer at home or at the office, but they can be "hosted" in an internet hot spot, which is called, in computing jargon, "in the cloud". More than just a new technology, it is a new approach to the use of technology which already exists. The most important innovation is the possibility of accessing resources directly from the internet, and

using whichever type of document without needing a USB, hard disk or other digital hard drives. For businesses, relying on the cloud means a reduction in the complexity of IT management, innovating more rapidly whilst reaching significant economies of scale.

In an era in which sharing, efficiency, speed and safety are fixed points, the advantages are not few, both for common users and for businesses. Getting rid of USB sticks and mobile devices will save space, but above all will lead to the creation of digital archives which are accessible at any moment from any electronic device: from holiday photos to businesses documents to medical records, all downloadable straight on your smartphone!

In recent years, cloud computing has been making ground and becoming more important, both at the scientific-academic and the economic level, and the services offered are destined to increase. Furthermore, given the growing competition among the cloud service providers, you can compare costs, quality and reliability of the services, and thus chose the offer which is best suited to your needs. The citizen, who usually uses cloud computing services such as digital photo albums to keep and share photos, can get the service free or at low-cost from a provider, whereas businesses, which need much more complex archives and elaborations, are willing to invest more in this type of service.

Citizens looking forward to "cloud computing"

The majority of citizens still regard "cloud computing" with a certain hesitation, preferring to keep their own documents on the computer or on an external hard drive.

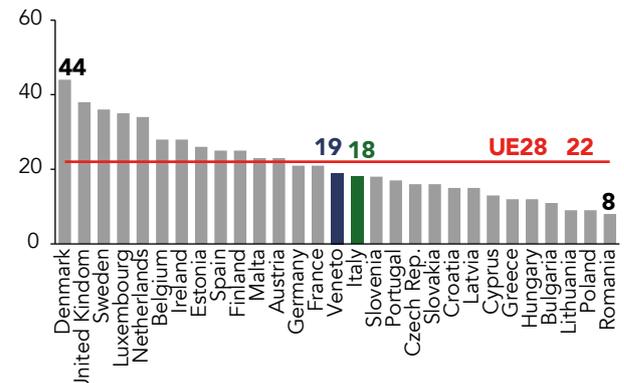
On the European level the average is 22% of the population. The countries which most appreciate the potential of the cloud are Denmark, U.K., Sweden and Luxembourg, where over 35% of the citizens use this type of service, whilst the countries which use it the least are Eastern and Southern European countries.

In Veneto 1 out of 5 people uses cloud

Italy and Veneto both find themselves under the European average, with 18% and 19% of the population which use a storage space online, respectively; more than a third of the population has still never heard of these services (35% in Veneto and 31% in Italy).

It is especially the frequency of the use of the web which differentiates the cloud computing users from

Fig.9.4.1 - Percentage of people aged 16-74 who have used storage spaces online to save or share photos, videos, music, or other documents. Veneto and EU28 countries. Year 2014



Source: Veneto Region Processing - Regional Statistic System on Eurostat and Istat data

the non-users: among those who have used the internet in the last 3 months, and therefore probably know not only cloud computing but also the potential of the service, the percentage of users rises to 30% in Italy as well as in Veneto. The age is also a determining factor in the confidence in "the cloud": 40% of Veneto internet users between 16 and 29

use it, whereas only 19% of the over 55's do so.

Generally, people chose the "cloud" to save and exchange especially photos, videos and music (16.3% of the Veneto population and 15.7% in Italy), less for work documents, such as presentation sheets and spreadsheets (9.3% in Veneto and 8.9% in Italy). Also in Europe, the percentage of those who chose cloud computing for a work-related use is much less, falling to 12%.

The Veneto users particularly appreciate the cloud for its ease in exchanging files with other people (52%) and the possibility of saving their own digital property in a safe space (50.7%). Other reasons leading to the "cloud computing" are the ease with which you can access files coming from different devices and/or places (31.1%) and the possibility to use storage space which is potentially infinite (27.9%). Among the problems that have arisen,

however, they claim above all the slowness in accessing the cloud and using the cloud (39.9%) and technical problems with the server (20.4%).

The cloud remains, however, a niche resource, used by a minority of people not only because it isn't still very well known, but also due to the conscious decision not to use it by those who know this online service. 63% of Veneto people voluntarily choose not to use the "cloud" because they prefer to save their files on a personal device (a USB stick, for example) or on their own e-mail address, and 35% because they are worried for the security of the service and/or for privacy reasons, 26% because they already find it easier to share files in other ways (e-mail, social media etc.) and 18% have doubts in the reliability of the service. Those who don't know how to use it, however, make up 21%.

An opportunity for businesses

Compared to other European countries, the cloud isn't very spread amongst the citizens in Italy, but it is different in terms of businesses, that make use of these types of services more regularly, recognizing in them an opportunity to save and to improve the work methods.



Italian businesses have more belief in the

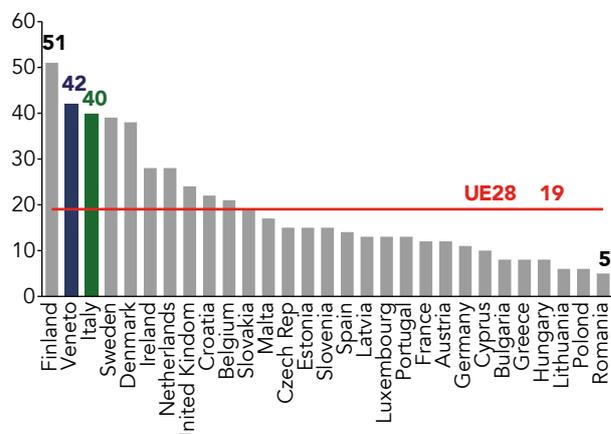
opportunity to save and to improve the work methods.

In 2014, the cloud computing services were purchased by 40% of Italian businesses with at least 10 employees, the highest percentage in Europe after Finland (51%), much higher than the average of 19% across the EU28 countries. In Veneto, the percentage was up at 42%; but the purchase of cloud computing was much less frequent for smaller businesses (13% in 2011), which do, however, have also much more problems connecting to the network.

The most purchased cloud services by Italian businesses were the mid-range services, which include at least an e-mail service, software for the office, file storing and a business database host: 23% of businesses in Italy and 24% in the North-East¹⁰, percentages which are among the highest in Europe (with a 9% average in UE28). 16% of Italian businesses and 14% of North-Eastern businesses, in fact, opted for the use of high-range cloud services, which include financial and accounting software, customer relationship management (CRM) software and processing power to run the software. Compared to European businesses, among the single services the

¹⁰ Data at the regional level isn't available.

Fig. 9.4.2 – Percentage of businesses that have bought cloud computing services. Veneto and EU28 countries – Year 2014 (*)



(*) Businesses, with exception to the finance sector, with at least 10 employees.

Source: Veneto Region Processing - Regional Statistic System on Eurostat and Istat data

Tab. 9.4.1 – Percentage of businesses with at least 10 employees which bought cloud computing services by type of service. North-East, Italy, and EU28 – Year 2014

| | North-East | Italy | EU28 |
|---|------------|-------|------|
| Businesses that bought cloud computing services | 39 | 40 | 19 |
| Services purchased | | | |
| Electronic post | 34 | 35 | 12 |
| Software for the office | 15 | 17 | 6 |
| File storing | 12 | 13 | 10 |
| Business database host | 11 | 11 | 7 |
| Financial and accountancy software | 12 | 13 | 6 |
| Customer relationship management software | 5 | 6 | 4 |
| Only low-level services | 20 | 19 | 7 |
| Processing power to run the software of the company | 3 | 3 | 3 |
| Only mid-range services | 24 | 23 | 9 |
| Only high-level services | 14 | 16 | 9 |

Source: Veneto Region Processing - Regional Statistic System on Eurostat and Istat data

have to direct the authentication phase of the users. Then the safety, because it will be guaranteed the protection of data, there won't be any central databank that could track the profiling of users. Finally saving, because the expenses will disappear for the conservation of data.

The project started on the 15th March with the involvement of some digital identity providers, private subjects accredited by the Agency for Digital Italy, authorized to provide digital identities and manage the authentication of users¹¹. From the 15th March 2016 up to June 2016, the activation of over 600 via SPID useable services will be enforced, in compliance with the regulations for the safeguard of personal information.



Venice is the first municipality that

Our region boasts an important fact: as of April

2016, the Venice municipality was the first local administration in Italy that formally adhered to SPID. The Venice digital services roadmap via SPID will start with online services which already exist, above all the school services. Then with services mainly dedicated to professionals and businesses, and then the free access to the city wifi network.



One national civil registry to modernize the country

Another national objective, aiming at saving time and costs for the P.A. as well as reaching a network system

is the creation of the National Residents Population Register (ANPR), which should be in place by 2016, which will take the place of over 8,000 registers of the Italian municipalities, which will result in only one reference point for the P.A. and the public service providers. With the ANPR, there will be just one databank with the personal information of the residing population. From a network point of view, this will enable the exchange of information among municipalities, thus simplifying the administration processes. With ANPR, we will also be able to integrate other national archives into it too, such as the register of house numbers and urban roads, a tool which is necessary to complete the reform of cadastre, and records of patients, which will make it possible to improve the health service.

This will guarantee the improvement of the services to citizens which, thanks to a central register, will

¹¹ Nowadays, there are 3 identity providers accredited: Infocert, Poste Italiane and Tim

also be capable of requesting register certificates from any municipality.



The use of digital public services is still low

As well as setting up digital services on the

part of the P.A., it is important that users, citizens and businesses are all educated in the use of digital instruments in order to have access to these new opportunities. To this end, among the European Digital Agenda targets the most important was that by 2015 50% of the population should have used digital services in the interaction with the P.A.. In Italy, even though there is a good level of availability of e-government services, only 24% of the population use the web to interact with the P.A., a value which is still a long way from the set target, whilst has almost already achieved at the European average (46%).

The availability of online interactive services for the P.A. are under expansion even in Veneto, with some excellences acknowledged at the national level, such as the quality of the digital health services and online payments, two of the key assets identified in the National Strategy Plan for Digital Growth 2014-2020, on which we should focus for the innovation of the country.

Veneto came in first place in Italy for the number of online payments made to the P.A. In the first three months of 2016 they more than 45 thousand



Veneto is the first region doing online payments to the P.A.

online payments were recorded via the web portal MyPay, the regional hub for electronic payments which was developed by the Veneto Region, in collaboration with the Agency for Digital Italy and offered for free to all corporations that want to offer this opportunity to their citizens. Now, about 40 local corporations have adhered to it, as well as the Azienda Ulss 17 from Monselice-Este, one of the first public health services to avail itself of this innovation for the payment of health services.

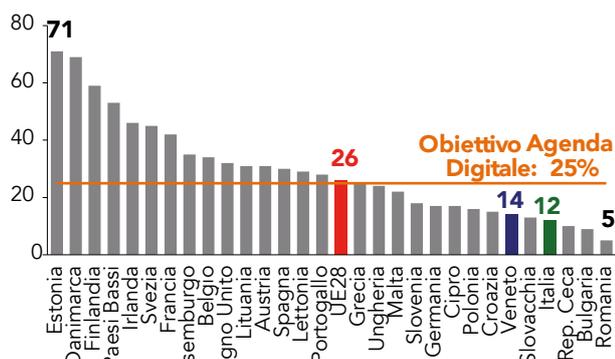
In spite of the important progressions that have been made, the percentage of the population that have used online public services was no higher than 28% in 2015.

Furthermore, always in terms of European targets, in 2015 the percentage of people able to fill out online P.A. modules should have been equal to 25%, signalling a more active interaction between citizens and public services. Again, however, the objective was met in Europe with an average of 26%, but still



not in Italy (12%), nor in Veneto (14%).

Fig. 9.5.1 – Percentage of people aged 16-74 years who in the last 12 months filled out online Public Administration modules. Veneto and EU28 countries. Year 2015



Source: Veneto Region Processing - Regional Statistic System on Eurostat and Istat data

Businesses have also started to interact more and more with the P.A. across new technologies, as declared in 2015 by 69.2% of Veneto businesses in total, a value which is in line with the national average. The activities carried out are different such as: work formalities and procedures, company revenue declarations, building formalities and procedures, online participation and management of the tenders and agreements with the P.A., using of the certified electronic post and the online billing with the P.A.

Healthcare at 0km¹²

Within the digitalization of the healthcare system and the development of the regional Electronic Health Records (FSER), the Veneto Region is concentrating ever more its efforts towards a new vision called "Healthcare at 0km". On one hand, it is focusing on the complete digitalization of some services to the citizens, with the aim to make them 100% usable, always available, wherever you are; on the other hand, on closing the gap between health services and those who need a particular care due to their conditions. This new type of healthcare can be found in more familiar and common places, it speaks a concise and understandable language, it

¹² By Arsenà.IT – Veneto Research and Innovation centre for Digital Healthcare.

responds quickly to the needs of the users with the most simplicity possible. At the base of the project, there is still the belief that there is already a paradigm shift in place, where the data is travelling, not the people.

Starting from the articulation of the electronic records created in collaboration with Arsenà.IT, which offers the opportunity to implement alternative health service access and supply solutions, different eHealth projects were started in collaboration with Health and hospital agencies. These solutions contribute to an increase in the effectiveness and the quality of services, as well a possible reduction in the required amount of economic resources necessary to fund them. There are essentially two guidelines: one thought to facilitate the work of health operators and one which can be directly used by the users, but both trying to close the gap between people and the regional health care system.

To better understand the opportunities provided by this new type of paradigm, we can look at some examples of initiatives activated in the region.

The usable services for the citizens

Firstly, the possibility of downloading the own medical reports online: what is needed is just a computer connected to the internet and the own access information to download the reports, whenever you need to, wherever you are.

From 2012, with "Veneto escape" the reporting process is 100% digital and around 60% of the reports are downloaded online, without having to physically go into the hospital to get it and skipping the waiting line. According to estimates, this has induced a reduction in wait time by 61% and has saved €120 million per year for the patients in Veneto in terms of avoided journeys and time saved.

46,500,000 the digital prescriptions in Veneto

Another important part of this continually evolving path is digital prescriptions. In 2015, there

were almost 46,500,000 digital prescriptions issued, equal to 88.3% of the pharmaceutical prescriptions and 74.4% of the specialist prescriptions. This is an important result, made possible by a network linking all the healthcare agencies and hospitals, the Region, all the pharmacies, the general practitioners and paediatricians (98%) and specialists (71%). Furthermore, thanks to the digital prescriptions the errors in terms of filling out prescriptions have been 100% eradicated. Since April 2015, the old red prescription has gradually disappeared, substituted

by a memo. In short, this is another step towards a 100% digital solution, which the users can appreciate particularly first hand, whether in the pharmacy or at the practitioner. With the revolution brought about by "ECO pharmacies", started at the beginning of March 2016 in 6 ULLs and 97 pharmacies, it won't be long before you can go into pharmacy with your own smartphone or health card to obtain your prescribed drugs.

**Besides CUP:
for an even faster
booking**

In the same context there is also the project "Besides CUP", already active for certain doctors in Belluno and in the

stage of being introduced in other health care services. It will no longer be necessary to go to hospital or spend lots of time on the phone to book specialist visits. There will be general practitioners doing it for the patients: when the doctors prescribe a visit or an exam, they can share with their patients the possible options of date and place, taking the appointment based on the medical case but also the availability of the patient too. Thanks to this method, an important change is recorded: patients are already in line for their appointment with a specialist within 15 minutes of receiving their prescription.

In other terms, this is a solid attempt to bring the health services closer to the real needs of citizens, looking for service quality and appropriateness thanks to the potential offered by the eHealth innovations introduced in the last few years in the region.

**The advantages of
teleconsultation**

The service of neurosurgical teleconsultation is also significant, which allows

the realization of consultation at distance between the doctor of a peripheral hospital and a main one. The system allows doctors to share radiological images and thus there is the possibility to discuss and weigh up, together, the health state of the person in question. Now, the network connects 7 main hospitals with 34 peripheral ones. Thanks to over 3,216 teleconsultations every year, the number of transfers from one hospital to another has been reduced by 84%, with a consequent decrease in the stress of patients and their families, as well as saving time and reducing costs.

**Young people and the
elderly at the digital**

The biggest critical issue in the innovation process being carried out seems to always

be linked to the risk of generating a sort of exclu-

sion from digital services, in particular regarding the more elderly citizens.

Tab. 9.5.1 – Electronic Health Records (FES) in Veneto – Year 2015

| | |
|---------------------------------|---|
| Reports downloaded online | 60% of total reports |
| <i>Saving:</i> | 61% reduction in time for reporting |
| | €56,390,000 in 3 years for the Veneto healthcare system |
| | €120,000,000/year for Veneto citizens |
| Digital prescriptions | 46,461,726 in 2015 |
| | 88.3% of the pharmaceutical prescriptions 74.4% of the specialist prescriptions |
| | <i>Saving:</i> €3,244,901 /year for the healthcare system |
| | 100% reduction in the number of filling out errors |
| Neurosurgical teleconsultations | 3,216 every year |
| <i>Saving:</i> | 84% reduction in the transferal times from one hospital to another |
| | €111 for every transferal avoided thanks to the service |

Source: Arsenà.IT

Young people can therefore play an important role in the evolution of digital healthcare, even if at the moment they do not feel to be involved in what is going on: 69% have never visited the website of the own healthcare agency and 53% don't know about online healthcare services. This emerged from an analysis carried out within the initiative called "@Two!Salute!", developed by Arsenà.IT in collaboration with healthcare agencies, to make Veneto secondary school students aware of the potential of digital healthcare. Encouraging data concerns the fact that 85% of children who didn't know about online healthcare services would like to know how to use it for themselves or their families in the future. Finally, the initiative "Click on your health!" focuses on the Veneto municipalities in their role as digital

nected to the web (66% and 84.5% respectively, in Veneto), classic instruments still prevail. Teaching on interactive multimedia boards and on interactive projectors still affects a minority of classrooms and labs.

The digital justice

Italy has always showed a lot of critical issues for the excessive amount of time that proceedings take, especially for civil matters. According to the estimates carried out by the World Bank, the average length of a first instance proceedings is 1,200 days, a performance which is very far from that in the best countries (390 days in Switzerland, France and Germany), but still twice as long as the average (about 630 days).

This performance of the juridical system could be improved if more investments in information technology would be made. In this sense, Italy is looking to make up for the deficit, having doubled the investment into the digitalization of justice in the last year: the final allocation for 2015 was in fact almost €148,000,000, compared to 68.8 million in 2014, also thanks to the use of European funds for the first time.

In recent years, there has been an acceleration



The telematic civil proceedings

towards the digital world and the tele-

matic civil proceedings is to be considered in this regard: starting from the 30th June 2014 online filing is necessary for deeds relative to proceedings started before the ordinary courts after 30th June 2014, whilst from the 31st December 2014 this obligation is extended also to the cases brought before court before the 30th June 2014 (pending proceedings). Moreover, from 30th June 2015 the obligation is extended also to civil proceedings before the Appeal courts. Based on the most recent information available at the territorial level, in the last semester of 2014 the deeds filed online in the district of Venice rose to almost 136 thousand, 235% more compared to the previous semester (Italy +103%), an average of 22,600 deeds a month, and in the month of January alone, this figure further rose to 43,998.

Nowadays if you want to access the own civil proceedings dossier, you can do so 24 hours a day, without waiting lines, in real time. It is an important feat which reduces territorial distance and renders certain areas of the country less peripheral. The next step? To extend the telematic process also to the criminal area, next year.

Tab. 9.5.2 - Indicators for digital services in State schools. Veneto and Italy – A.s. 2014/15

| | | Veneto | Italy |
|--|---|--------|-------|
| Digital services (out of 100 schools) Electronic class register 72.1 69.2 | Registro elettronico di classe | 72.1 | 69.2 |
| | Electronic reacher register 80.0 | 73.6 | 73.6 |
| | Website or online portal 99.5 99.3 | 99.5 | 99.3 |
| | School-family online communication 56.3 58.3 | 56.3 | 58.3 |
| | Central IWB multimedia content management 15.5 | 15.5 | 16.5 |
| Students per computer in class 50.2 41.0 Students per computer in labs 10.8 11.6 | Alunni per computer in classe | 50.2 | 41.0 |
| | Classrooms with multimedia equipment (out of 100) | 10.8 | 11.6 |
| Equipped with IWB 37.1 41.9 | Connessi in rete | 66.0 | 70.0 |
| | Equipped with interactive projector 6.2 6.1 Labs | 37.1 | 41.9 |
| | Equipped with IWB 28.7 43.6 | 6.2 | 6.1 |
| Equipped with interactive projector 19.3 16.9 | Connessi in rete | 84.5 | 82.5 |
| | Dotati di LIM | 28.7 | 43.6 |
| | Dotati di proiettore interattivo | 19.3 | 16.9 |

Source: Veneto Region Processing - Regional Statistic System on MIUR data