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Smart Trentino: An inclusive territory for the wellbeing of all

This article presents the holistic approach adopted by the autonomous province of Trento for providing public services and, in particular, healthcare services to all residents regardless of whether they live in towns or in remote mountain areas. The idea behind this approach is the creation of a "smart territory" across the province, a term borrowed from the concept of the "smart city". This means leveraging on digital technologies to enhance performance and wellbeing, to reduce costs and resource consumption, and to engage more effectively and actively with the public. The definition used in this article links smart cities to smart, sustainable and inclusive growth as envisaged in the Europe 2020 framework (see European Commission, 2010). With the ambition that the positive experience of Trentino will be used as a model in other territories with similar characteristics, we introduce the main key enabling actors and technologies available in the province and the instruments designed for smart and sustainable territorial governance.

Keywords: citizen-based innovation, territorial lab, smart territory, pre-commercial procurement, autonomous province of Trento

1 Introduction

The experience of SPHERA (see Internet 1) has taught how a holistic approach in planning and providing public services can lead to effective territorial governance and positively affect the wellbeing and quality of life of people living in a territory. With this aim, territorial governance should pay attention to areas of intervention such as accessibility to services of general interest, demographic change, social cohesion and quality of life, which are considered to be the main drivers of inclusive growth. Moreover, greater involvement of the public ensures that technologies, services and innovative processes developed inside research centres respond to people's actual needs and have an actual positive impact on their daily lives. In this regard, a territory becomes a place where innovation occurs. It is considered not only as a natural landscape, but more broadly as a harmonious integration of all its components, including landscape, urban centres, cultural heritage, mobility and citizenship. From this perspective, governance also looks at a territory as a space for promoting people's wellbeing, integrating technology into the social and healthcare system aimed at developing new services, and fostering competences addressing a healthy life, active ageing and an emotionally rich way of living. Furthermore, a territory becomes an economic resource leading processes of land exploitation and urban planning in a logic of sustainability that is fully compliant with the concept of "smart cities and communities" endorsed at both the national and European levels.

1.1 Smart, sustainable and inclusive development

The concept of the smart city has been widely used in literature with different meanings addressing different contexts that are not always consistent and make it difficult to define a comprehensive framework (Nam & Pardo, 2011). The perspective adopted in this article draws on the concept of sustainable development described in Lorena Bătăgan (2011) as a multidimensional concept that includes economic, social and political dimensions. Bătăgan identifies three main goals of sustainable development: a) improving quality of life, b) respecting the limits of the environment and c) investing in technological progress. According to Bătăgan, the goals of sustainable development match those of a smart city, with an increasing

number of people and a reduction in resources used for investing in quality of life and adopting technological solutions for managing people and resources. Following this perspective, making a territory smart means that interventions should be implemented in all of its sectors, including infrastructure and public services (Bélissent, 2010):

- *Transportation*: transportation systems can adapt (e.g., rerouting buses or opening new lanes) in real time depending on the actual traffic.
- *Utilities*: smart energy grids deliver only as much energy as needed to reduce waste; they inform users of how much they are consuming to influence demand.
- *Healthcare*: electronic patient records facilitate information sharing and collaboration across clinics, pharmacies and hospitals. Telemedicine extends the reach of medical facilities and improves access to medicine.
- *Education*: educators and administrators recognise the power of new technology to improve the efficiency and effectiveness of universities (e.g., increasing access to information and improving collaboration among students and faculty).
- *Public safety*: safety initiatives optimise the capacity and response time of emergency services, secure and control mass events, secure public administration transactions and workflows, and provide surveillance of public places.
- *Building management*: optimised and modernised heating, ventilation and air conditioning alone can significantly reduce building energy consumption. Integrated building and room automation systems further cut energy and operating costs.
- *Constituent services for both residents and businesses*: eGovernment portals enable cities to communicate better with their constituents, be they the public, employees, suppliers or local businesses.
- *City management*: citywide planning and technology implementations allow efficiencies across departments, such as the use of surveillance cameras for transportation and security solutions.

It becomes clear how smart solutions include strategic directions at the normative and administrative levels in urban planning. Governments and public agencies are increasingly embracing the concept of a smart city to design their policies, strategies and programmes for targeting sustainable development, economic growth and better quality of life for their residents (Nam & Pardo, 2011). Technology is a permeating factor of society that makes possible a variety of solutions for supporting people and improving their quality of life.

1.2 Trento as a smart city

Trento is the largest administrative centre in its province. Territory governance has always been attentive to people's needs, and has long promoted a political and operational strategy aimed at the "quality of life" concept. Such a concept is intended to stimulate not only economic growth as a unique paradigm (despite still being a fundamental aspect), but also social welfare, sustainable urban interventions and respect for diversity through carrying out and supplying advanced and innovative technological services.

Many years ago, Trento established a number of laws and policy regulations for alignment with this paramount and now essential "city lifestyle", convinced that continuous effort is required to maintain a pleasant living environment and a well-functioning community. This set of actions has permitted Trento to climb in two national rankings in recent years: quality of life and protecting the urban environment (Internet 2) and being a smart city. In addition, along with Helsinki, Stockholm, Berlin, London, Eindhoven and Paris, Trento is one of the seven European cities hosting a co-location of the EIT ICT Labs (Internet 3) and part of the Knowledge and Innovation Community of the European Institute of Innovation & Technology. EIT ICT Labs is a strategic initiative aimed at driving European leadership in ICT innovation for economic growth and quality of life. This highlights the relevance of ICT and its strong presence in terms of education and research capabilities in Trento, the chief town and heart of the province. In 2014, IEEE (the Institute of Electrical and Electronic Engineers, Internet 4) selected Trento as one of the ten smartest cities in the world under the "IEEE Smart Cities Initiative". In this project, Trento will develop and share its innovative solutions addressing people's quality of life of with other smart cities around the world.

The municipality is convinced that further progresses can only be accomplished by turning each person from a user into a co-builder of the city facilities, achieving a higher level of service acceptance and consequently benefits for the entire system. The same geographical location of the province, a mountainous and hilly area at the core of the Dolomites, made necessary a strong effort in building communication infrastructure to shorten paths between communities, residents and visitors.

2 From smart cities to smart territories

Starting from the experience of its main town, the autonomous province of Trento is beginning to embrace the idea of becom-

ing one of the first smart territories. This requires that the concept of the smart city be extended beyond the boundaries of urban areas, encompassing valleys and rural mountain regions that characterise the geography of the province. The aim is to bring all people closer together and give people living in small mountain villages the same opportunities to access the same services, the same quality of life and the same awareness of being part of the territory as people living in towns. The possible fields of intervention in which the use of technology can really make a difference in terms of smart territorial governance are varied and were already mentioned above. The provincial government has recently adopted a Research and Innovation Smart Specialisation Strategy (RIS3). In this document, the province outlines its approach to developing a smart territory and defines instruments and actors that will be taken into account for implementing it. The themes included in this document are mechatronics, a green and clean environment, quality of life and agrifood. For the purpose of this article, we focus on how the province is moving to provide smart answers to requests for more accessible, sustainable and high-quality healthcare services.

2.1 Enabling actors

The aforementioned goals can be achieved by pushing technological innovation and relying on an ecosystem that integrates business, higher education, universities and research institutions. On the one hand, the province can count on prestigious research centres that represent excellence in their fields: the University of Trento, the Bruno Kessler Foundation, the Edmund Mach Foundation and CreateNet, to cite only the largest ones. Over five hundred researchers are involved in ICT-related topics, and at least as many researchers operate in several other fields, from economics to sociology, from materials and microsystems to theoretical physics, and from biology to agriculture. On the other hand, the great effort made by the province for a technological transfer in terms of policies, funding and support structures (Trentino Sviluppo, Informatica Trentina and the Trentino Network) was repaid by a great flourishing of private companies (mostly ICT) in the territory. A group of them operating in health constituted the Health Innovation Hub (HIH; Internet 5). The HIH is a non-profit industrial consortium formed in 2011 with the aim to "join the best local and national skills in a laboratory of ideas for innovation in health and social services; sense the public demand from the ICT sector, participating in procurements and research projects and fostering the collaboration between private, public, academy and research to develop innovative technologies for Health and Wellbeing".

As intermediate players between academia and industry, the province promoted the creation of two actors, one smaller and focused on healthcare (IRCS, or the Healthcare Research and Innovation Programme 2011) and the other with a broader spectrum of operation and responsibilities (Trento Rise). With a location in the territory and with the implementation of research and innovation in healthcare, the IRCS project has the role of acting as a mediator between clinical innovation requests and technological solutions in the territory, helping move knowledge from bench to bedside. IRCS was established in 2011 with the objectives of coordinating research, carrying out innovative activity in healthcare, fostering clinical research through tools and competences, driving innovative processes in healthcare to improve competitiveness, and providing training, educational tracks, professional continuing education, and graduate programmes. The second project, Trento RISE (Internet 6), is a non-profit association bringing together the excellences of the Trentino research ecosystem with a specific focus on ICT and with the mission of helping them in innovation-related activities and exploiting R&D results. Trento RISE is a core partner of the European Institute of Innovation and Technology in the EIT ICT Labs initiative. Trento RISE has the capabilities and role of managing the entire technology-driven innovation process. In relation to the RIS3, Trento RISE can implement the main instruments, linking them with the technology and territorial needs to offer territorial research and innovation activity at a more international level. The projects are implemented in close cooperation with the health authority and public/private stakeholders, with the goal of innovative services through exploiting innovative technologies, providing people with greater autonomy, lower demand for hospitalisation and better quality of life. In addition, TRISE supports local industrial counterparts in shaping key technology enablers towards innovative solutions, addressing issues of interest for business model innovation, efficacy and long-term sustainability of innovative solutions such as evaluation, users and market acceptance, culture and regulatory issues. As a partner of the EIT ICT Labs, TRISE can present results at a European level, thanks to its close connection with the other location centres, and the strong involvement of the Trento node in the health and wellbeing action line.

2.2 Enabling instruments

The instruments mentioned in the RIS3 to support the innovation process support collaboration among research activities, the public sector and enterprises, and sustain the process from service ideation to prototyping and market development. These instruments are designed to prevent solutions from entering the market without first being tested and designed with input from the public. They also aim to attract enterprises to exploit synergies with local research and education centres promoting the establishment of a public-private partnership (e.g., through pre-commercial procurement).

2.2.1 Territorial labs

Born as an evolution and extension of "living labs", territorial labs (TLs) adopt and implement the principles of user-driven, open innovation by bringing R&D design and validation activities out of the laboratories and into real life. People, businesses, academia and public authorities are engaged in helping create products, processes and services through peer-to-peer interaction in the context of public/private/people partnerships established at the local or regional level (Ferrari et al., 2011). Benefits of the method include improved usability, broader user acceptance, better time to market, lower risk and increased returns on investment. The TLs can be seen as an evolution of the living labs in terms of the size of the community involved and for the strong focus they have on the territory and the provision of territory-wide large facilities. As reported in the special issue of *Media2000* (2014), TLs have manifold functions. Thus, TLs can a) serve as platforms for validating applications and services addressing residents and the city in terms of the added value provided to the residents and business models, b) provide the proper context for understanding and addressing the possible impact on organisational aspects and regional governance, c) support marketing of validated solutions by means of permanent showcases and actual "testimonials" (from people involved) and d) attract further investments and stimulate the inception of local entrepreneurs. A key element is thus the construction of partnerships that involve public administration, industry, SMEs and business/volunteer associations together with traditional R&D actors (universities, research laboratories, etc.) and the essential complement of the public and public groups. Through this new and innovative composition and mechanism of aggregation, TLs are able to articulate territorial capital and highlight the resources that are present in a region, and they are committed to open innovation. This approach responds well to the bottom-up perspective adopted by the province of developing solutions for residents starting from their community and territory. Two main TLs have been implemented in Trentino: the SmartCrowds (Internet 7) and Health&WellBeing TLs (Internet 8), which mainly deal with services and applications for welfare and health, as well as a broad range of services based on smartphones.

2.2.2 Pre-commercial procurement

Pre-commercial procurement (PCP) is a process empowering public authorities to buy technologically innovative solutions that fit their needs. Public procurers act as first buyers that share with suppliers the benefits and risks of pulling technology from early-stage research to pre-commercial products. PCP focuses on domains in which no commercial solutions exist yet on the market. It is in essence a mutual learning process for the procurers, users and the suppliers to obtain firm confirmation both about the functional needs on the demand side and the capabilities and limitations of new technological developments on the supply side when it comes to tackling a concrete public sector problem. As described in "Pre-commercial procurement: Driving innovation to ensure high quality public services in Europe" (see European Commission, 2007), PCP is usually composed of three phases, each having a well-specified focus and duration. In the first phase, the technical, economic and organisational feasibility of the proposal against the pros and cons of potential alternative solutions is evaluated, as well as its ability to solve the problem of public interest. Phase 1 finishes with a technology evaluation and an organisational plan about the planning of R&D in Phase 2, and an estimate of the economic impact of the proposed solution. Phase 2 includes actual development up to realising the first (not yet commercially usable) prototype, which has to be tested, and clear product specifications and a product plan have to be outlined. In Phase 3 research and development continues beyond the first prototype up to a first batch of pre-products/services (pre-commercial volume production) that are validated through field tests and original development. In Phase 3, companies are expected to address business aspects including production plans, marketing and communication strategies as well as their ability to attract interest from investors or first buyers.

2.2.3 European Regional Development Fund

The ERDF is the European Regional Development Fund (Internet 9). The province has exploited the ERDF to stimulate partnerships between companies and research organisations for promoting industrial research and experimental development in the ICT sector in the context of service innovation and health-tech in particular. Under supervision of HIH and consultants provided by the IRCS, five projects were developed to cover various segments of products and services related to e-health. Projects included e-bank facilities for advanced tissue diagnosis, integration of care for bridging hospitals to territories, and specialists to GPs, and medical devices for tracking and remote control at hospitals and at home. Overall, these projects will offer a unitary solution for advancing diagnosis and care in a hospital-to-territory integration vision.

2.2.4 Wireless and Optical TestBed Laboratory

The Wireless and Optical TestBed Laboratory (WOTBL, Internet 10) is an ICT infrastructure devoted to experimenting with and deploying future internet technologies, services, applications and prototypes located in the province. WOTBL is characterised by an open environment implemented on a communication infrastructure in which target user groups

can be part of the experiment. The testbed is composed of a citywide network to provide connectivity not only among the partners but also between them and the rest of Trentino's network infrastructures. The testbed provides a Europe-wide distributed experimentation platform and its unique combination of technologies will facilitate the deployment of end-to-end future internet trial scenarios in which bandwidth demand is highly relevant.

2.3 Key enabling technologies

A crucial role in the RIS3 is played by key enabling technologies (KETs), which have been chosen consistently with the characteristics of the scientific, technical and entrepreneurial context of the territory. The KETs that have been identified are ICT, micro- and nano-electronics, nanotechnology, advanced materials and industrial biotechnology. Some examples among the others are:

- Techniques and tools of e-health (e.g., eHealth, mHealth) for primary and secondary prevention and self-care, including the integration of telemedicine and telecare (e.g., chronic disease management, issues related to mental health, telemedicine and telecare-based sensors);
- Techniques that make use of nanotechnology and nanomaterials to detect the presence of disease states through the direct interaction of these with specific markers and to facilitate treatment through controlled drug-delivery systems controlled by the presence of the markers themselves;
- Techniques, tools and platforms based on "big data" for collecting, processing, managing and exploiting personal data and aggregated patient/resident electronic health records (e.g., biometric data, clinical processes and health, need for medication, daily activities, habits and lifestyles) for real-time sharing of information with actors in socio-ecosystem health;
- Techniques for supporting the quality of life, primary prevention for the decline in physical, mental and social autonomy in vulnerable people (e.g., assisted living technologies, ambient intelligence, automation, tools for controlling instruments entrusted to patients, oxygen therapy and infusion pumps) and for the interaction and participation of social groups in difficulty.

Thanks to the KETs, new technological pathways have been identified that might improve practices and make the healthcare system more efficient. The mission of the provincial health service through this enabling technology is to develop an overarching assistance scheme in which smart hospitals and integrated and inclusive care will be the driving concepts of innovation in the healthcare sector.

3 A territory devoted to health and wellbeing

Given the premises cited above, healthcare innovation finds a favourable context for its development. The local healthcare service is committed to developing innovative solutions to support advanced models of service management in social care and healthcare provided to residents in an integrated manner by multiple agencies and organisations, both public and private. These solutions respond to principles such as usability and transparency, addressing issues of assistance, care, promoting wellbeing and social inclusion. As described so far in this article, Trentino has been characterised as being a promoter of quality of life and wellbeing of residents. Indeed, the synergic efforts among the various actors and the use of enabling technologies and instruments were already experimented with before formalisation in the RIS3 and produced several and different activities to foster this innovative process for the promotion of healthy ICT-based research. The main activities in this direction can be grouped into three intervention priorities:

- Wellbeing;
- Healthcare management and accessibility;
- Innovative assistance and care.

3.1 Wellbeing

The Suitcase project (Internet 11) is a PCP competition tendered by Trento RISE with the aim of developing innovative services in ambient assisted living. In particular, innovative services address the welfare of people in their own homes, with a focus on the elderly. The Suitcase project is also supported by the Health&WellBeing Territorial Lab for co-creation activities with users and stakeholders and experience evaluation. The Personal Fitness Club (Internet 19) aims to develop a tablet-based application allowing older adults to improve their health through physical exercise. The app was developed by an EU-wide project consortium in the EIT ICT Labs context. Finally, the Stress@Work project foresees the development of a participatory monitoring system and stresses management for people at work via mobile technology. The project is part of a larger project financed by the Action Line for Health & Wellbeing by the European Institute of Technology (Internet 12).

3.2 Healthcare management and accessibility

The purpose of this priority is to provide people with the highest possible level of autonomy, quality of life and participation in society by means of integration of health and social care plans provided by local healthcare. The Punto Unico di Accesso (PUA, Internet 13) is a PCP competition tendered by

Trento RISE with the aim of developing a "single window" approach to accessing social and medical services. Specific objectives of the PUA Project regard the development of innovative ICT architecture and services, enabling integrated care plans and optimising personalised multi-disciplinary interventions and related resources; innovative organisational models and user profiling; and training and information actions for users, relatives, operators and other involved actors. The project is supported by a strong commitment by the local health authority and the province's government and responds to a specific key component of Provincial Law 16/2010, which advocates facilitating access for and providing care to frail people through the integration of healthcare and social care. Moreover, since 2008, through the Innovation Project TreC, the province has encouraged the realisation of a platform of online services to access, share and update health-related documents, with the aim of promoting the empowerment of people. The TreC project also provides infrastructure for supporting assistance and a remote-monitoring trial and for studying changes in the relations between people and healthcare providers that derive from the introduction of new communication technologies (Internet 14).

3.3 Innovative assistance and care

The implementation of innovative services for assistance and care has a great impact on the sustainability and quality of healthcare system in the province, with particular attention to the integration between hospitals and territories. Effective collaboration among local authorities, health providers and private companies proved to be able to attract European funds. The Trentino health system is currently involved in several European projects designed to provide new technological solutions for managing care plans and integrating care with strong involvement of patients themselves and the surrounding communities. This is the case of Nathcare, a project (Internet 15) funded by the Alpine Space Programme to create a platform to manage long-term care patients with a transnational vision. Trentino chose the treatment of pregnancy as a case study, proposing a management model that follows the entire care path from conception to weaning. The Nympha project (Internet 16) focuses on implementing a PCP for mobile eHealth services to support physicians and patients in treating bipolar disorder through continuous patient monitoring in order to dynamically support illness management and potentially identify early deviations in mood and attitudes suggesting the onset of a crisis. Finally, three projects involving the local network of research and development with private companies (Trilogis and Socialit), research institutes (FBK, CreateNet and the University of Trento) and a healthcare Trust (APSS) have been funded by the European Commission to provide new services for patients and health providers based on indoor/outdoor localisation systems. The proposed systems will a) guide patients from home to the hospital and inside it (i-locate, FP7, led by Trilogis srl, Internet 17), b) optimise the use of electrical medical equipment by analysing the movement and position of instruments inside the building (iCore, FP7, led by CreateNet, Internet 18) and c) provide new ICT solutions for ambient assisted living for elder people with mild cognitive impairments (UNCAP, Horizon2020, led by Trilogis srl).

4 Conclusion

This article describes the structural system that was designed and fostered by the autonomous province of Trento to shape a smart territory in line with what is envisaged by Europe 2020. The European Commission identified three key aspects for economic growth in Europe: smartness, sustainability and inclusion. Governments and municipalities have therefore been encouraged to consider the development of their cities and territories by adopting innovative, creative and intelligent solutions in all economic areas (Bătăgan, 2011). The province has acknowledged and translated these guidelines into its Research and Innovation Smart Specialisation Strategy (RIS3). The RIS3 supports the creation of a smart territory, convinced that such growth can be properly addressed if it is actually driven by the public and enabled by technology. The smart territory as promoted in the province refers to an innovative model of governance, which integrates business, higher education, universities and research institutions in an eco-system aimed at implementing sustainable solutions and smart services for residents. The special feature of such a holistic approach is that the territory becomes a carrier of values, people and instruments that together contribute to its sustainable development. Research activities are developed in the field together with local residents, who have the possibility to actively participate in the innovation process and can be responsible for its outcomes.

For the province, the territory has therefore become a place for implementing and exploiting research. By means of its RIS3, the government has adopted instruments and identified enabling technologies that allow for fruitful collaboration of various components from the research and innovation system. This includes, for instance, internet infrastructures, testbed facilities, PCPs, territorial labs and public-private partnership. Moreover, this approach provides all stakeholders (business, research and society) with instruments to collaborate with the public sector towards developing people-centred solutions driven by people's real needs.

This variety of activities makes clear the complex management of the entire process. In the past year, with the IRCS project,

specific attention has been addressed to healthcare research and innovation recognising this sector as a strategic engine for inclusive growth and social innovation. The approach adopted by the province could constitute an example for developing sustainable research and innovation in the health sector as affirmed by the position paper for excellence in health research delivered by the Mattone Internazionale Project (2014) for the European semester of the Italian presidency. Trentino's government has pursued the goal of providing various actors with the proper instruments for public-to-private cooperation for developing services focused on real people's needs. The establishment of a dedicated actor, such as Trento RISE, that promotes a governance innovation strategy with a wide spectrum in the territory should be seen as an enabling factor for economic growth that supports dialogue among the public, researchers, stakeholders and policymakers to develop a sustainable and person-centred innovation system.

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References

Bătăgan, L. (2011) Smart cities and sustainability models. *Informatica Economica Journal,* 15(3), pp. 80–87.

Bélissent, J. (2010) *Getting clever about smart cities: New opportunities require new business models.* Cambridge, MA, Forrester Research.

European Commission (2007) *COM(2007) 799. Pre-commercial procurement: Driving innovation to ensure high quality public services in Europe*. Brussels.

European Commission (2010) *COM(2010) 2020 EUROPE 2020. A strategy for smart, sustainable and inclusive growth*. Brussels.

Ferrari, V., Mion, L. & Molinari, F. (2011) *Innovating ICT innovation: Trentino as a Lab*, Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance, 26–28 Sep., Tallinn, Estonia. Typescript.

Internet 1: http://www.spheraproject.eu (accessed 9 Dec. 2014).

Internet 2: http://www.ilsole24ore.com/temi-ed-eventi/qdv2014 (accessed 9 Dec. 2014).

Internet 3: http://www.eitictlabs.eu (accessed 9 Dec. 2014).

Internet 4: http://smartcities.ieee.org (accessed 9 Dec. 2014).

Internet 5: http://www.healthinnovationhub.eu (accessed 9 Dec. 2014).

Internet 6: http://www.trentorise.eu (accessed 9 Dec. 2014).

Internet 7: http://www.smartcrowds.net (accessed 9 Dec. 2014).

Internet 8: http://www.trentorise.eu/en/health-wellbeing-territorial-lab (accessed 9 Dec. 2014).

Internet 9: http://ec.europa.eu/regional_policy/thefunds/regional/index_en.cfm (accessed 9 Dec. 2014).

Internet 10: http://www.create-net.org/testbed (accessed 9 Dec. 2014).

Internet 11: http://www.suitcaseproject.it (accessed 9 Dec. 2014).

Internet 12: http://www.smartcrowds.net/#!stresswork/cfif (accessed 9 Dec. 2014).

Internet 13: http://www.trentorise.eu/public_notice/ict-platform--support-social-and-welfare-integration-model-orchestrated-provision (accessed 9 Dec. 2014).

Internet 14: https://trec.trentinosalute.net (accessed 9 Dec. 2014).

Internet 15: http://www.nathcareproject.eu (accessed 9 Dec. 2014).

Internet 16: http://www.nympha-md-project.eu (accessed 9 Dec. 2014).

Internet 17: http://www.i-locate.eu (accessed 9 Dec. 2014).

Internet 18: http://www.iot-icore.eu (accessed 9 Dec. 2014)

Internet 19: http://demo.socialgym.org (accessed 9 Dec. 2014).

Mattone Internazionale Project (2014) *Position paper excellence in health research: The best clinical and social research for a better health*. Available at: http://www.progettomattoneinternazionale.it/upload/mattone/gestionedocumentale/Position_Paper_Tavolo_4_Research_EN_def_784_3493.pdf (accessed 9 Dec. 2014).

Media2000 (2014) *Special issue on EIT ICT Labs Italy*. Available at: http://www.media2000.it/e/300%20inglese (accessed 9 Dec. 2014).

Nam, T. & Pardo T. A. (2011) *Conceptualizing smart city with dimensions of technology, people, and institutions.* Proceedings of the 12th Annual International Conference on Digital Government Research 12–15 June, College Park, MD, USA. Typescript.

Provincia Autonoma di Trento (2014) *Strategia di Specializzazione Intelligente (RIS3)*. Trento.