"Smart&Heart Rome" Initiative
A Contribution to the Vision-making Process of the City of Rome

Alfonso Molina
Professor of Technology Strategy, The University of Edinburgh
Scientific Director, Fondazione Mondo Digitale

Rome, February 2014

"Smart&Heart Rome" Initiative
A Contribution to the Vision-making Process of the City of Rome

Professor Alfonso Molina

1. INTRODUCTION

Cities and regions all over the world are facing enormous challenges, many of them identified in the societal challenges contained in the Horizon 2020 Framework Programme, including the Digital Agenda and the Smart Cities Initiatives. The current crisis provides the background for the pursuit of all the local, regional, national and European initiatives and programmes. Indeed, it has deepened the difficulties cities and regions have to face in dealing with the societal challenges. A heavy reduction of Cities' financial resources, high unemployment and precarious work, stalling of growth, high school abandonment and NEET population are among the most immediate problems municipalities and regions must face. These conditions are having a dramatic impact on the lives of citizens, young and old. For instance, in Italy, youth unemployment has reached almost 42% in the 15-24 years category and about 2.6 million youngsters under 30 are in the NEET category. Behind these statistics are lives that are being denied not just a job opportunity but also the possibility to have a fulfilling life. More than any other time in decades, today it is imperative to work for the stimulation and mobilization of the individual and social energies, resources and passion existing and active in the communities and territories through companies and associations of all sizes and trades, the school and university system, the social sector from foundations to social enterprises, the government institutions at various levels, and the community organizations rooted in the territories. The energies, resource and passion found in the people and organizations belonging to all these sectors are the same that can transform the city, after all, they live in and across city areas, often in relationships inside the city and, also, between cities.

2. CITY VISION-MAKING AND IMPLEMENTATION: SOME FUNDAMENTAL ASPECT

I think a fundamental aspect of the process of city vision-making and implementation lies in finding the approach, mechanisms and activities that stimulate and mobilize the energies, resources and passion of people and their organizations around programmes and projects that foster combinations of the following:

(a) a culture of innovation in its widest sense, i.e., combinations of technological, business, social, educational, cultural and civic innovations, with a emphasis on openness (e.g., open data, open source software and hardware, open networks, open innovation);
(b) education for life, involving (i) active and experiential learning of standardized codified knowledge, including ICTs, languages, (b) 21st century life competences, including creativity, innovation, communication, entrepreneurship, and (c) fundamental values and character formation for active citizenship, including solidarity, diversity, social inclusion and cohesion to make true the European Social Model;

(c) systemic/collaborative approaches and mechanisms resulting in social learning and valuing the relevant structures, activities and content already existing;

(d) deep rooting in the territories and communities, resulting in motivation, participation, solidarity, inclusiveness and empowerment;

(e) use and development of integrated physical and virtual approaches and instruments such as co-working spaces, fablabs, social networks, apps, clouds, open-data mining and open-content selection and structuring (for instance, into MOOCs), involving crowdsourcing (crowdfunding), creative visualization and analytics;

(f) multi-cognitive, configurable, hw/sw systems and approaches to individual and social learning, including mixes of multimedia learning objects (e.g., presentations, videos, games, narratives) for personalized or individuated collaborative learning; and

(f) use of real-time evaluation as social learning factor for continuous improvement, using innovative visualization and analytics (dashboard-type).

In sum, the approach is innovation-driven, systemic/holistic, collaborative, territory-and community-oriented, technology-based, physical-virtual, and above all, places solidarity and the empowerment of people and their organizations at the centre of a "living" vision of the City, a vision that does not remain on paper, it rather emerges from the permanent dialogue and joint action among its citizens, including the authorities and institutions. In his process, the City authorities have an important leadership role to play. However, the aim is the stimulation of a distributed leadership across the City, working for the common good and hence the good of the City and all its territories and communities. This is a process that must speak directly not just to the logical intelligence of people (see Gardner's multiple intelligences[1]), it must speak to their emotional intelligence (see Goleman's emotional intelligence[2]), engaging their motivation, aspirations, self-esteem, expectations (self-efficacy) and meaning, all acknowledged key words for a successful life in the 21st century. It looks at people and society in their full rich multi-dimensionality and this is the reason for the title of this note: "Smart&Heart Rome Initiative"

3.   SMART CITIES (SC) AND SMART&HEART CITIES (SHC)

In Europe, cities are working on the strategic agenda of Smart Cities, following their own paths in accordance with their histories, characteristics, resources and visions. The concept of Smart Cities as promoted by the European Union, for instance, through the European Innovation Partnership "Smart Cities and Communities (EIP SCC),"[3] places strong emphasis on energy and climate challenges for sustainability through solutions that see Energy Supply & Distribution, Transport & Mobility, and Information and Communication

---

[1] Gardner, H., *Intelligence Reframed. Multiple Intelligences for the 21st Century*, Basic Books, NY, 1999.

[2] Goleman, D., *Emotional Intelligence. Why It Can Matter More than IQ*, Bloomsbury, London, 1996. And Goleman, D., *Working with Emotional Intelligence*, Bloomsbury, London, 1999.

[3] CEC, Communication from the Commission Smart Cities and Communities – European Innovation Partnership, C(2012) 4701 final, 10.7.2012, Brussels.
Timmers, P., European Commission's *European Innovation Partnership* "Smart Cities and Communities," Presentation given to the Member State Information Meeting, 27 September 2013, Brussels.
European Innovation Partnership on Smart Cities and Communities. Strategic Implementation Plan, 14.10.2013, p.3.
Found at http://ec.europa.eu/eip/smartcities/files/sip_final_en.pdf

Technologies (ICTs) as having and enabling effect on society. In particular, it is envisaged that these Smart City solutions will have an impact on (a) Sustainable Urban Mobility (e.g., alternative energies, public transport, efficient logistics, etc.); (b) District and Built Environments (e,g., integration of positive renewables, positive energy districts, deep retrofitting, etc.); and (c) integrated infrastructures (e.g., cross-sectoral infrastructure integration, joint planning and business models, common standards, etc.). The expected impact is stated in the strategic implementation plan of the Partnership on Smart Cities and Communities: *This partnership strives at a triple bottom line gain for Europe: a significant improvement of citizens' quality of life, an increased competitiveness of Europe's industry and innovative SMEs together with a strong contribution to sustainability and the EU's 20/20/20 energy and climate targets. This will be achieved through the wide-reaching roll out of integrated, scalable, sustainable Smart City solutions...*[4]

Timmers (2013) identifies "common challenges and levers" to make progress on the priority areas. These include (a) Funding and Finance with reference to procurement and financing & business models, (b) Information and Decisions with reference to open data, standards and baselines, performance indicators and metrics, and (c) Insights and Governance with reference to citizen focus, integrated planning and management, and knowledge sharing. The citizen focus includes the need for "participative citizen involvement right from the planning stage, empowerment through information …", while integrated planning and management includes the need for "realising systemic, holistic views in organisations, strong political leadership …", and knowledge sharing includes the need for "targeted networking and marketplaces for maximum outreach …" (p.7)

There is little doubt that the Smart Cities agenda has the potential for tremendous economic and social impact for cities and countries. A recent UK study has estimated the economic potential of the Smart City market:

> We estimate the global market for smart city solutions and the additional services required to deploy them to be $408 billion by 2020. Breaking this down by vertical, in transport for example, Pike Research estimates a global market for smart transport solutions based on digital infrastructure to be $4.5 billion by 2018. These solutions are enabling solutions for a wider market of $100 billion by 2018 which includes the physical and digital infrastructure for parking management and guidance, smart ticketing and traffic management.[5] (p.i)

Given such numbers, one could be led to believe that the evolution of the Smart City approach just exposed might lead to the "automatic" solution of the massive problems indicated earlier in the paper, including, for instance, youth unemployment and the NEET phenomenon. This is most unlikely to be the case, since there is no specific targeting of these problems in the approach just discussed. In addition, the "citizen focus" of the Smart City approach tends to be "top down," probably through involvement in some consultative stage and "empowerment through information," and not through their creative involvement in building social, cultural, educational,

---

[4] European Innovation Partnership on Smart Cities and Communities (2013), p.3

[5] Department for Business Innovation & Skills, The Smart City Market: Opportunities for the UK, *BIS Research Paper No. 136*, London, October 2013.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/249423/bis-13-1217-smart-city-market-opportunties-uk.pdf

technological, civic innovation processes. The difficulty of the top down approach in the European context has been pinpointed by Schwarz (2013) in two points (a) at the outset of the EIP SCC, cities and industry were identified as the key players, and (b) the barriers identified for the establishment of the Smart City (SC) show, however, that other actors need to work in unison to enable the transformation of cities.[6] His conclusion is that the grand challenges involved in SC require joint efforts and actions across a wide variety of stakeholders, leading to a new quality of pooling and implementation of financial resources, emerging from the shared leadership of the actors involved.

The concept of Smart City, however, is not monolithic with one single meaning attached to it. Indeed, cities interpret quite freely the approach and activities to pursue. Thus, Paolo Testa Direttore Cittalia - ANCI Ricerche, has noted that there are two approaches cities use in relation to the theme of Smart Cities. He calls "vertical approach" the one just discussed and notes that it is decisively more diffused. Instead, in the second approach, "the Smart Cities are those cities that create the government, infrastructural and technological conditions to produce social innovations, that is, to solve social problems related to growth, inclusion and quality of life, through the attention to, and involvement of, the diverse local actors: citizens, enterprise, associations."[7]   In this second approach,

> The governance of a smart city presupposes the adoption of an approach founded on a systemic vision, the government capacity of the web, and a culture of civic participation in the creation of public value. The governance of the Smart city presupposes the overcoming of the bipolar logic between citizens and government in favour of a culture of active citizenship. (Ibid., p.6)[8]

The recent study commissioned by the Directorate General for Internal Policies, European Parliament,[9] confirms the large diversity of "Smart-Cities" concepts, as reflected in the large number of projects and initiatives European cities are currently pursuing. Ninety percent of the sample cities have initiatives focused on Europe 2020 energy targets, one-third of the initiatives are focused on employment targets, and one-quarter are focused on improving social inclusion and reducing poverty. Based on the clear diversity, the report proposes a working definition of Smart City, as 'a city seeking to address public issues via ICT-based solutions on the basis of a multistakeholder, municipally based partnership'. (p.24) It criticises those approaches to Smart Cities that focus almost exclusively on the role of ICT in linking city-wide services. Thus, "[w]hile ICT is a definitive component, Smart Cities cannot simply be created by deploying sensors, networks and analytics in an attempt to improve efficiency." p.23 Instead, "[a]ny adequate model

---

[6] Schwarz, H., *EIP Smart Cities and Communities. A Member States View on Process and Implementation, Presentation for the Information Meeting for Member State Representatives on the EIP Smart Cities and Communiti*es, 27 September 2013, Brussels.

[7] Paolo Testa, Introduzione. In ANCI/Forum PA, *Vademecum per la Città Intelligente*, Osservatorio Nazionale Smart City, Edizione Forum PA, Roma, 2013, p.6. Translation from "le Smart cities sono le città che creano le condizioni di governo, infrastrutturali e tecnologiche per produrre innovazione sociale, per risolvere cioè problemi sociali legati alla crescita, all'inclusione e alla qualità della vita attraverso l'ascolto e il coinvolgimento dei diversi attori locali coinvolti: cittadini, imprese, associazioni."

[8] Translation from: La governance di una smart city presuppone l'adozione di un approccio che faccia propria la visione sistemica, la capacità di governo della rete, la cultura della partecipazione civica nella creazione di valore pubblico. La governance della Smart city presuppone il superamento della logica bipolare tra cittadino e governi a favore della cultura della cittadinanza attiva. (ibid., p.6)

[9] Manville, C. *et al., Mapping Smart Cities in the EU*, Policy Department A: Economic and Scientific Policy, Directorate General for Internal Policies, European Parliament, IP/A/ITRE/ST/2013-02, January 2014. Found at http://www.europarl.europa.eu/studies

for the Smart City must therefore also focus on the Smartness of its citizens and communities and on their well-being and quality of life." p.24 Townsend (2013) believes that such an approach requires the guidance of a new set of principles which need to build:

> not only on our growing scientific understanding of cities and how technology shapes and is shaped by them, but also a broader appreciation of the human condition and how it is changing in this first predominantly urban century. To put it simply, we need science, but we also need culture to chart the way forward." (p.282)[10]

Townsend is hopeful that this can happen since he sees people already at work "building Smart Cities much as we built the Web – one site, one app, and one click at a time." (p.xiv) At the same time, he believes that it will take a "social movement that enlists science, the humanities, and us all to address the challenges we face building a planet of cities that can survive." (p.320) In my view, this entails fundamental processes of systemic innovation (in a full sense), learning and education that mobilise the entire resourcefulness of the human condition.

3.1   Smart&Heart Cities

This paper is definitely in the track of the second richer approach, here named Smart&Heart Cities to emphasize the centrality of the "whole person" and the "whole society" as simultaneous creators and beneficiaries of the making and implementation of the Cities' present and future. As anticipated, the critical point for SC&H initiatives is that they should embrace and make possible processes that are innovation-driven, systemic/holistic, educational, collaborative, territory-and community-oriented, technology-based, physical-virtual, and above all, place solidarity and the empowerment of people and their organizations at the centre of a "living" vision of the City that emerges from the permanent dialogue and joint civic action among its citizens, including the authorities and institutions.

S&HC initiatives must have a distinctive emphasis on experiential education for life integrating standardized codified knowledge, life competences and character formation for socially responsible citizenship and deep civic involvement. This type of education constitutes a leading edge topic within important schools of thought and scholarly contributions to the field of education today, including the concepts of "transformative learning,"[11] "life-long," "life-wide" and "life-deep" learning[12] as well as the concept of "five minds" for success in the 21st century.[13] The issue is the formation of citizens who (a) are reflexive and able to analyse critically,

---

[10] Townsend, A., *Smart Cities. Big Data, Civic Hackers, and the Quest for a New Utopia,* W.W. Norton & Company, NY, 2013. Townsend defines smart cities "as places where information technology is combined with infrastructure, architecture, everyday objects, and even our bodies to address social, economic, and environmental problems." (p.15)

[11] Mezirow, J. & Associates., *Learning as Transformation. Critical Perspectives on a Theory in Progress*, Jossey-Bass, San Francisco, 2000. Also, Taylor, E., Cranton, P. & Associates, *The Handbook of Transformative Learning. Theory, Research, and Practice,* Jossey-Bass, San Francisco, 2012.

[12] Banks, J., Au, K., Ball, A., Bell, P., Gordon, E., Gutiérrez, K., Heath, S., Lee, C., Lee, Y., Mahiri, J., Nasir, N., Valdés, G. & Zhou, M., *Learning In and Out of Schools in Diverse Environments. Life-Long, Life-Wide, Life-Deep*, The LIFE Center, University of Washington, Stanford University, and SRI International: Washington, Seattle, 2007.

[13] Gardner, H., 5 *Minds for the Future*, Harvard Business Press, Boston MA, 2008.

systemically, creatively, and cooperatively the challenges society faces, and (b) have the entrepreneurial skill and commitment to a common-good project for their cities and fellow human beings. In this respect, S&HC initiatives must be capable of transforming challenges and processes of systemic social and civic innovation into collective social learning experiences that raise the knowledge, competences and overall human capacities and richness of each and all the participating citizens.

Ultimately, for Rome, such S&HC initiatives must stimulate and mobilize the energies, resources and passion of people and their organizations in pursuit of goals, processes and results that position the City Rome among the most innovative cities of Europe and the world. In the following, the document presents an approach consequent with this line of thought.

4.   A SMART&HEART CITY INITIATIVE FOR THE CITY OF ROME

Many and diverse initiatives can take place in the ambit of a Smart&Heart City approach. The initiative proposed hereby builds on the activities of the Fondazione Mondo Digitale (FMD) but, surely, there are others and, indeed, an important objective is to promote a synergistic approach that blends the strengths of existing initiatives.

The Fondazione Mondo Digitale was founded by the Municipality of Rome and six ICT companies to foster ICT-based innovation in Schools and the digital inclusion of sectors at risk of missing out on the benefits of the information society. The FMD has carried out many projects with schools, companies, associations, community organizations, local, regional and national authorities, and many European partners. The projects of the FMD are rooted in communities and territories and some have spread across Italy and Europe. The FMD works with an Action Research, Development and Implementation (ARD&I) approach and seeks to develop physical and virtual instruments and activities to support e-inclusion, ICT-based innovation, creativity, innovation and entrepreneurship and, generally, education for life. On these bases, it is possible to conceive of systemic initiatives that bring together the various aspects identified above to generate processes that contribute to tackle societal challenges such as youth unemployment, NEETs, active ageing, the city environment, etc.

The focus of the initiative proposed here is young people, not in isolation but as creators and beneficiaries of a system of actors, organizations, and activities that work to increase their self-esteem, abilities, resources, and opportunities for jobs, innovation, entrepreneurship and, more generally, a fulfilling life. The appalling news about school abandonment, unemployment, NEETs, and the overall crisis of the country, have an "implicit learning" effect that tends to reduce the confidence and expectations of youngsters' own possibilities and abilities to find a good job or, even better, creating their own, either alone or in a team with others. At the same time, the news also bring stories of new opportunities associated to rapid technological and business-model changes, new emerging markets, the potential for re-invigorating others, the rapid growth of the social sectors, and even of jobs left unfulfilled due to lack of people with the appropriate skills.

In this contradictory situation, the fact is that there are no quick solutions. In fact, the recent McKinsey report "Studio ergo Lavoro"[14] reveals that, in Italy, 40% of the overall youth rate of

---

[14] Castellano, A., Kastorinis, X., Lancellotti, R., Marracino, R. and Villani, L., , *Studio ergo Lavoro. Come facilitare la*

unemployment (at 28% for the under 30) has structural causes, particularly, in the misalignment between the human capital formed by the educational system and the needs and opportunities generated by the productive and economic system. These structural causes precede the current crisis and must be tackled effectively if solutions with long-term benefits for youth and the city are to be generated. The report identifies three main causes that make particularly difficult the school-work transition. These are:

(a) "Quantitative disequilibrium between the demand from enterprises and the youth's educational choices. … In other words, the educational system is not aligned with the competences requested by the enterprise … One of the main factors … lies in the fact that at the moment of selecting the studies to pursue, the youngsters do not have enough knowledge regarding the implications their choices have on jobs prospects." (Castellano *et al.*, p.19)

(b) "Lack of competence suitable to the needs of the economic system. … Only 42% of Italian enterprises believe that the youngsters joining the world of work for the first time have a preparation adequate to the demands of the productive system … The aspect that employers complain most in relation to the newly employed is not so much the lack of knowledge specific to the various careers; it is rather the deficit in general competences … and a limited experience. …Among the general competences in which the newly employed show the most deficit are the mastery of foreign languages, basic mathematics and analytical and problem-solving capacity; and also leadership capacity, ethics and professional deontology …" (Ibid, p.22)

(c) "Deficiency of the channels supporting the job search … in Italy, Portugal, Spain and Greece over 80% of the unemployed turn themselves to friends, acquaintances and relatives to find a job. In Italy, the institutional channels are used only by a minority of youngsters (around one third) … Even the resort to private job agencies in our Country [Italy] is decisively limited (20% of cases)." (Ibid., p.24)

Clearly, we are in the face of a system that does not work, or, more precisely, in the face of a non-system. The clear message that comes out of the report is that the solution must be systemic and must start in the educational system and its orienteering function, in close interaction with the productive, service and research systems. It must be formative providing the youngsters with the general skills or competencies (life skills) that, today, do not find a systematic integration in the school and university curricula. Indeed, the study identifies, along with foreign languages and basic mathematics, capacities of analysis and problem solving, leadership, ethics and professional deontology. These are essential for creativity, innovation, entrepreneurship, and personal and social responsibility in work and life as active citizens. **This is the education for life that this document has identified as the key for a fuller life in the 21st century.** Finally, a systemic solution must have systemic channels and mechanisms that facilitate and support the search for jobs. The existing institutional challenges must work as an effective system, collecting, disseminating and matching the job demands and opportunities. The flows of information must arrive to the educational and industrial/service system. In addition, the educational system should be able to interact directly with leaders and entrepreneurs from the productive, service, social, government and community sectors to have direct input on technological, business and social trends. In fact, schools, technical and commercial institutes, universities should open up spaces of encounter with the territorial reality of the city in an interaction of mutual benefit in terms of work-and-life-orienteering and opportunity-creation and matching. The following section presents a possible system for this purpose.

---

transizione scuola-lavoro per ridurre in modo strutturale la disoccupazione giovanile in Italia, McKinsey & Company, 2014.

5. A CONCRETE PROPOSAL BUILDING ON EXISTING EXPERIENCES

The proposed initiative intends to be systemic, multi-organizational and multi-sectoral, and evolutionary. It builds on existing experiences and seeks to develop those areas that are central to (a) the initiative's systemic working (physically and virtually) and (b) its continuous improvement in terms of social learning and formative (education for life) results. Figure 1 provides a systemic view interrelating the multiple areas to bring together, both functionally and territorially. At the centre the large block "Main Facility" shows the functional view of the core of the initiative. The term "function" is used on purpose to highlight the fact that the generation and circulation of the necessary flows of information, knowledge, competences, experience, vision, etc., demand an effective interaction and rooting in the life and territories of the City. In this respect, it may be the case that existing organizations and programmes already provide important parts of the functions identified, thus making advisable for the Main Facility to better perform a role of liaising and promotion at the systemic level. In other words, the functions of "Main Facility" may well be distributed in the territory with a "window" inside its physical reality.

The Main Facility has two major interacting areas with 10 surrounding functions or activities. The 2 major areas are:

(I) Project-based physical-virtual facilities for experiential, collaborative social learning of self-awareness and esteem, problem-solving, team-building, leadership, innovation (technological, social, cultural, civic), and entrepreneurship. This area seeks to provide a systematic approach and response to the first two structural problems identified by the McKinsey Report. The formative approach must be project-based, experiential and must be able to use and integrate the best the physical and virtual worlds can offer. It has to start from a meaningful orientation process, individually and socially, and stimulate the personal or team journey towards talents-and-passion recognition leading to potential career development that may lead to jobs and even entrepreneurship. This area should have a deep relation with the world of education and the territory. Indeed, one of its objectives should be the emergence inside every school and, perhaps, universities of spaces dedicated to the systematic learning of the skills of an education for life.
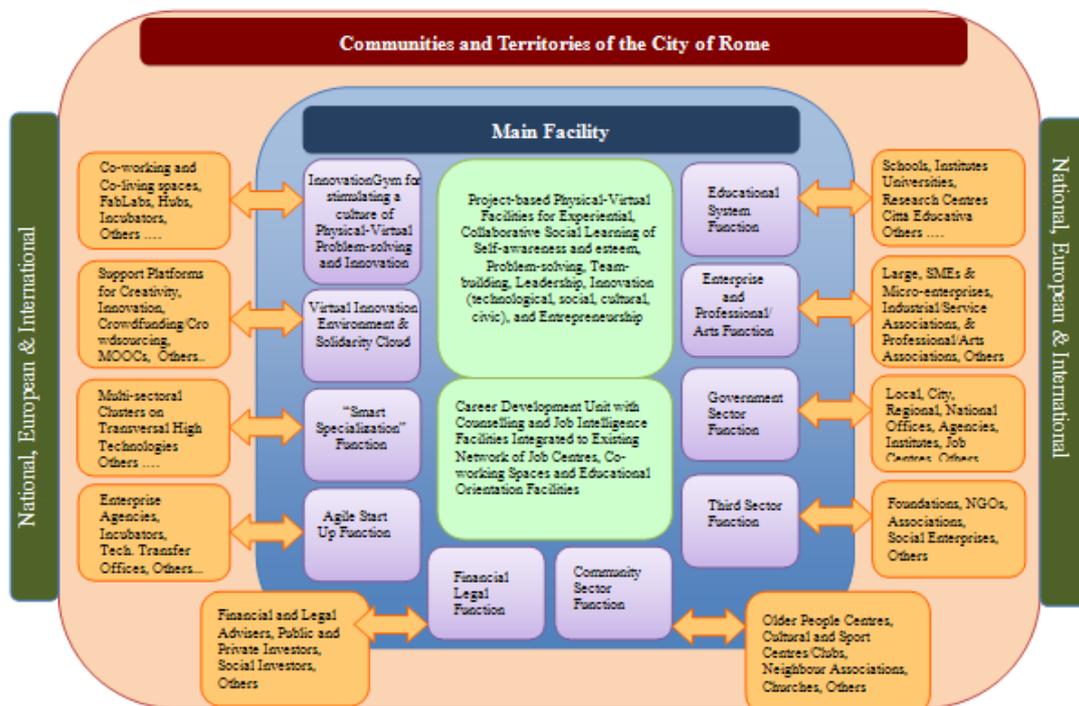

Figure 1. Systemic Initiative for Youth Development

(II) Career development facilities with counselling and job intelligence and matching facilities integrated to existing network of job centres, co-working spaces and educational orientation facilities. It relates to the third structural problem identified in the McKinsey Report. At the simplest level, this area must be able to provide immediate matching of existing job offer-and-demand, either by accessing or referring to the existing network of organizations already providing this service in the territories. For this purpose, it should have a strong liaison and promotional role with the existing network. If the job search and matching is more complex as may be the case of longer-term youth unemployed or NEETs, the approach must be one of career development and counselling as conceived for the 21st century.[15] This approach considers the whole person in its social context, understanding that the world is in constant change, jobs are no longer for life, and lifelong learning is essential. In this new 21st century context, the definition of career shifts to lifestyle, with work as an essential component but not the only one. This approach highlights the multiple life roles people play and the differences among people regarding, for instance, the importance of work in their lives, including homework and volunteer work. In this respect, career development activities must be empowering, including those that help people "develop self-awareness, develop occupational awareness, learn decision-making skills, acquire job-search skills, adjust to occupational choices after they have been implemented, and cope with job stress …" Niles and Harris-Bowlsbey, 2002, p.7) Clearly, there is a strong interaction between areas (I) and (II).

At least ten functions or activities interacting deeply with organizations existing in the communities and territories of the City of Rome are important to realize the interrelated goals of the two main areas. These are shown in Table 1. It must be noted that some of these functions make reference to work under way at the Fondazione Mondo Digitale, while identifying other existing and potential City realities of relevance to the performance of the functions. The document can and should be enriched with the integration of other concrete experiences of relevance to the overall vision and strategy.

Table 1. Ten Functions Associated to the Physical-Virtual Social Learning and Career Development Facilities
InnovationGym. This is a physical-virtual ("phyrtual") environment for innovation in a full sense (e.g., technological, social, artistic, civic, etc.). It cover both Ideation and Implementation, including Problem-solving, Creativity and Team-building facilities, as well as Rapid Prototyping (FabLab) and Agile Start Up Facilities **Network Potential.** The InnovationGym relates to a variety of complementary operations: Co-working spaces (e.g., Mille Piani), Co-Living Spaces, FabLabs, Hubs (Social Innovation Hub), Incubators (e.g., EnLab LUISS).
Virtual Innovation Environment & Solidarity Cloud. These are online support platforms/environment to enable/support the systematic realization of an experiential education for life (e.g., self-awareness, creativity, innovation, values). The FMD has developed Phyrtual.org a virtual social innovation environment with crowdfunding/crowdsourcing facility. This is currently used in projects with Microsoft (Meet No Neet) and INAIL (The Italian Maker) aimed at promoting creativity and innovation (social and product/service innovations) in schools and institutes across Italy). Project Meet No Neet is one of the best practices cited by the McKinsey Report). The Solidarity Cloud is functionally integrated to Phyrtual.org and contains: (a) innovative learning objects from self-awareness and problem-solving to entrepreneurship; (b) instruments and apps store; (c) communities of volunteer professionals for

---

[15] Niles, S. and Harris-Bowlsbey J., *Career Development Interventions in the 21st Century*, Merrill Prentice Hall, NJ, 2002.

moments of mentoring and coaching; and (d) companies CSR offers of technology and services.
Network Potential. Support platforms for Creativity, Innovation, Crowdfunding, Crowdsourcing, MOOCs, etc.

"Smart Specialization" Function for Identifying and Stimulating Multi-sectoral Clusters in Transversal High Technologies. Smart specialization is a key concept for collaborative development between cities and regions (it is central to the EU regional policy). Smart specialization focus on transversal technologies (i.e., of transversal value for society) and encourage cities/regions of excellence to work together with those of lesser development. The FMD has stimulated the Italian Multi-sectoral Cluster per Educational Robotics, a network that brings together 65 organizations (so far) from primary schools to industry, passing through secondary schools, technical institutes, universities, research centres, industry associations etc. Italy has a recognized robotics excellence in Europe and the City of Rome has a great deal to benefit from a multi-sectoral in this area. A major strategic value of multi-sectoral clusters is that they can become "living" system of orientation for schools and universities. The FMD is working in this direction.
Network Potential: Other multi-sectoral clusters on transversal technologies, research networks and initiatives such as the European flagship network Robocom led by Sant'Anna di Pisa.

Agile Start Up Function. This function is intended to stimulate/facilitate the evolution of those high-potential solutions generated by teams (e.g., potential social or product/service/process innovations) committed to go further in the learning journey that may lead to innovation and entrepreneurship. This function will establish liaison and joint working relations with existing facilities aiming to support the entrepreneurial process.
Network Potential: Enterprise Agencies, Incubators, Technology Transfer Offices, Others.

Financial Legal Function.
This function is intended to stimulate/facilitate information and access to appropriate financing models and sources to those high-potential solutions generated and pushed forward by teams committed to advance in the journey of innovation and entrepreneurship. This function will establish liaison and joint working relations with existing financial, legal facilities aiming to support the entrepreneurial process.
Network Potential: Financial and Legal Advisers, Public and Private Investors, Social Investors, Others

Community Sector Function. This function is intended to stimulate/facilitate information, access and joint working relations with existing organizations from the community sector. Community organizations are important for the potential participation and support they can provide to problem-solving projects and solutions (e.g., social, cultural, etc.). They can also play a role in providing formative internship, traineeship and civic service, particularly nurturing life skills and values. This would require the existence of systematic formative programmes on the part of the community organizations.
Network Potential: Older People Centres, Cultural and Sport Centres/Clubs, Neighbour Associations, Churches, Others.

Social Sector Function. This function is intended to stimulate/facilitate information, access and joint working relations with existing organizations from the social sector. Social-sector organizations are important for the potential participation and support they can provide to problem-solving projects and solutions (e.g., social, cultural, civic, etc.). They can also play a role in providing formative internship, traineeship and civic service, particularly nurturing life skills and values. This would require the existence of systematic formative programmes on the part of the social-sector organizations.
Network potential: Foundations, NGOs, Associations, Social Enterprises, Cooperatives, Social Firms, Others.

Government Sector Function. This function is intended to stimulate/facilitate information, access and working relations with relevant government organizations at all levels: municipal, city, regional, national, European. Government organizations are important for the potential support and collaboration they can provide to problem-solving projects and solutions (e.g., social, cultural, civic, service, products, etc.). They can also play a role in supporting access to relevant training courses, internship programmes, job searches, and funding schemes. Government organizations are also central to the opportunities generated by the new approach towards Big Data, Open Data.
Network Potential: Local, City, Regional, National Offices, Agencies, Institutes, Job Centres, Others

Enterprise and Professional/Arts Function. This function is intended to stimulate/facilitate information, access and joint working relations with organizations from the for-profit company sector (industrial, service sectors) and the professional/arts community. Both of these sets of players are important for the potential participation and support they can provide to problem-solving projects, particularly, those with entrepreneurial potential (e.g., design, technological, marketing, cultural inputs, etc.). The company sector also plays a crucial role in providing formative internship, traineeship, and apprenticeship, nurturing technical and business skills and job experience.
Network Potential: Large companies, SMEs, Micro-enterprises, Industrial/Service Associations, and Professional/Arts Associations, Others.

Educational System Function. This function is intended for promotion and joint work with schools, institutes, university, research centres, and other relevant educational organizations (e.g., museums). The educational organizations, starting with the school system, are the natural places for the implementation of an experiential education for life, with its blend of standardized (codified) knowledge (e.g., language, math, business), life competences (e.g., self-awareness, problem-solving, innovation, entrepreneurship), and fundamental (character) values (e.g., social responsibility, solidarity, active citizenship). The goal is to see the emergence of InnovatioGyms in every school (in various sizes and content). They would be spaces were the school opens to their communities and territories as real environments for experiential learning. In Rome, the FMD runs the Città Educativa (Educational City), a facility that works with schools and institutes on education-for-life projects that include ICT-based innovation, digital inclusion, problem-solving, creativity, etc. The Città Educativa is about to open the first InnovationGym (including FabLab) for training teachers, with a view to stimulating the rise of a network of other InnovationGyms across the school world. In this sense, the Città Educativa can readily offer an educational hub to enter at all levels of the school system.
Network Potential: Schools, Institutes, Universities, Research Centres, Others.

The key to the success of the entire operation will be the generation of effective flows of information, knowledge, competence, experience and learning among all aspects driven by the motivation, aspiration and passion of people to make a difference in the life of the City and its citizens, particularly the young.

6. THE SMART&HEART ROME INITIATIVE IN THE EUROPEAN CONTEXT

The two rectangles on the left- and right-hand sides of Figure 1 indicate that the operation in the Communities and Territories of the City of Rome will not happen in isolation. The pursuit of National, European & International Relations is envisaged as a critical success factor. Collaborative working relations with complementary experiences in other cities in Italy, Europe and the world will be pursued from day one. Indeed, work in this direction is already under way, particularly, in the European dimension.

The European dimension is critical. The Horizon 2020 programme represents a major opportunity for establishing relations with some of the most innovative cities and experiences in Europe, opening up potential funding opportunities for innovative projects. Years ago, through the work of the Eurolaboratorio of the City of Rome (an operation very much at the origins of the FMD), Rome became president of the then Telecities Network of Eurocities. Today the Telecities Network is the Knowledge Society Forum (KSF) and together with the Living Labs network represent important fora for the build up of collaboration and joint projects. Furthermore, the important cities in the KSF and Living Labs network have for long promoted multi-stakeholder approaches to social and civic innovation. They are natural partners for the type of initiative here proposed.

Indeed, a process of vision- and strategy-making involving players from European cities such as Manchester and Barcelona has already started. A first document has been produced and circulated by Dave Carter, Manchester, and it is expected to trigger other contributions that enrich the overall result. The practical aim is to prepare the foundations of a distinctive approach to the theme of Smart City initiatives, with a view to project building for Horizon 2020. This document is also part of this process. It is a contribution to the emerging vision but it is also intended to bring the City of Rome to play a strategic role in the European scene of innovative city experiences.