

Strategies for Equitable eHealth



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Background

The *Digital Agenda for Europe* (2010), one of the pillars of the *Europe 2020 Strategy*, has set objectives for growth in the European Union by 2020. It proposes to develop a digital single market, allowing a better utilization of the potential of Information and Communication Technologies (ICTs) among its member states. Under its umbrella and that of the *Europe 2020 Strategy*, an *eHealth Action Plan 2012-2020* “clarifies the policy domain and outlines the vision for eHealth in Europe”. Here eHealth is defined as the use of Information and Communication Technology (ICT) in health products, services and processes together with organisational change in healthcare systems and the development of new skills, in order to improve individual health, efficiency and productivity in healthcare delivery. Therefore, eHealth covers the interaction between patients and health-service providers, as well as institution-to-institution transmission of data and peer-to-peer communication between patients and/or health professionals.

In Italy, the implementation of eHealth is in its very early stages and has been delayed in comparison to the efforts put in place by other European countries. Moreover, its development has not been homogeneous throughout the country. In 2012, an *Agenda for Digital Italy* was established, identifying priorities and actions emphasizing the complementarity between the national and the regional levels of decision-making. The primary activities to be developed under the *Pact of Health 2014-2016* elaborated by the Ministry of Health to pursue digital innovation include the following innovations:

- the establishment of an Electronic Health Record (*longitudinal EHR*),
- the availability of digital prescriptions,
- a “dematerialization” of medical records

(introduction of Electronic Medical Records or EMR),

- the online booking of medical visits, and
- the online download of medical reports.

In 2016, special attention was devoted to the “dematerialization” of medical records and 65 million euros was invested in the realization of the EMR. In total, 14 million was put toward digital services; so today 80% of local healthcare units offer – directly or through regional solutions – downloadable web-based reports, and 61% allow online booking of health provisions. Positive signals also emerged from regional efforts to begin developing the Electronic Health Record¹.

All these activities are predicted to accomplish remarkable savings in terms of time and paper waste. According to the European Commission, in the long run the digital management of medical treatments should also lower the percentage of avoidable human mistakes and e-prescriptions should reduce errors in drug dosage by 15 %². Moreover, the web delivery of medical records, online reservations and prescriptions will facilitate access to medical information and allow greater efficiency within the healthcare system. From a financial point of view, the Polytechnic University of Milan has quantified a yearly saving of 3.8 billion euros in public expense³.

Besides the undeniable economic advantages brought forth by healthcare digitalization, the development of eHealth tools is expected to favor and strengthen contacts and interactions between patients and health providers. However, research has shown that it can also introduce barriers of a different nature between them. This is an important aspect to take into consideration, especially if it risks affecting exchange and communication negatively, as these are essential elements of any relationship-centred model of care. Moreover, difficulty in accessing eHealth can pose further constraints to universal access to care. As digital tools become new means of interfacing between

the patient and the provider, they also “mediate” their interaction and might require a steep learning curve on either side or both.

Implementation of eHealth in Northern Italy

The initial implementation of eHealth in Italy, particularly in the Veneto Region offers some interesting elements for reflection upon opportunities and threats that could be repeated in other geographical areas. These elements emerged from a study developed by the national research institute Censis upon the experience of Arsenàl.IT, a voluntary consortium among the local Health Authorities and Hospital Trusts that has become the Veneto’s Research Centre for eHealth⁴.

The Veneto Region presents one of the most efficient healthcare systems in the country, comprising 21 local health units, 2 hospitals and 1 oncological institute. Its approach to healthcare – defined by two regional laws of 14 September 1994, respectively n. 55 and n. 56 – is founded upon the principles of universality, equity, humanization and integration of health and social care⁵. The local healthcare system currently serves about 5 million people, 22% of whom are over 65, a percentage that has been steadily increasing since 2010⁶. Another rising segment of the population is constituted by foreign residents, who were about 500.000 at the end of 2016⁷. This configuration mirrors very closely the national population structure. The *Digital Agenda for Veneto*, promoted by the Veneto Region with the technical support of Venice International University, defined the Region’s strategic commitment to foster innovation within the wider European scenario. Currently, Veneto keeps nationally a very high ranking for promoting ICT as a priority among citizens, health providers and local institutions. The level of digitalization of its health structures was evaluated by Healthcare Information Management and Systems Society (HIMSS) analytics through the Electronic Medical Record Adoption Model (EMRAM) method, scoring an average 2.8 – in a range between 0 and 7 – that is higher than the national average of 1.6 and the European of 1.9.

The consortium Arsenàl.IT was entrusted by the Regional Government with the task of coordinating the technical and administrative implementation of eHealth. Best results in the process were obtained with *Veneto Escape* (Electronic Signature in Care Activities for Paper Elimination),

which was finalized in 2012, and allows the full digital management of medical records: signature, certification, retrieving, archiving, distribution and storage. This service allows citizens to download their medical record directly from the internet. Research shows that *Veneto Escape* ended up covering 60% of about 10 million records produced locally each year, and that 94% of regional medical records have now been digitally signed⁸. Throughout the first three years of the project, healthcare providers recovered 56 million euros that were reinvested in service improvements. Citizens saved yearly 120 million euros by avoiding travelling from home to obtain their medical records.

Nevertheless, the low rates of use for other online services autonomously activated by some Local Health Units led Arsenàl.IT to investigate the reasons behind citizens’ resistance, which limited a more widespread development and adoption of online services at the regional level, as well as the factors influencing the successful outcome of *Veneto Escape*. Therefore, the Consortium began to examine more closely the social component of the diffusion of online healthcare services, by collecting and analyzing a large amount of data between 2013 and 2015. Their study provides a reliable base for the development of general policies toward a more widespread usage of eHealth.

eHealth Opportunities and Threats

The Veneto experience indeed confirmed the remarkable improvements in efficiency and cost reduction that are introduced by eHealth. However, it also drew attention to two types of barriers that hinder the implementation of eHealth. The first is of a technical nature: the fragmentation of the digital market and the limited interoperability of ICT systems, networks and applications can prevent effective data exchange both nationally and internationally. Moreover, vulnerabilities in data security and privacy protection are threats to a broader set up of eHealth systems. This will inevitably require a greater financial disbursement, especially in light of the limited percentage of Italian investment in this field, which, although having grown from 0.82% of public health expenditure in 2010 to 1.2% in 2015, is still abundantly below the European average, which is between 2 and 3%. In 2016, investments showed a decrease of 5% attributed to multiple factors,

Yearse	Health Expenditure mln €	(%) eHealth expenditure/public health expenditure
2010	920	0.82
2011	1.300	1.17
2012	1.230	1.12
2013	1.170	1.07
2014	1.370	1.24
2015	1.340	1.20
2016	1.270	1,10

Source: Censis-Impresa Lavoro, Politecnico di Milano.

such as slow regional reforms, normative delay, lack of financial resources⁹.

The second barrier is related to the social impact of eHealth, that is, the wider inequality gaps that can arise in terms of accessibility to healthcare information, and the higher social costs in terms of exclusion. Generally speaking, the implementation of eHealth among an increasingly ageing population poses serious questions in terms of the digital divide. In this regard, research points out that the digital divide does not only refer to unequal access to technologies such as computers, mobile phones, or the internet (“primary digital divide”), but also to insufficient knowledge related to the utilization of the internet (“secondary digital divide”), and more broadly to universal access to equipment, internet connections, development of skills, technical assistance and appropriate content (“third digital divide”). Some authors underline that this third type of digital gap includes geographical location and literacy, as well as the attitudes and behavior with respect to the search for information, confidence and concerns about private life and institutional policies, together with content, including the lack of local information, language, incapacities, and the lack of cultural sensitivity¹⁰. In the present case, this implies that health information is neither fully comprehensible nor useful for disadvantaged segments of the population, particularly the over 65, but also those foreign residents who are not adequately equipped or are culturally penalized (i.e., for lack of language skills or insufficient knowledge of the local healthcare system).

An important factor to be considered in the process of implementing eHealth in any country is the actual use of the internet¹¹. In 2015, the number of those who did not use the internet at all in Italy was close to 30%, while the percentage of those who used it weekly (63%) was lower than the European average (76%). In the same year, among Italian internet users the average percentage of those who purchased online (39% vs 65%), used e-government services (35% vs 57%), or sent filled-out forms to public administration authorities (18% vs 32%) was far below the European average. Likewise, the percentage of those seeking online information about health that in Europe was nearly 50%, in Italy reached slightly above 30%, although this percentage might have increased in 2016, when 51% of Italian citizens used at least one healthcare online service, against 49% the year before.

It is interesting – maybe not surprising – to notice here that Italian regular internet users are concentrated in the age range between 16 and 44¹². The Censis research revealed that in 89% of cases it is within the family that the eHealth learning process begins. However, when minors are present, internet use is up to 89% daily, whereas over the 65s are the only members of a family household whose daily internet use reaches only 16.3%. Among young people, 69% never visited their local Health Unit’s Website and 53% did not know of any healthcare online services. Nevertheless, 85% of young people who did not know about healthcare online services are willing to use them in the future. Within the family, mothers more than fathers access and

use healthcare online services (69%), consistent with the ordinarily greater involvement of women in care and healthcare services¹³.

process of digitalization was more fruitful when citizens not only were given useful digital instruments and provided with user-friendly online



Potential Success Factors

The Censis study overall confirmed that the implementation of eHealth poses serious questions in terms of the digital divide. This is especially true in terms of the “third” kind of digital divide previously described (i.e., lack of local information, language, skills, cultural sensitivity) and particularly among an increasingly ageing and multicultural population. Some recommendations can be made from the study and we would like to highlight them here.

First is the relational component. Although a primary success factor in the *Veneto Escape* project was the user-friendly features of the Health Medical Record (HMR), which was acknowledged by 91.7% of the users, personal contact remained an essential element in order for patients to acquire knowledge of eHealth and benefit from it. In fact, 74.1% of users found out about HMR through their healthcare agents. Moreover, while 84% of users between 18 and 64 downloaded their HMR by themselves, 55% of those over 65 needed personal support. The

services, but were also offered exhaustive explanations and personal help. In the Veneto experience, the gap created by the digital divide was somehow “bridged” by personal contact with real people, either healthcare agents or family members. Therefore, personal contact must be an integral part of the digitalization process. The relational component ensures that, as specified by the *Digital Agenda for Europe*, eHealth truly delivers custom-made “citizen-centric” healthcare, and favours patient empowerment through transparency and access to necessary information.

Second, greater support is needed for those who are more fragile, particularly the ageing and foreigners. Besides ensuring safe access to complete and reliable data at any time, education and training should reduce asymmetric information. Additionally, special attention should be given to any active agents who can facilitate the transition into healthcare digitalization¹⁴. These include young people who are more apt to use technology and who are potentially willing to learn about healthcare online services, as well as women, who by nature and demographic trends play a significant role as family caregivers. New

forms of intergenerational exchange and solidarity could perhaps be promoted and nurtured among older and younger members of the community¹⁵.

Third, the Veneto experience has demonstrated that the implementation of eHealth, from the very beginning, can only work if the person remains at the centre of the process of digitalization. This process must be tailored to the territorial and demographic needs of a certain area and proactively developed to detect them and fulfill those needs. That is why close collaboration between healthcare agents and patients is necessary so that coordinated forms of care provision can be effectively delivered within the system.

Finally, eHealth can greatly “simplify” information access and care management, but not undermine the deep complexity of the multidimensional nature of human health. This concept of health involves a variety of elements that are not only connected to the functional level of the organism, but also to its cultural, psychological, spiritual and religious aspects¹⁶. That is precisely why care-based relationships cannot be fully “digitalized”. This assumption, which today seems threatened by the development of robotics¹⁷, presents the challenge of integrating a more holistic approach to care into the digitalization process and modelling the development of eHealth services upon the psychic, physical and environmental integrity of each person. To be effective, and truly induce patient empowerment, such integration must be promoted collaboratively at three levels:¹⁸ in family contexts and in relationship with health professionals (micro level), in healthcare organizations and care delivery processes (meso level), and in national and local public policies, communication and health professionals’ training (macro level). Within an ideal *continuum* between the digitalization of medical records and the full realization of eHealth, the Censis research suggests that intermediate steps be taken to facilitate and smooth the transition into digital health by involving both family members and healthcare professionals; by targeting key agents of change; and by preserving each person’s specific needs as the true focus of this process of change.

NOTE

¹ Osservatori.net-Digital Innovation, *Innovazione Digitale in Sanità*. Available at https://www.osservatori.net/it_it/

osservatori/executive-briefing/la-sanita-digitale-vale-1-27-miliardi-di-euro. Last access: August 2, 2017.

² European Commission, *Digital Agenda for Europe*, 2014, p. 6.

³ Politecnico di Milano, *Osservatorio Innovazione Digitale in Sanità*, 2015.

⁴ Censis-Arsenà.IT, *Cittadini e sanità digitale. L'impatto sociale della digitalizzazione in sanità*, Rome 2016, p.6.

⁵ From the Veneto Region Website dedicated to Healthcare in <http://www.regione.veneto.it/web/sanita/home>. Access: July 26, 2017.

⁶ Istat data, December 31, 2016.

⁷ *Ibidem*.

⁸ Censis-Arsenà.IT, *ibid*.

⁹ Osservatori.net-Digital Innovation, *ibid*.

¹⁰ K. LATULIPPE et al., “Digital Divide and Social Health Inequalities,” in *Journal of Medical Internet Research*, 19 (4), e136.

¹¹ Cf. Censis-Impresa Lavoro, *ibid*.

¹² European Commission, *Digital Agenda Scoreboard*, 2017.

¹³ According to the U.S. Department of Labor (2013), women make approximately 80 percent of healthcare decisions for their families and are more likely to be the caregivers when a family member falls ill.

¹⁴ Cf. Censis-Arsenà.IT, *ibid.*, p. 113

¹⁵ Cf. FRANCIS, Encyclical Letter *Laudato si'*, n. 162.

¹⁶ Cf. R. PETRINI, *Health. Equity and Care through the End of Life*, Angelicum University Press, Rome 2015, pp. 19-20.

¹⁷ In the *Digital Agenda for Europe* (2014) some “facts and figures” are offered on this topic: “The global robotics market is worth €15.5 billion a year, €3 billion of it in the EU. The EU has a 25 % share of the global industrial robotics market and 50 % of the professional service robotics sector. The number of people over 65 years in the EU will rise to over 30% by 2060. ‘Eldercare social robots’ can help perform daily tasks such as lifting or cooking or set off an alarm if an inbuilt camera registers that a person has fallen. A new robotics public-private partnership will receive €700 million of EU funding, leveraging €2 billion in private investment”.

¹⁸ Cf. W. ATZORI, “Redefining empowerment from a patient perspective”, oral presentation at the European Patients’ Forum, Riga (Latvia), May 2015.