THE DIGITAL WORLD FOUNDATION:
Working for an Inclusive Knowledge Society

Alfonso H. Molina

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PREFACE
by Walter Veltroni, Mayor of Rome

Digital literacy measures our familiarity with the use of new technologies and represents one of the hottest frontiers of education and training systems. It affects everyone, regardless of age, profession, individual talent and social class. It concerns the entire world, as it is fundamental for integrated development, for the construction, at any latitude of the planet, of societies that are respectful of common and individual rights, for exercising a conscious citizenship and for extending democratic participation in development processes.

The document produced by Alfonso Molina tells us the story and the results of a project, undertaken five years ago, to transform Rome into a citizen-friendly capital of technological innovation. A project that involves not only the city government, but also schools, universities, research centres, enterprises, associations and public and private institutions to create jointly a network of opportunities to facilitate and diffuse the utilization of new forms of knowledge. It is a project which builds a bridge of solidarity and collaboration between Rome and other less fortunate communities in countries that risk being excluded from the processes of development on account of a new cultural and technological apartheid.

In 2001, the task of implementing this project was assigned to the Digital Youth Consortium, which in 2006 was transformed into the Digital World Foundation, an organism with a greater autonomy and vaster work horizon. I would like to express my gratitude to Mariella Gramaglia, who has carried out an invaluable and efficient role in supporting initiatives of the Consortium and Foundation and coordinating their activities with the network of promotional activities aimed at promoting e-government and reducing the digital gap, both issues for which her councillorship is responsible. Even in terms of digital culture, Rome has demonstrated that it can function efficiently, utilizing the city's best resources to work towards an objective of strategic value for common growth.

As Professor Molina indicates, with the creation of the Digital World Foundation, Rome provides a message of the common interest that the entire planet and all generations share in promoting the diffusion of digital literacy, a concrete expression of the global right to knowledge.

Digital culture is one of the most rapid and powerful elements of globalisation and a great opportunity for the development of democracy and the diffusion of well-being. However, if access to technological knowledge were not everyone's right, but only that of a privileged few, it could become a factor of discrimination both within a people and amongst different peoples, just as access to education and culture were in the past.

Today, when we refer to knowledge, we speak about access to information and, therefore, to the use of technology. At present, it is increasingly the case that knowledge is generated by technology, rather than the contrary as was normal no more than twenty years ago when it was knowledge that "invented" technology, a simple and partial application.

The primary mission of the Foundation is to pursue the process of grassroots technological integration, starting from schools, in order to guarantee the amplest possible degree of social inclusion and vanquish the risk of a divide amongst those who have access to technologies and, consequently, the world of work and services, and those who are excluded.

This will enrich the heritage of knowledge belonging to the city of Rome and will consolidate its vocation as an innovation driver for the development of the knowledge society. In order to promote innovation, it is necessary to increase cooperation amongst schools, enterprises, universities and research centres; to develop the quantity and quality of intellectual capital and life-long learning opportunities; to resolve the brain drain and to create new talent. Rome is against the technological divide.

The creation of the Foundation, to which I give my best wishes, confirms the will and ability of Rome to implement active policies to include and promote, through cooperation activities, the development of poorer areas of the world. It is a sign of our will to develop, even through generational solidarity, a culture shared by children and adults, the young and the elderly. This is our greatest hope for a fairer world, a civilized future, development and peace.

Walter Veltroni, *Mayor of Rome*

FOREWORD
By Tullio De Mauro (President of the Foundation)

A famous poet once said that the best poetry is "spontaneous poetry," born - almost improvised - from and for a particular circumstance. Is the same true for enterprises, consortiums and foundations?

In 2000, almost at the end of Francesco Rutelli's term in office as Mayor of Rome, the City Council, heeding an intuition of Mariella Gramaglia, promoted the organization of the first international Global Junior Challenge, a competition amongst schools to present projects on the use of information and communication technologies. The Consortium was created in the wake of the Global Junior Challenge 2000 with the backing of ICT enterprises (including founding and permanent associates as well as enterprises participating in specific initiatives such as Microsoft and Intel) and the aid of European project funding, including project partnerships with institutions from other countries. The Consortium developed as it implemented activities in the schools of Rome and Lazio but it never lost sight of its main aim: fighting against and reducing the digital divide among social classes and age groups. This was also pursued on the international context with subsequent editions of the Global Junior Challenge, which addresses social and cultural inclusion in various countries around the world.

We are aware that fighting this gap and promoting inclusion are processes of global import. We don't want to claim naively to have resolved these issues, even though six years later, with the transformation of the Consortium into the more stable Digital World Foundation, with the auspices of Mayor Veltroni and the Rome City Council, we thought that we could - and indeed should - reflect on what has been done, the initiatives behind us, the patrimony of collected experience and knowledge and on all the tasks awaiting us.

This reflection was assigned to Alfonso Molina, a Chilean scholar and long-standing professor at the University of Edinburgh who has acted as an invaluable guide and friend in our activities. The outlook of a non-Italian who, as is clear from this analysis, has a profound knowledge of both Italy and the positive counter-tendency of our region and city, seemed to be the best means to present a clear and objective panorama of what we have done and all the programmes presently under implementation.

The first chapter presents an analytical introduction to all the indicators revealing that our country is indeed a "knowledge society" rather than a prevalently agricultural, uneducated and not fully industrial society as we still were only forty or fifty years ago. However, on the international level Italy continuously ranks last, with the sole exception of the extremely high percentage of mobile telephones, probably an instinctive act of defence against the continuous malfunctioning of public services. I myself have been involved in the collection and analysis of indicators and would like to emphasise that notwithstanding the existence of many excellent studies in this sector, Prof. Molina's work is the most complete and clear analysis of the indicators describing the issues related to our development. Anyone with economic or social responsibilities should have a copy within reach. We can, however, observe, somewhat paradoxically, that on two accounts Professor Molina's outlook is optimistic.

The international surveys that were repeatedly promoted during the nineties by Statistics Canada and the National Centre for Education Statistics (USA) in collaboration with OECD revealed, in all the examined countries, the existence of illiterate and semi-illiterate individuals among the working age population that had not been spotted by previous investigations. Both the 1999-2000 IALS International Adult Literacy Survey and the subsequent 2003-2005 ALL Adult Literacy and Life Skills[1] present a disconcerting picture of Italy, even to those of us who believed that the effective national degree of illiteracy was well above the percentage elaborated by ISTAT, the national statistics institute, on the basis of voluntary self-certifications of literacy. Those of us who are interested and who believe that this is significant data today know that, at both the regional and national level, and in relation to levels of income, education, etc., on average, 5% of the working age population are not capable of deciphering letters and numbers and present a condition of full instrumental illiteracy, while nearly a third of the population (including those who have elementary or junior high education levels) have difficulty reading and do not achieve the threshold limits set by UNESCO in 1952 for the functional use of reading, writing and maths. Moreover, another third of Italy's population is at risk of regressing back into illiteracy. Clearly, this is a condition of forced inferiority in terms of access to the information provided by texts, graphs, charts, percentages and the need to write.

This collective condition does not help to conquer the frontier of digital literacy. Nor should we have to depend on a few isolated figures, however authoritative, such as Saverio Avveduto and his repeated presentations to UNLA - the National Union against Illiteracy - or don Luigi Ciotti, for the cure (even in the Latin meaning of "preoccupation") to this condition. Thus, it is with great satisfaction that we witness the increased attention that has been devoted to this issue through the activities developed by the Presidi del Libro, initiated by the publisher Giuseppe Laterza, to promote literature. In this context, the reflections and attention of AIE, the Association of Italian Editors, is another significant hallmark.[2]

As a matter of fact, even researchers studying economic development and social mobility are acquainted with this data and correlate it with what illustrious economists such as Luigi Spaventa and Tito Boeri have defined a "long-term stagnation" of the Italian economic and productive system[3].

Professor Molina mentions these indicators (as I do through the following brief reflections) not to (as the saying goes) feel sorry for oneself. The first consideration: Benedetto Vertecchi, an eminent scholar of educational problems (also a board member of the Digital World Foundation), has pointed out that even a brief period of study, focused on a very specific objective (such as an introduction to computers and the Internet) acts indirectly, but extremely efficiently, on the revitalization of all an adult's intellectual capacities and, above all, on the basic ability of functional literacy. Working to eliminate the digital divide, computer illiteracy, is also an extraordinary opportunity to conquer the frontier of "return illiteracy" a state into which large portions of the adult population are at risk of regressing - or already have.

A second consideration builds upon the study provided by Prof. Molina. The merciless attention paid to indicators on national ICT deficit and development potential have lead Prof. Molina to examine carefully the positively deviant areas: to a certain extent Milan, but mainly Rome and the Lazio region. This attention has lead to an invaluable analysis of what has been named the "Rome model", a model that clearly presents a positive trend as opposed to an unsatisfactory national performance. This countertendency varies from acceptance and tolerance to the development of competencies in the informatics and communications sectors and the use of these skills for economic, productive and social development. This counter trend clearly indicates that it's not just a "bitter destiny", a national inability, which condemns us to stagnation and underdevelopment. We are capable of reacting and the "Rome model" proves it.

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1   Please refer to the paradigmatic analysis by Vittoria Gallina (editor), *Letteratismo e abilità per la vita. Indagine nazionale sulla popolazione italiana 14-65 anni*, Armando editore, Rome 2006.
2   Please refer to *Investire per crescere. Materiali per una discussione*, edited by the AIE Studies Office, AIE, Milan 2006. The volume was presented to an audience of editors in September 2006 during a meeting entitled "Più cultura, più lettura, più Paese".
3   In addition to Prof. Molina's precise bibliographical notes, it may also be interesting to refer to the recent work (compiling earlier research) by Gabriele Ballarino and Daniele Checchi, *Sistema scolastico e disuguaglianza sociale, Scelte individuali e vincoli strutturali*, Il Mulino, Bologna 2006.

The creation of the Consortium and its subsequent transformation into the Digital World Foundation, the activities that have been implemented and the programmes mentioned by Prof. Molina are part of the "Rome model" based on promoting culture and overcoming the gap in order to improve living conditions as we progress towards an inclusive society of substantial democracy that will progressively reduce the obstacles that hinder the full participation of everyone in the choices posed by economic and civil life. Sixty years ago our long-sighted Constitution, as it was once defined by Stefano Rodotà, foresaw in the future, our present, the common ability to involve large private national and multi-national enterprises into our circumscribed, but significant work, which responds to what is clearly written in Article 3, paragraph 2 of our Constitution.

It is the duty of the Republic, meaning all public institutions*, to remove those obstacles of an economic and social nature which, really limiting the freedom and equality of citizens, impede the full development of the human person and the effective participation of all workers in the political, economic and social organization of the country.*

The progress made in this direction and the awareness of what has been done with our limited resources is a reward for the efforts of all those who have worked in the Consortium and those who work - and will work - in the Foundation.

1 INTRODUCTION

The development of the knowledge society brings with it enormous opportunities and challenges for countries and regions and raises the question of the kind of society we wish to see evolving in the 21st century.[4] The primacy of knowledge, learning, information and communications technologies (ICTs), globalization,[5] dynamic capabilities[6] and innovation suggest a dialectics of creative destruction and construction. This dialectics challenges societal institutions to innovate to be able to benefit from the transforming world rather than being castigated by it. This calls upon all of us -and particularly upon the leadership distributed in society across its multiple realms from government to civil society- to envision and pursue the types of changes that will result in the best-possible knowledge society for the present and future generations.

In the vision posed in this paper, such best-possible knowledge society has one defining characteristic, namely, it is a society for the benefit of all, or, an inclusive knowledge society in which the opportunities and fruits of knowledge, new technology and innovation in all walks of life, including industry, health, education and culture, should accrue to all citizens without discrimination of any kind. As the UNESCO's 2005 World Report has put it:

> A knowledge society should be able to integrate all its members and to promote new forms of solidarity involving both present and future generations. Nobody should be excluded from knowledge societies, where knowledge is a public good, available to each and every individual. (UNESCO, 2005, p.18)

In practice, the realization of the best-possible knowledge society is historically-conditioned and the specific content and form of general features such as the key role of learning, innovation and inclusion will differ from country to country in a rich diversity of manifestations. The challenge to all societies is to re-invent themselves to give rise to virtuous dynamics that synergistically integrate these key factors of the knowledge society in ways that lead towards inclusive human development, that is, development for the benefit of all peoples and the planet.[7] Such type of development reminds

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4   In 1968, Peter Drucker first used the term "knowledge society" to indicate the rise to primacy in society's development of the capacity of "learning how to learn". (Drucker, 1969) About the same time other authors used the term "learning society" to indicate how society was evolving towards the requirement for "life-long learning." (Hutchins, 1968 and Husén, 1974) Since then much has been written on "knowledge" and "learning" societies, sometimes with economic emphasis and with the purpose of assessing the comparative knowledge-society development of different countries. For instance, the UN (2005) report on knowledge societies points to the increased interest in knowledge as a factor for growth and development, which has led to the bestowing of "the term "Knowledge Economy"/"Knowledge Society" on countries with economies featuring a relatively large and growing service sector or on economies in which manipulation of information and creation of knowledge replace industrial production as the main contributor to GDP." (UN, 2005, p.23). On the other hand, UNESCO (2005) gives a more holistic societal content to the concept of "knowledge society," emphasizing particularly human development for all. Thus, "Knowledge societies are about capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development. They require an empowering social vision that encompasses plurality, inclusion, solidarity and participation." (p.27)
5   Globalization is here understood as the constant tendency for peoples, economies and cultures of the world to come into contact and interaction regardless of whether this leads to mutual benefit or conflict. In another work I have contrasted globalization driven by selfish power-maximization ('tribal globalization') from globalization driven by "social and planetary responsibility". (see Note 7)
6   "We define dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Dynamic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage given path dependencies and market positions." (Teece, et al., 1997, p.516) Also, " 'dynamic capabilities' contrast with ordinary (or 'operational') capabilities by being concerned with change." (Winter, 2003, p.992)
7   This process demands a paradigm shift towards a worldview that I have referred to with the name of "echumanism" to reflect a synthesis of four fundamental concepts: **ec**ological, **h**olistic, **u**niversal, and **humanist**. Thus, *echumanism* is a true shift in world-view, or, following Kuhn, a *paradigm* shift that implies evolving towards governances and institutions that favour human- and ecologically-centred processes of

us of the yet unfulfilled dream of the French Revolution – *liberté, egalité e fraternité* and it is no coincidence that Amartya Sen (1999) has stated that "Development can be seen ... as a process of expanding the real freedoms that people enjoy..."[8] (p.1) But such freedoms cannot be achieved for all without a profound commitment to *equal opportunities* ultimately driven by a heartfelt sense of *solidarity* and *fraternity*.

Figure 1 illustrates the idea of synergistic virtuous dynamics among key factors in an inclusive knowledge society. These key factors are grouped under the general dimensions of education, innovation, inclusion and cultural values fundamental to the integration, drive and guidance of the entire process.

Education contains knowledge, skills, competences and learning at all levels and contents, in formal or informal institutional settings and for life – very much related to what has become known as 21st century skills, i.e., those skills necessary for successful human development in the knowledge society. *Innovation* contains new technologies and particularly the mastery of information and communication technologies (i.e., creation, production, diffusion, implementation and use) for wealth creation, growth and enrichment of activities in all walks of life and work. It also contains dynamic capabilities and entrepreneurship to stress the point that the effective pursuit of innovation in the knowledge society requires continuous improvement of individual and organizational capacities to innovate, along with the capacity to transform innovation into sustainable enterprises. The borders between education and innovation are completely porous insofar as knowledge, skills, competences and learning are fundamental to innovation processes, in the same way as creativity and research belong to both, and innovation is fundamental to the evolution of education towards 21st century skills. *Inclusion*, and its ICT-based expression, e-inclusion, contains equal access and opportunities, participation and di- and multi-alogue to make the point that equality of access and opportunities effectively means participation in the decision-making and benefits of the knowledge society, sustained by bilateral and multi-lateral communication and profound respect for the dignity of people. Inclusion (e-inclusion) in the knowledge society is impossible without education and innovation for the benefit of all and, conversely, without inclusion the latter are unlikely ever to lead to the elimination of the scourges of poverty, disease, hatred and war that prevail in present societies. Last but not least, the cultural values are the ultimate source and force of education and innovation for the benefit of all peoples and the planet and, conversely, the latter should help nurture and promote these values as the fundamental source and force of an inclusive human development.

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development. In practice, it means de-emphasizing the dominant role of selfish "power-maximization" while, simultaneously emphasizing "social and planetary responsibility" in the governances that drive the individual and social behaviour responsible for the present evolution of humanity and the planet. (Molina, 2003)

8   "Development requires the removal of major sources of unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance or over activity of repressive states. Despite unprecedented increases in overall opulence, the contemporary world denies elementary freedoms to vast numbers -perhaps the majority- of people. Sometimes the lack of substantive freedoms relate directly to economic poverty, which robs people of the freedom to satisfy hunger, or to achieve sufficient nutrition, or to obtain remedies for treatable illnesses, or the opportunity to be adequately clothed or sheltered, or to enjoy clean water or sanitary facilities. In other cases, the unfreedom links closely to the lack of public facilities and social care, such as the absence of epidemiological programs, or of organized arrangements for health care or educational facilities, or of effective institutions for the maintenance of local peace or order. In still other cases, the violation of freedom results directly from a denial of political and civil liberties by authoritarian regimes and from imposed restrictions on the freedom to participate in the social, political and economic life of the community." (Sen, 1999, pp.1-2)
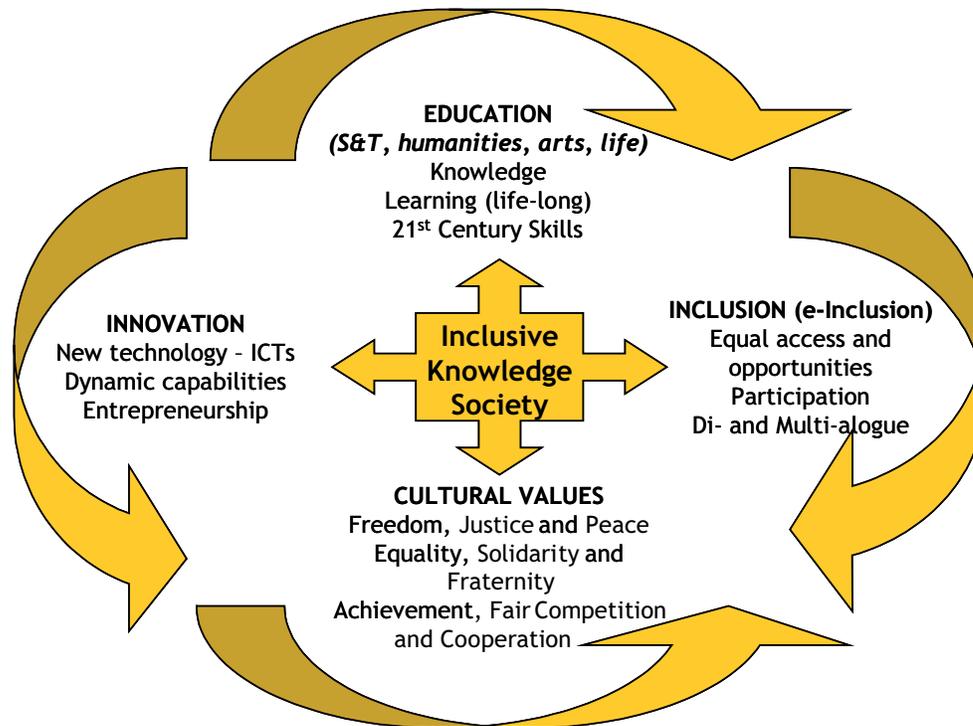
Figure 1. Virtuous Dynamics of an Inclusive Knowledge Society

It is no mean task to integrate all the elements in Figure 1 into a sustained virtuous dynamics, especially in places where development is commonly associated exclusively with economic growth, innovation is subordinated to competitiveness and issues of solidarity are largely left to the NGO sector and government's international aid policies. Such fragmentation is contrary to the concept of synergistic virtuous dynamics among key factors in an inclusive knowledge society.

Thus, institutional approaches are required that are able to offer holistic perspectives that exploit the potential of new technologies and the contributions of multiple players to create processes that contribute effectively to enhance the lives of people. Here we adopt one key premise to facilitate the conceptualization of such type of institutional approach, namely, that *education in its life-long learning expression is the one dimension most suitable to be chosen as the focus for the synergistic interaction with and between all others (i.e., innovation, inclusion and cultural values) in the rise of an inclusive knowledge society*. This makes it necessary to identify in greater detail the ingredients of 21st century education for such an inclusive knowledge society.

Table 1 brings together many of these ingredients based on work by various authors in the field of 21st century skills[9] and human intelligences.

The first transversal column "human intelligences" contains the eight well-established intelligences identified by Gardner's in his concept of *multiple intelligences,*[10] as well as a number of other "human intelligences" proposed by various authors and more related to the realm of emotions, feelings, values, beliefs, ethics.[11] Its transversal position indicates its importance for the development of all

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9   Partnership for 21st Century Skills (2003, 2004, 2006), CEC (1996, 2001), WHO (1994), Honey et al. (2005), Casner-Lotto and Barrington (2006), Marmocchi et al. (2004), Boda and Mosiello (2005).
10   Gardner (1983, 1999a, 1999b). Gardner has also identified a possible "existential intelligence" which is yet to be confirmed.
11   Thus, Coleman (1995, 1999) has examined "emotional intelligence" (associated with feelings, motivation and the management of emotions in ourselves and in our relationships). See also Côté and Miners

others, including ICT knowledge and skills as indicated by the arrows. The identification of these human intelligences is useful for efforts to personalize educational processes to learners' specific combination of intelligences and learning styles,[12] although any diagnosis should not be taken statically. This identification is also useful to assess educational activities from the point of view of the stimulus given to each of the various intelligences.

In the first of three columns, *Didactic Attitudes and Values* are the attitudes and values leading to behaviours to be preferentially stimulated and nurtured by didactic approaches and activities in educational processes. It includes the values for inclusive human development. Didactic values should be largely pervasive to the education of all learners, including teachers.

In the second of the three columns, *Knowledge* is the codified or tacit content of educational subject matters (Table 1 shows school subjects).

In the third of the three columns, *Life skills* are abilities of major relevance for an individual's successful approach to life in the 21st century knowledge society.

In the transversal column at the bottom of Table 1, ICT-based knowledge and skills contains several aspects or levels of diverse complexity of knowledge and skills regarding the mastery and use of ICTs in education, work and life. The transversal position of ICTs knowledge and skills is related to its character as a technological instrument useful for the development of all others, including human intelligences as indicated by the arrows.

(2006). Earley and Mosakowski (2004) have identified "cultural intelligence" made up of cognitive, physical and emotional/motivational aspects; while Lennick and Kiel (2005) and Coles (1997) have looked at "moral intelligence," associated with capacity to distinguish right from wrong and universal human principles. Another related concept is "spiritual intelligence," associated with wisdom and capacity for meaning, vision and values such as courage, integrity, intuition and compassion. (Zohar and Marshall, 2001, McMullen, 2003 and Levin, 2000). Gardner (1999b) prefers not to use the term "intelligence" for the realm of emotions, feelings, values, beliefs, ethics.

12   "…ideally, the educational system should be able to match the learners' specific combination of multiple intelligences with specific combinations of knowledge, life-skills and ICT-based skills flows." (Molina, 2004a, p.8).

Table 1. Ingredients of 21st Century Education for an Inclusive Knowledge Society

Human Intelligences		
Verbal-Linguistic; Mathematical-Logical; Musical; Visual-Spatial; Bodily-Kinesthetic; Interpersonal; Intrapersonal; Naturalist; -------- Emotional; Cultural; Moral; Spiritual		
Didactics Attitudes and Values	**Knowledge** *(e.g., school education)*	**Life Skills**
-curiosity, fun & joy to learn -participation & discipline in tasks -shared learning -scientific honesty, integrity -motivation to achieve and fair competition -personal responsibility, flexibility & adaptability -social and environmental responsibility -values for inclusive human development (e.g., freedom, justice, peace, equality of opportunities, solidarity, fraternity, generosity, trustworthiness) -other	-Mathematics -Science -Physics -Chemistry -Biology -Computing and Technology -Literature -Philosophy -English -Other Languages -History & Geography -Economics -Civic Education -Arts -Religion -Physical Education -other	-leadership and decision-making -communication -creativity, innovation & entrepreneurship -critical & systemic (contextual) thinking -focus & problem solving -mnemonics -research (including Internet) -ludic skills -self-awareness & personal development -health, stress and emotional management -team- & relationship-building -collaborative work -community involvement -cultural empathy (e.g., the elderly, the disable, other nations) -other
ICT-based knowledge and skills for:		
• general use of ICT equipment • learning-to-learn using Internet and other research resources on specific subjects • participating in collaborative learning environment and practices • preparing, processing, presenting, and communicating knowledge and work on specific subjects and technologies		

Source. Adapted from Molina (2004). Also, Partnership for 21st Century Skills (2003, 2004, 2006), CEC (1996, 2001), WHO (1994), Honey et al. (2005), Casner-Lotto and Barrington (2006), Marmocchi et al. (2004), Boda and Mosiello (2005).

Table 1 furnishes an operational framework for advancing the practical realization of the virtuous dynamics of an inclusive knowledge society through initiatives, programmes, projects and activities. On the one hand, it provides a holistic overview of the dimensions constituting the horizon of ICT-based educational innovation for the 21st century. On the other, it can be used to inform and guide the definition, implementation and assessment of practical endeavours, thus helping increase the codification, transparency and accountability of the learning and innovation processes involved.

Different educational projects and processes will tend to implement different combinations of Table 1's ingredients in accordance with purposes and targets. Some will seek the creation of new educational processes that improve or replace old processes or, alternatively, the creation of completely new educational realities that take advantage of the opportunities offered by the new technology. In all cases, the key will be never to lose sight of the integration of education, innovation, inclusion and cultural values that leads to an inclusive knowledge society.

The next two sections look at the respective Italian and Roman contexts of evolution of the knowledge society. It reviews a number of indicators relevant to the dimensions of innovation, education and inclusion in order to give an indication of the magnitude of the challenge of achieving an inclusive knowledge society.

2   ITALY AND THE CHALLENGE OF AN INCLUSIVE KNOWLEDGE SOCIETY
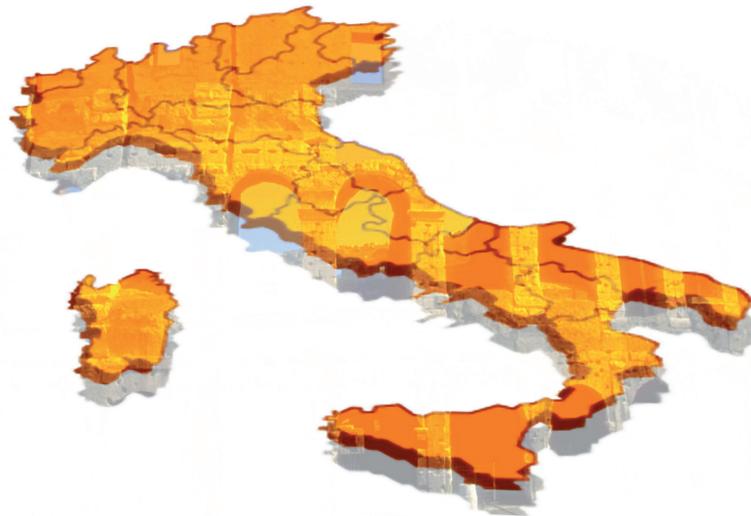
Italy

Progress towards the knowledge society is proving fraught with difficulties for Italy. A large variety of studies reveal a consistent pattern of a country failing to respond effectively to the challenges posed by innovation, education and inclusion in a globalizing world. Yet Italy is one of the largest economies in the world with a GDP of US$1,720 billion, seventh in the world league following a recent overtaking by China. The Economist Intelligence Unit (2006a), however, foresees India, Russia and South Korea overtaking Italy into 10th place by 2020. The reason is that Italy's GDP growth is one of the slowest at zero percent in 2005 and an estimated 1.5% average annual growth between 2006 and 2010, and worse, an estimated 1.0% between 2006 and 2020 (EIU, 2006a). Italy ranks 29th out of a league of 30 countries and only Japan's GDP growth performs worst. The strongest performer is China with 7.8% growth for 2006-2010 and 6% for 2006-2020. In turn, the group of European countries before the enlargement – the EU 15- are estimated to grow at 2.0% in 2006-2010 and maintain this average annual rate until 2020. This slow growth is reflected in a similar growth in GDP per capita where Italy is also in 29th place out of 30 countries with an estimated annual average growth of 1.5% for the period 2006-2010 and 1.2% for 2006-2020. This lack of dynamism is reflected in Italy's low performance in the World Economic Forum's index of competitiveness that ranked Italy in 47th place in the world league in 2005.[13] More pessimistic is the recent IMD's world competitiveness ranking that shows Italy falling three places from 53 to 56 between 2005 and 2006 in a total list of 61 countries.[14]

2.1   Innovation

In Italy, there is wide agreement that innovation is one of the key factors to be addressed in order to break out of the country's present path to relative economic decline in the world.[15] Innovation should help Italy to compete in the global hi-tech industries, as well as in the traditional industries now under strong pressure from low-cost producing countries such as China. The challenge, however, is considerable given that many of the structural indicators associated with innovation in the knowledge society do not show a very favourable situation for Italy. Indeed, the CEC-European Innovation

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13   WEF (2005).
14   IMD (2006).
15   See for instance Rossi (2006), Zocchi et al. (2005), Petrini (2003).

Scoreboard (2005b) ranks Italy in 17th place out of 33 European countries. Table 2 contains a selection of indicators relevant to innovation gathered mostly from the OECD FactBook 2006,[16] paying particular attention to the part played by information and communication technologies (ICTs).[17] To give a better idea of Italy's relative performance Table 2 provides the country's ranking along with the top and worst performers and a comparative reference to the EU 15 (the group of European countries before the enlargement).[18]

Table 2. Various Indicators Relevant to Innovation

Indicator	Year	Value	Rank	European Reference	Top Performer	Worst Performer
Multi-factor Productivity (average Annual growth)	2000-2003	-0.6 %	19 out 19	-	Ireland 3.3 %	-
Labour Productivity (average annual growth)	2000-2004	0.2 %	29 out 29	EU 15 - 1.5 %	Slovak Repub. 5.3 %	-
Gross Domestic Expenditure on R&D (% of GDP)	2002	1.16 %	24 out of 35	EU 15 1.91 %	Sweden 3.98 % - 2003	Mexico 0.39 % (2001)
Investment in Knowledge (% of GDP)	2001	2.4 %	18 out of 20	EU 15 About 3.8 %	Sweden 7.1 %	Portugal 1.9 %
Researcher (per 1000 employed, FTE)	2002	3.0	28 out of 33	EU 15 6.1 (2003)	Finland 17.7 (2003)	Mexico 0.6 (1999)
Triadic Patents Families[1] (number per million of population)	2002	840 (5.2% of EU 15) (1.6% of World)	9 out 35	EU 15 Total 16,167 World Total 51,502	US 18,324	-
Size of ICT Sector (share in value added)	2001	12.9 %	17 out 24	EU 15 16.9 %	Finland 35.5 %	Greece 9.3 %
Size of ICT in Manufacturing (% of total manuf. value added)	2001	4.1 %	17 out 24	EU 15 6.8%	Finland 22.9 %	Greece 2.2 %
Investment in ICT (% of total non-residential fixed capital formation)	2003	15.8 %	12 out of 21	-	US 33.2 %	Ireland 8.1 %
Exports of ICT Equipment (US $ Millions)	2004	14,453	12 out of 35	OECD Total 670,491 (2003)	China 180,422	Iceland 18
IT Balance of Payment (€ Mn)	2004	-519 (-678.5 Nov 05)	-	-	Ireland +14,420	-
Exports of Hi-Tech Industries (% of Total Manufacturing Exports of Goods)	2003	11%	23 out of 29	EU 15 22.1	Ireland 53.6 %	Iceland 5.1 %
Total IT Expenditure as % of GDP		1.9		Europe 3 (USA 3.8)		
IT Expenditure by Public Administrations as % of GDP[2]	2004	0.16 2,951 € Mn	15 out of 18	Europe	Sweden 0.60	Ireland 0.13
IT Expenditure / inhab. by Public Adminsitrations	2004	51.3	12 out of 16	-	Sweden 254.8	Grecia 26.8

Source. OECD (2006), AITech-Assinform (2006).
FTE: full-time equivalent

The first two rows in Table 2 show that Italy has a major problem with a critical indicator of innovation: productivity. Italy appears as worst performer in the growth of both labour productivity and multi-factor productivity for the periods 2000-2004 and 2000-2003 respectively. Multi-factor productivity is

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16   Another source is Eurostat (2006c).
17   Another analysis of a set of innovation indicators is found in Arundel and Hollanders (2005) and CEC-European Innovation Scoreboard (2005a).
18   The OECD group of countries is used when the EU 15 is not available.

particularly interesting since it is seen as disembodied technological progress and "comes from more efficient management of the processes of production through better ways of using labour and capital, through better ways of combining them, or through reducing the amount of intermediate goods and services needed to produce a given amount of output."[19]

The next set of indicators contains a better relative performance but still shows an Italy that invests little in R&D and, more generally, in knowledge[20] as percentage of its GDP. Its R&D expenditure of 1.16% of GDP in 2002 was way below the EU 15 percentage of 1.91 and Sweden's top investment of 3.98% in 2003. The situation with knowledge investment in 2001 follows a similar pattern and places the country very much at the bottom of a group of 20 countries (ranked 18). With such a low relative investment, it is consistent to find that Italy also fares weakly in terms of number of researchers (28 out of 33 countries) with only 3 researchers per 1000 employed in 2002 in contrast to 17.7 for Finland and 6.1 for the EU 15, both in 2003. In patents, Italy ranked 9th out of 35 countries in 2002 but the number of patents at 840 represented only 5.2% of the EU 15 total of 16,167 patents and a mere 1.6% of the world total of 51,502 patents. Not surprisingly, Eurostat's statistics for science and technology show no Italian region among the top 15 regions in terms of S&T labour force as percentage of the total labour force and no Italian region among the regional top 30 for persons employed in S&T in the manufacturing sector in the EU25, both for the year 2004.[21]

Looking at the weight of the ICT sector in the Italian economy, it is possible to see that in 2001 the ICT sector contributed a 12.9% share of the total value added in services and manufacturing, while in manufacturing the contribution of ICT was 4.1% of the total valued added. The latter figure reflects the fact that today Italy is not a major ICT equipment producer, standing clearly below the EU 15's share of 6.8% and far behind Finland's 22.9% share. Other indicators confirm Italy's absence from the top 10 league, for instance, regarding investment in ICT where the country is 12th out of 21 countries and exports of ICT equipment where it is 12th out of 35 countries. In fact, Italy's IT balance of payments is well in the red with an estimated € Mn 700 deficit for 2005. More widely, Italy also compares unfavourably regarding exports of hi-tech industries as percentage of total manufacturing exports of goods. Its 11% share is half the share of the EU 15 and about one fifth of the 53.6% of Ireland.

The relative weak performance of the Italian ICT industry is paralleled by a similarly weak performance in the country's expenditure in IT. To start, Italy's total IT expenditure as percentage of GDP amounts to 1.9%, half of the 3.8% level of USA and significantly lower than the European average of 3.0%. One reason is found in the level of expenditure by the country's public administration (PA). In 2004, Italian PA's IT expenditure as percentage of GDP amounted to 0.16 and ranked 15th out of a league of 18 European countries led by Sweden with a 0.60%. The Italian PA expenditure per inhabitant was €51.3 about one-fifth of Swedish expenditure of €254.8 per inhabitant, enough to rank the country in 12th out of 16 places. If one considers that the total expenditure by the Italian PA contributes to 48% of the national GDP (7th place in Europe), then it is easy to see how strategic the PA sector is for the development of ICT in Italy. The IT expenditure of €2,952 Mn in 2004 represented only 12% of the total PA expenditure, something that will most likely have to improve in the future, if the country is to take more determined steps towards the knowledge society. In fact, Italy will have to face a number of major challenges. Fulani et al. (2005) list the main structural problems as follows:

- Predominance of small and medium-sized enterprises affecting R&D expenditure, innovation enhancement and human capital improvement
- A fragmented ICT sector
- Uneven distribution of economic activity and ICT infrastructure

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19   OECD FactBook, 2006, p.52.
20   Investment in knowledge is defined and calculated as the sum of expenditure on R&D, on total higher education (public and private) and on software.
21   See Eurostat (2006a).

- Low levels of technical education
- Limited propensity to patent application
- Innovation is a "learning-by-doing" or a modernization process more than a strategic activity
- Shortage of finance and need for a more dynamic venture capital market

Table 3 gives an idea of how Italy is performing in relation to the population's access to telephony, computers and Internet and enterprises' access to broadband connectivity.

Table 3. Indicators Relevant to ICT Access by the Population and Enterprises

Indicator	Year	Value	Rank	European Reference	Top Performer	Worst Performer
Telephone Access (access paths per 100 inhabitants)	2003	146.3	10 out of 35	OECD Aver. 132.5	Luxemburg 216.3	India 6.4
Mobile phones subscriptions per 100 inhabitants	2004	108.4	3 out of 25	EU 15 92.5	Luxemburg 143	
Computer Access (% household)	2004	47.4	20 out 28	-	Iceland 85.7 %	Turkey 10.2 %
Internet Access (% household)	2004	34.1	12 out of 21	-	Korea 86 %	Turkey 7 %
Proportion of enterprises with Internet access	2005	92	9 out of 25 (along with 6 others)	EU 15 92	Finland 98	
Proportion of enterprises with broadband access	2005	57	16 out 25	EU 15 65	Sweden 83	

Source. OECD FactBook 2006 and Eurostat (2006b).

The good news is that Italy is one of the top performers in telephony with 146.3 access paths (fixed and mobile) per 100 inhabitants in 2003, a result above the average of the group of OECD countries. In mobile telephony, according to Eurostat (2006b), Italy is actually third in Europe with 108.4 subscriptions per 100 inhabitants, significantly above the EU 15 average of 92.5 subscriptions. This positive performance, however, is not sustained in relation to computer and Internet access by the population. Thus, in 2004, less than 50% of households had access to computers and just above one third had Internet access, well behind Iceland with its 85.7% computer access and Korea with its 86% Internet access.[22] On the other hand, Italian enterprises fare much better in terms of Internet access with 92% having Internet in 2005, the same average proportion for the EU 15. This puts Italy in 9th place out of 25 countries. Less favourable is the picture regarding broadband connectivity where Italy with its 57% performs below the EU 15 average of 65% for all enterprises and much further below the 83% exhibited by Sweden. Here Italy ranks 16th out of 25 countries.

These results can be seen along with those of studies that seek to rank countries by their degree of preparedness to participate in and benefit from ICT developments such as the "networked readiness index" of the World Economic Forum or the e-readiness rankings from the Economist Intelligence Unit. In terms of networked readiness Italy is ranked 42 in the world in 2005 while the 2006 e-readiness ranking places it 25 out of a group of 34 countries and 14 out of 16 within Western Europe.

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22   More detailed data regarding PC and Internet use in Italy by age and gender is found later on the sections dealing with the elderly and women and ICTs.

2.2   Education

Education is at the core of the development of the full human potential of individuals and communities and, in the knowledge society, it is certainly at the core of countries' capacities to respond effectively to the primacy of knowledge, learning, ICTs, innovation, dynamic capabilities and globalization. Italy's performance, however, gives much reason for preoccupation because results in a range of indicators depict a situation of serious weaknesses in relation to other nations in the world. For instance, according to the CEC-European Innovation Scoreboard (2005a), Italy performs significantly below the European average in the educational categories of Science and Engineering (S&E) graduates (65 relative to 100), tertiary education (53 relative to 100) and lifelong learning (59 relative to 100). Only in youth education Italy comes close to the European average with 95 relative to 100.

Table 4 provides more detailed data confirming Italy's educational underperformance. Thus, in 2002, Italy's total expenditure on educational institutions for all levels of education at 4.9% of GDP ranks 22 out of a group of 29 countries, below the OECD average of 5.8% and much further below the 7.4% expenditure of top performer Iceland. Regarding the percentage of population that achieves tertiary education in the age group 25-64 in 2003, Italy's 10.4% ranks almost at the bottom in 29th place out of 30 countries. The OECD average is more than double at 24.1% and Canada performs over four times better with 44% of its 25-64 year-old population achieving tertiary education. Very significantly this very poor performance changes little for the younger section of the population, that is, the age group between 25-34; if anything the distance with the OECD average and Canada increases. The problem is not that few Italians are entering the university since,

> At 50% (44% for men and 57% for women), the university entry rate in Italy is now at the OECD average level. However, almost 60% of those who enter university in Italy never complete with a qualification, which represents the highest drop-out rate among OECD countries (on average, the dropout rate is 30%).[23]

It is not surprising then to learn from Tinagli and Florida (2005) that only 14% of Italian entrepreneurs and managers (private and public) have some kind of tertiary education (i.e., university degree, diploma or non-university specialization courses) and less than half (41.4%) have completed secondary education – a rather low average level for the people leading the Italian industry's journey into the knowledge society.

The poor quantitative performance is accompanied by an equally poor ranking of qualitative indicators regarding both the international recognition of Italian universities and the performance of Italian students in the Programme of International Student Assessment (PISA). Table 4 shows that the position of Italian universities in various world rankings leaves much to be desired. Thus, in the Times Higher Education's (THES) 2006 ranking of the world's top 200 universities, the first and only Italian university - La Sapienza University of Rome- appears in position 197, while the ranking of the Shanghai Jiao Tong University places La Sapienza University in position 100 out of 100, the only Italian University among the first hundred. The THES 2006 ranking of the world's top 100 technological universities finds one Italian university, the Polythechnic University of Milan, in place 63, while the ranking of the world's top 100 science universities finds, again, one Italian university - La Sapienza University of Rome- in 30th position, the best ranking for an Italian university. Finally, the Financial Times rankings of top 50 Business Schools in Europe and top 100 full-time MBA programmes find only one Italian business school, SDA Bocconi, ranked 27 out of 50 and 34 out of 100 in the respective rankings. Not surprisingly the Nucleo Education Confindustria concluded: "The Italian university system is not competitive today."[24]

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23   OECD (2004a).
24   Translation of "Il sistema universitario italiano non è oggi competitivo." (Nucleo Education Confindustria, 2006, p.1)

Table 4. Italy's Relative Educational Performance – Various indicators

Indicator	Year	Value	Rank	Reference	Top performer
Total Expenditure on Educational Institutions for all Levels of Education (% of GDP)	2002	4.9 %	22 out of 29	OECD Average 5.8 %	Iceland 7.4 %
Tertiary Attainment for Age Group 25-64 (% of population of that group)	2003	10.4 %	29 out of 30	OECD average 24.1	Canada 44 %
Tertiary Attainment for Age Group 25-34 (% of population of that group)	2003	12.5 %	28 out of 30	OECD Average 29.5 %	Canada 52.8 %
Position of Italian Universities in Various World Rankings					
THES -Top 200 Universities in the World	2006	La Sapienza Univ. - Rome	197	Only 1 from Italy	Harvard University (USA)
THES–Top 100 Technology Universities in the World	2006	Polytechnic University (Milan)	63	Only 1 from Italy	MIT (USA)
THES – Top 100 Science Universities in the World	2006	La Sapienza Univ. - Rome	30	Only 1 from Italy	Cambridge University (UK)
Shanghai Jia Tong – Academic Ranking of World Universities	2006	La Sapienza Univ. - Rome	100 out 100 (34 in Europe)	Only 1 from Italy	Harvard Univ (USA)
FT – Top 50 Business Schools in Europe	2005	SDA Bocconi	27 out of 50	Only 1 from Italy	London Business School
FT - Top 100 Full-time MBA Programmes	2006	SDA Bocconi	34 out of 100	Only 1 from Italy	University of Pennsylvania: Wharton
The OECD Programme for International Students Assessment					
PISA - Reading	3003	-	29 out of 40		Finland
PISA - Mathematics	2003		30 out of 40 (together with Portugal)		Hong-Kong
PISA –Science	2003		27 out of 40		Finland
PISA – Problem Solving	2003		31 out of 40		Korea

Source, OECD (2006), FT (2006a, 2006b), PISA (2004a, 2004b), Shanghai Jiao Tong University (2006). THES (2006a, 2006b, 2006c)

The deep problems affecting Italy's school system have received recent attention by a number of authors.[25] Here the purpose is just to show that the challenge faced by the country is substantial. Table 4 contains the ranking that emerged from the OECD international student assessment of 2003. This assessment involved 15-year old secondary students of 40 countries and measured their performance in reading, mathematics, science and, also, in problem-solving, an area of major importance in 21st century skills. The results shook the Italian educational community since in all categories the performance of Italian students was towards the last quarter of the ranking: 29th place in reading, 30th in mathematics, 27th in science and 31st in problem solving.

The reversal of this educational situation will demand a strong and determined effort by all those concerned since Italy is running the risk of failing to build the necessary foundations for the knowledge society at a very early stage in the education of its young people. Indeed, the problem seems widespread since as Vertecchi (2006) writes, in Italy, "near two-thirds of the population between 16 and 65 years old may be considered at literacy risk, high or medium."[26]

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25   See Acciarini and Sasso, De Mauro (2004), Vertecchi (2006), Ranieri (2006) and also Rossi (2006).
26   Translation from [in Italiano] "circa due terzi della popolazione tra 16 e i 65 anni può essere considerate a rischio alfabetico, alto e medio." (Vertecchi, 2006, p.33)

2.3   Inclusion[27]

People living in Italy can expect to live long given the country's life expectancy of 79.9 years that ranked 7th out of 30 countries in 2003 (see Table 5). This performance is above the OECD average of 77.8 years and not far behind from top performer Japan. Italy also fares better that the OECD average in infant mortality with 4.3 against 6.1 deaths per 1000 live births, although Iceland's 2.4 is substantially better. Table 5 shows that in 2001 Italy also performed above average for public social expenditure as percentage of GDP gaining 9th place in a ranking of 29 countries.

Table 5. Various Indicators of Inclusion in Italy

Indicator	Year	Value	Rank	Reference	Top Performer	Worst Performer
Life Expectancy at Birth (number of years)	2003	79.9	7 out of 30	OECD average 77.8	Japan 81.8	Turkey 68.7
Infant Mortality (deaths per 1000 live births)	2003	4.3	12 out of 30	OECD average 6.1	Iceland 2.4	Turkey 29.0
Public Social Expenditure (% of GDP)	2001	24.45 %	9 out of 29	EU 15 average 23.86 %	Sweden 29.78 %	Mexico 5.1 %
Income Inequality (distribution of household disposable income among individuals, Gini coefficient	2000	34.7	21 out of 26	OECD average 31.0	Denmark 22.5	Turkey 43.9
Human Development Index	2003		18		Norway	
Human and Income Poverty	2004		11 out of 17 OECD countries		Norway	
Net Official Development Assistance (% of GDP)	2004	0.15 %	22 out of 22	EU members 0.35 %	Norway 0.87 %	Italy

<u>Source</u>. OECD (2006) and UNDP (2005).

However, as we reach the index of inequality, Italy's performance deteriorates markedly placing the country below the OECD average in 2001, in 21st place of a group of 26 countries. The same 21st ranking is found in the UNDP's world index of human development for 2004, and the situation is not much better regarding the human and income poverty index where Italy is ranked 11th out 17 OECD countries in 2004. The worst inclusion performance is however in Italy's international solidarity where the country ranks last in a group of 22 countries in terms of the net official development assistance as percentage of GDP. Italy's 0.15% of GDP amounts to less than half the EU 25 average of 0.35% and less than one-fifth the 0.87% of top performer Norway.

On the whole, it seems clear that Italy has yet to create the conditions for a determined advance towards an inclusive knowledge society. At the moment the country seems trapped in a structural dynamics that is plainly failing to respond effectively to the challenges created by the societal primacy of knowledge, learning, ICTs, innovation, dynamic capabilities and globalization. It will take a profound effort by the entire society to see Italy among the top performers of an inclusive knowledge society in the future. The pointers for such effort can be found inside Italy itself in some of the places that, even in the general malaise of today, are signalling the path forward to a better future. One of these places is Italy's own capital, Rome.

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27   Additional detailed data on inclusion is found below inside the sections dealing with the elderly, gender, the disable and immigrants.

3   ROME AND THE ROME MODEL[28]
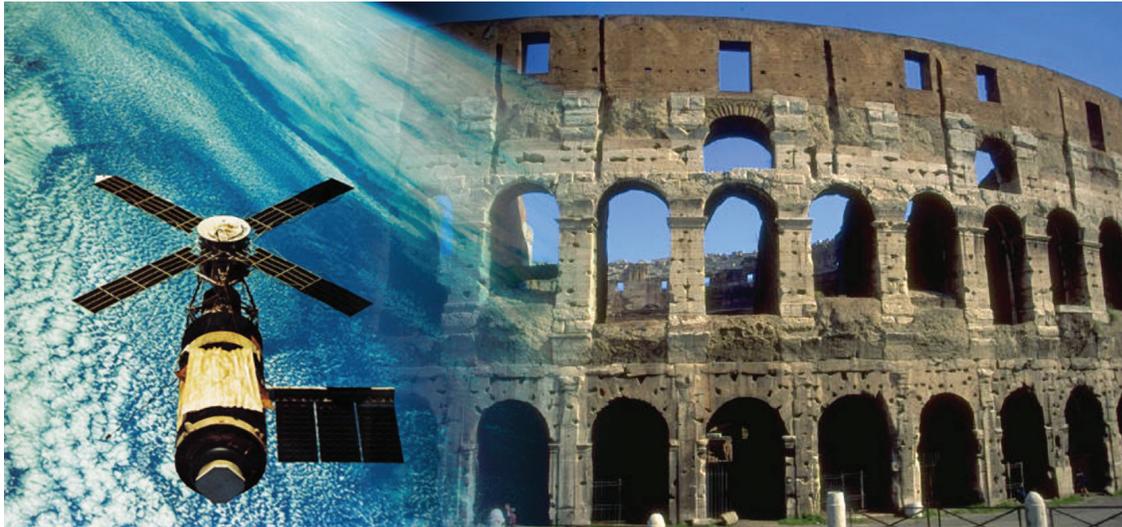
Rome is the government candidate to host the Galileo Project

Rome is one of the great cities of Europe and the world, possessing a large part of the cultural patrimony of humanity. In Rome, there are close to 2.7 million inhabitants (6.8% of the population of Italy) and over 220 thousand immigrants (2005). In 2005, Rome's economy grew by 4.1% while Italy stagnated at zero growth. Moreover, such growth has been sustained. As Table 6 shows, between 2001 and 2005, Rome's GDP and GPD/capita have shown an increase of 6.7% and 6.8% respectively, in contrast to Italy's GDP growth of 1.4 % and an actual fall of 1.4% in the country's GDP per capita. Other indicators support this positive picture, thus, between 2001-2005, the number of active enterprises increased by 13,000 units, a 9.2 % growth or over double the 4.5% growth in the country. In the same period, employment grew by 13.7%, almost threefold the 4.6% growth shown by the country. This has been accompanied by a 4.6% fall in Rome's unemployment from 11.1% to 6.5% in 2005, a level significantly below the 7.7% unemployment rate of Italy.

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28   The data in this section refers to the City of Rome and in some cases to the Province of Rome and the Region of Lazio. The City of Rome is the most important component of the Lazio Region, so the Lazio data is also highly indicative of the situation in the City of Rome and vice-versa.

Table 6. Various Indicators of Rome's Economic-Industrial Performance

Indicator	Year	Rome	Italy
Gross Domestic Product (Mn Euro)	2005	94,379 (63% of Lazio Region's GDP)	1,417,241 (Rome is 6.7% of Italy's GDP - up from 6.3% in 2001)
GDP Growth	2001-2005	6.7	1.4
GDP/capita Growth (%)	2001-2005	6.8	-1.4%
Growth of Active Enterprises (%)	2001-2005	9.2 (from 142,000 to 155,000)	4.5
Employment	2001-2005	13.7 (138,000 new jobs)	4.6
Unemployment (%)	2001-2005	6.5 in 2005 (down from 11.1 % in 2001)	7.7 in 2005
Roman Share of Enterprises in Italy (%)	2004	Total 4.5; research 8.1 transport and communications 7 credit and insurance 6.8 machinery and equipment hire 6.5 cultural & recreational activities 6.4 informatics 6	
Growth in Number of Enterprises and Employment in the Advanced Service Sector[3] (%)	1991-2001	Enterprises 221.9 (from 17,580 to 56,584) Employment 96.4 (from 76,197 to 149,676) All productive sector (enterprises 65% and employment 16.8%)	-
Share of employment in the advanced service sector over total employment	2000	8.5	Milan 9,6% Florence7,9% Bologna 7,8% Trieste 7,1%
Growth in Number of Audio-visual Enterprises (%)	2002-2004	11.2 (from 1,331 to 1,486)	13.2 (from 14,719 to 16,669)
Audio-visual Activities[4] in Italy's Provinces (%)	2004	Rome Province 27.6	2nd Milan Prov. 10% 3rd Naples Prov. 4.3%

Source. Based on data from Censis (2006), Municipality of Rome (2005).

The economy of Rome is strongly based on services. Services accounted for 84% of the economic activity in 2004,[29] with industry and construction accounting for 12.5% and 2.9% and agriculture for only 0.6%. This gives Rome an important presence in some of the most dynamic sectors of the information society. Thus, while the total Roman share of enterprise in Italy was 4.5% in 2004 (below the 6.8% share of its population), the Roman share in the areas of "research" and "transport and communications" was 8.1% and 7% respectively. After came "credit and insurance" (6.8%), "machinery and equipment hire" (6.5%), "cultural and recreational activities" (6.4%) and "informatics" (6%). In fact, Rome's growth in enterprises for the "advanced service sector" for the decade 1991-2001 is quite remarkable at over 220%, over three times the rate of enterprise growth for "all productive sectors." The same is the case for employment with Rome's advanced service sector showing an increase of 96.4%, for the decade, in contrast to the more modest 16.8% for all productive sectors. In 2000, Rome's employment in the advanced service sector reached 8.5%, a proportion only surpassed by Milan with its 9.6%. Rome's audio-visual sector has shown particular dynamism with a growth of 11.2% in the number of enterprises during the years 2002-2004. This is a sector where Italy as a whole has shown strong growth with a 13.2% growth in the number of enterprises. The Province of Rome however concentrates the lion's share of audio-visual activities in Italy with a 27.6% of the total in 2004, followed well-behind by the provinces of Milan and Naples with 10% and 4.3% respectively.

These positive figures are indicative that something very different to the malaise of the country is happening in its capital city. Indeed, the phrase "Rome Model" has gained currency in order to stress this difference, not just in economic terms but, also, fundamentally, in terms of a socially inclusive approach to development. In the words of Rome's Mayor:

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29   In Italy, services accounted for 69% of economic activity in 2004.

If there is a "Rome model," if many observers use this definition, it is because all we do is geared to keep together economic development with social cohesion, it is because at the base of the choices we make there is a way of working, collaborating, progressing together: the municipal administration together with the world of enterprise, the social forces and the diverse players of the civil society.[30]

The positive impact of the "Rome Model" is reflected in the views of Roman citizens who in a large majority (76.1%) positively evaluate the quality of life in Rome. This positive evaluation reaches 87.7% among the young people aged between 18 and 24.[31] A majority of Roman citizens also declare to be optimistic about the future of the city (65.9%), while 57.3% think Rome is a city that offers good opportunities for those with the idea and desire to do things; 58.6% share the view that the socio-economic conditions for their children will be better than their own.[32]

From the point of view of an "inclusive knowledge society," it is possible to say that Rome is on good track as confirmed by a variety of indicators related to innovation, education, inclusion, and the social values infusing the overall development under way. At the same time, as we shall see, Rome faces important challenges to reach international leadership in the inclusive knowledge society.

3.1 Innovation

Technological district in the Tiburtina area of Rome

The study on creativity in Italy conducted by Tinagli and Florida (2005) gave the Province of Rome the top place in Italy, with Milan and Bologna in the second and third places respectively. Table 7 summarizes the results for the three major categories making up the 3T index of creativity: talent, technology and tolerance. *Talent* is basically concerned with people, particularly, the creative class,[33]

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30   Veltroni, 2006, p.2. Translation from "Se c'é un "modello Roma", se molti osservatori usano questa definizione, e perché tutto ciò che facciamo é volto a tenere insieme sviluppo economico e coesione sociale, e perché alla base delle scelte che prendiamoci sempre un modo di lavorare, di collaborare, di procedere insieme: l'"Amministrazione insieme al mondo dell' impresa, alle forze sociale e ai diversi soggetti della società civile." (Veltroni, 2006, p.2)

31   Roma (2005).

32   Ibid.

33   "Compared to the data from 1991, the number of entrepreneurs and managers, as well as the whole group of professionals operating in the intellectual, scientific and arts and culture arena, has increased by 128% - rising from nearly 1.900.000 to over 4.300.000 individuals. Thus, the influence of the "creative class" on the

human resources[34] and researchers[35] (see Appendix 1 for greater details). In this category, the Rome province is ranked first followed by Milan and Genoa.

Table 7. Creativity Index of Province of Rome – 2001

Index	Rome Ranking	Reference within Italy
Creativity (overall)	1	2nd Milan 3rd Bologna
Talent	1	2nd Trieste 3rd Genoa
Technology	4	1st Milan 2nd Bologna
Tolerance	1	2nd Milan 3rd Florence

<u>Source</u>. Based on data found in Tinagli and Florida (2005)

In the category of *technology* Rome comes fourth with Milan and Bologna occupying the first and second places. Technology is made up of the sub-categories of hi-tech,[36] innovation[37] and connectivity,[38] giving an idea of the strength of the ICT sector and the patent production in Rome, although the use of patents may not be the most accurate indicator for assessing innovation, especially in places with a large presence of small companies.

In the category of *tolerance* Rome is again given first place followed by Milan and then Florence. This category is made up of the sub-categories of integration, diversity and gay and is largely concerned with the openness and friendliness of the place with foreigners and minorities.[39] Rome is awarded first place in integration and diversity but only fourth in the gay index.

The 3T study makes clear that the Rome province's first place in Italy in 2001, particularly regarding the presence of the creative class, human capital and researchers does not translate into a similar position of leadership in the international scene. Thus, Rome's 24.62% share of creative class is about half of Stockholm's 45.75%, while its 11.62% population with university degree (human capital) is far behind that of Edinburgh (29.40%) and London (29.29%). More recently, however, Censis (2006) reports a 17.1% proportion of population with university degree in the city of Rome (against 8% in Italy), a higher proportion but still low if compared to the best international standards. The 3T study also found that Rome had a proportion of 15.37 researchers per 1000 workers, with the vast majority working in the public sector (87.81%) and only 12.19% working in the private sector. This result is almost the opposite of Turin with its 80.16% of researchers working in the private sector and 19.84% working in the public sector. It means that the private sector is not playing a major role in the Roman R&D system.

Censis (2006) has estimated at about 20,000 the number of public and private researchers working in Rome in 2005, while statistics from the Camera di Commercio of Rome (2005) put the total personnel working in R&D in the Lazio region at 30,440 or 5.8 per 1000 inhabitants (see Table 8). Of these, 16,329 (53.6%) work for the government, 8,212 (27%) for the University, 314 (1%) for the private non-profit sector and 5,585 (18.3%) for the enterprise sector. These figures confirm the predominance of

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Italian workforce has grown from 9% to 21%." (Tinagli and Florida, 2005, p.50)

34   Percentage of population having a university degree (i.e., bachelor or diploma).

35   Percentage of researchers employed in the private sector and the public sector (universities and research centres) over the total employed population.

36   Hardware and physical products, software and services and telecommunications and audio-visual

37   Patents.

38   ADSL and UMTS coverage.

39   "Tolerance" assesses the degree of foreign presence as well as its diversity (based on country of origin), level of education, uprooting and integration in the territory through marriage, family and children's schooling. (Tinagli and Florida, 2005, p.10)

the public sector and the relatively low participation of the private sector in the R&D system of Rome-Lazio. They also confirm the region's leading position in Italy in terms of number of researchers per 1000 inhabitants. Lazio's figure of 5.8 clearly leads the 4.3, 3.7 and 3.2 shown by the next leading regions, Piemonte, Emilia-Rogmana and Lombardy respectively; and more than doubles the 2.8 shown by Italy. In terms of expenditure, Lazio is also the leading region in terms of R & D expenditure as percentage of GDP with 1.9% against 1.6% (Piemonte), 1.2% (Lombardy) and 1.2% (Emilia-Rogmana) and 1.1% for the country as a whole. In absolute numbers, however, Lombardy is clearly the leading region with approximately €3.3 billion of R&D expenditure. Lazio comes 2nd with just over €2.6 billion. Table 8 provides an international perspective through the technology balance of payment of top R & D regions in Italy for 2004. It shows that with the exception of Piemonte, all the other regions, as well as Italy as a whole, are importing more than exporting technology.

Table 8. R & D Expenditure and Personnel per Institutional Sector in Top Regions – 2003

R & D Personnel (full-time equivalent units)						
	Public Administration	University	Private Non-profit Institution	Enterprise	Total	No. (1000 inhabs)
Lazio	16,329	8,212	314	5,585.3	30,440.3	5.8
Piemonte	898	3,287	274	13,991.2	18,450.2	4.3
E m i l i a - Rogmana	1,273	5,391	129	8,148.3	14,941.3	3.7
Lombardy	2,263	6,912	1,503	18,750.4	29,428.4	3.2
Italy	*31,463*	*59,406*	*3,001*	*67,957.8*	*161,827.8*	*2,8*

R & D Expenditure (1000 €)						
	Public Administration	University	Private Non-profit Institution	Enterprise	Total	R&D Expenditure (% GDP)
Lazio	1,328,319	598,831	21,258	668,070	2,616,478	1.9
Piemonte	78,279	310,860	15,876	1,346,118	1,751,133	1.6
Lombardy	226,051	754,101	124,675	2,158,908	3,263,735	1.2
E m i l i a - Rogmana	112,806	461,074	6,775	818,050	1,398,705	1.2
Italy	*2,582,246*	*4,999,720*	*207,817*	*6,979,177*	*14,768,960*	*1.1*

Technology Balance of Payment of Top R & D Regions – 2004 (1000 €)	
Lazio	-117,403
Lombardy	-247,596
Piemonte	+235,236
Emilia-Rogmana	-32,267
Italy	*-167,835*

<u>Source</u>. Camera di Commercio di Roma (2005)

Further insights into Rome's innovation system come from looking more closely at the role played by the strategic ICT sector. In Tinagli and Florida (2005), the ICT sector of the Roman province, largely represented in the hi-tech index, comes in 5th place within Italy. Table 9 provides a more detailed picture of the strength and dynamism of this sector for the Lazio Region. We see that in 2002 the market as represented by Lazio's level of IT expenditure was among the strongest in Italy with a total expenditure that accounted for 19% of the total Italian market, second only to Lombardy that accounted for 22.7%. Instead, Lazio's IT expenditure as percentage of the regional GDP was the highest in Italy at 3% and well over the average 2% shown by the country. The annual rate of growth of this IT expenditure, however, at 2.2% for the years 2002-2004 was below the Italian average of 2.8% and well below the average of 5.5% of the Veneto region.

Regarding Lazio's industrial strength, the number of active IT enterprises was 5,477 in 2002, or 7.7%

of the total for the country.[40] Here Lombardy with its 16,829 active IT enterprises (23.6% of the Italian total) remains the leading IT industrial area of Italy. Within Lazio, however, the IT industry was clearly the most dynamic during the period 2000-2002 with a rate of IT company growth of 5.8% as compared with a growth rate of only 1.2% for all companies.

Table 9. ICT Market and Industry in the Lazio Region

Indicator	Year	Value	Ranking	Top Performer	Italy
IT Expenditure (€ Mn)	2002	3,806.7 (19% of total market)	2	Lombardy 4,550.5 (22.7% of total market)	20.035.8
IT Expenditure as % of GDP	2002	3.7	1	2nd Piemonte 2.5%	2.0
Rate of Annual Growth (%)	2000 - 2004	2.2	9	Veneto 5.5	2.8
No. of active enterprises	2002	5,477 (7.7% of total)	5	1st Lombardy 16,829 23.6% of total 2nd Veneto 6,556 9.2 of total	71,200
Growth Rate of IT companies as compared with all companies	2001 - 2002	IT companies 5.8 All companies 1.2	-	1st Calabria IT companies 16.7 All companies 3.1	-

<u>Source</u>. Based on data found in Assinform (2006)

If we take the broader definition of "knowledge industry" (comprising informatics, research, telecommunications and audiovisual), then Rome became the first Italian city in 2003 with over 8,800 enterprises (Roma, 2005).

In summary, the city of Rome, as the heart of the Province of Rome and the Region of Lazio, faces significant challenges to achieve the best international standards in several areas relevant to innovation. The basic trend however points in the right direction, something that should be reinforced by the application of appropriate policies in the coming years.

3.2 Education

The education of the Roman population poses a major challenge to the city's progress towards a 21st century education and an inclusive knowledge society. We have already seen how the proportion of population of 15 years old or over with university degree in the Rome province at 17.1%, although good for Italian standards, is quite low in relation to the best international standards. Something similar is the case regarding the same population's attainment of secondary education. Thus according to Censis (2006), in Rome this population reaches 41.5% against 31.5% in Italy. This result in educational attainment is close to the OECD average of 44% for the 25- to 64-year-old population in 2002. At the top of the league, countries such as Austria, Germany and Switzerland achieve levels of 63%, 60% and 59% respectively.[41]

Rome is increasing its investment in education. In 2001, this expenditure was €341 Mn and in 2005 it reached €406 Mn, a 19% increase. Part of this investment has been to equip schools with computers, connectivity and other ICTs that enable access to the potential benefits of the knowledge society. Table 10 shows the figures for selected ICT equipment and ICT laboratories available in the Roman school system in 2003. The total number of computers (desktops + laptops) existing in the 915 schools of Rome was 26,383, an average of about 29 computers per school.

On the other hand, according to data found in Roma (2005), the total number of students for the

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40   Assinform (2006).
41   OECD (2004b).

elementary, lower secondary and high schools is 314,271.[42] Combining the two pieces of data, although they may not be for the same year, we get an average ratio of students per PC of about 12 in Rome. This is below the student/computer ratio of the most advanced cities of Europe, such as Stockholm with its 5 students per computer average and some schools close to a 1 to 1 ratio. [43]

Table 10. Selection of ICT Equipment and Labs in Roman Schools

Selected ICT Equipment in Roman Schools						
N° Schools	Desktops	Laptops	Total PC	Video-conf. System	Web cam	Parabolic Antenna
915	25.661	722	26.383	62	511	352

ICT Laboratories in Roman Schools					
Type of Laboratory	N° Laboratories	Cabled	%	With Internet	%
Multimedia ICT	1.925	1.371	71	1.545	80
Multimedia Linguistic	132	95	72	96	73

<u>Source</u>. DGSI-MIUR (2004).

Table 10 also shows that Roman schools have installed 62 video-conference systems, 511 web cams and 352 parabolic antennas. It also shows that ICT laboratories are common in Roman schools with a total of 1,925 ICT labs, an average ratio of 2 labs per school, and a total of 132 multimedia linguistic labs. The connectivity of these labs is also high with 80% connected to Internet and 71% having cable access. The multimedia linguistic labs have over 70% Internet and cable connectivity.

3.3   Inclusion

Earlier on, the discussion identified a socially inclusive approach to development as a fundamental ingredient of the Rome Model. This inclusive approach is made up of two major aspects:

- *concertation* among key stakeholders as a major instrument to support economic and entrepreneurial development, and
- *welfare community* as a key instrument to support the less-advantaged sectors of society

The practice of concertation is carried out through the Rome Project (Progetto di Roma), that is, "the permanent concertation table that addresses the most important themes concerning the world of work and local development policy. Around this table sit, next to the Municipality of Rome, the enterprise associations, the trade union organizations, the Chamber of Commerce and the four public Universities of the capital." (Causi, 2005, p.XXII)[44]

The practice of welfare community is perceived as a new welfare "where the resources of the civil society, of so many voluntary workers and associations, of families themselves, create a network in which the care of the needs of the non-autonomous elderly and the disable goes hand in hand with new safeguards to favor both entry in the world of work and employment stability. It is, in short, the idea of a Social State of subsidiarity." (Veltroni, 2005,pp.8-9)

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42   The detailed numbers are as follows: Elementary school, 119,550 matriculated students between 6 and 10 years old. Lower secondary school, 71,387 matriculated students between 11 and 13 years. High school, 123,334 matriculated students between 14 and 15 years old. This gives a total of 314,271 students. If we add the 50,291 students matriculated in the maternal school (3-5 years old), the total increases to 364,562.
43   Molina (2005a).
44   Translation from "il tavolo permanente di concertazione che affronta i temi più importanti relativi al mondo del lavoro e alle politiche di sviluppo locale. A questo tavolo siedono, accanto al Comune di Roma, le associazioni delle imprese, le organizzazioni sindacali, la Camera di Commercio e i quattro Atenei pubblici della capitale". (p.XXII). For a research probing the views of some of the main participants in Progetto di Roma, see Dipartimento Innovazione e Società (2005).

Table 11 illustrates a number of indicators of relevance to Rome's performance in the dimension of inclusion. It includes welfare system, women, foreigners, international and non-profit organizations and culture. The first point is that between 2001 and 2005 all these areas underwent significant growth in terms of both expenditure and users or beneficiaries. Thus, the total social expenditure per inhabitant went up by 26.5% from €272 to 344, while in absolute terms, the welfare expenditure underwent a 36% increase from € Mn 344.9 to 467.3. Most importantly, the number of users went up by 69% to reach over a quarter of a million, something that reflects the greater capacity of the city to respond to the demands of its citizens in need. Of course, it may also be the reflection that today more citizens are in need of support than a few years ago. In both cases, it should be noted that, proportionally, the number of users has grown almost double the growth in expenditure, implying a greater efficiency in the performance of the Roman welfare system shown by the lowering of the welfare expenditure per user from €2,290 to €1,835 (24.8% reduction in the period 2001-2005). Care must be taken however that the lowering in expenditure per user does not translate into a lowering in the standard of service.

Table 11 reveals that the elderly constitutes the largest proportion of people assisted, considering assistance to adults, elderly, handicap and minor. In 2005, 156,012 elderly people received assistance, up 46% from 106,779 in 2001. Then came adults and minors with over 31,000 and over 36,000 assisted respectively. These groups of the population also show the greatest percentage increase for the period 2001-2005, particularly adults who show an almost 114% increase. Finally, the number of handicapped people who received assistance grew almost 70% from 6,735 in 2001 to 11,437 in 2005. These figures tell a story of a city striving for inclusion.

Table 11. Various Indicators of Relevance to Inclusion in Rome

Indicator	Value		Percentage Growth
	2001	**2005**	
Total Social Expenditure / Population (€)	272	344	26.5
Welfare Expenditure (€Mn)	344.9	467.3	36
Number of Users of Welfare System	150,589	254,610	69.1
Welfare Expenditure per User (€)	2,290	1,835	-24.8
No. Adults Assisted	14, 539	31,090	113.8
No. Elderly People Assisted	106,779	156,012	46.1
No. Handicap Assisted	6,735	11,437	69.8
No. Minors Assisted	20,558	36,339	76.8
Women and Foreigners (equal opportunities)	**2001**	**2004**	
Growth in Women's Employment (%)	-	-	22.95 (Italy 9.16)
Women Company Owners	40,525	42,501	4,88
Women Entrepreneurs	144,742	154,306	6.6
Number of Enterprises Own by Foreigners	5,672	11,512	103
Non-profit and International Organizations	**2001**	**2005**	
Number of non-profit organizations in the Province of Rome (70% in City of Rome)	12,536	15,095	20.4 (Italy 20.8)
Voluntary organizations in the Province of Rome	362	594	64 (Italy 32%)
International Organizations (governmental and non-governmental	-	183 (over 25 intergov. orgs)	5000 international personnel
Culture	**2001**	**2005**	
Culture Expenditure (€ Mn)	102.6	145	41.3
Number of Users			230
Culture Expenditure / population (€)	40.3	56.5	40.2
Contributions, sponsorships per cultural activities (€ Mn)	1.4	8.8	529

<u>Source</u>. Based on data from Municipality of Rome (2005a), Censis (2006).

Table 11 also provides evidence of an improving inclusion performance by Rome regarding equal opportunities for women and foreigners. In Rome, for instance, women's employment grew by almost 23% during 2002 and 2004, over twice the 9.16% rate of growth in Italy. The number of women who are company owners also grew by almost 5%, reaching 42,501 in 2004, whereas the number of women entrepreneurs reached over 150,000, a 6.6% increase or close to 10,000 more women entrepreneurs in 2004 as compared to 2001. The increased presence of foreigners in the entrepreneurial scene of Rome is also indicative of a positive environment for the participation of immigrants in the economic development of Rome. In fact, between 2002 and 2004, the number of enterprises owned by foreigners more than double, jumping from 5,672 to 11,512.

An important dimension of inclusion is the institutional presence of both non-profit organizations and international organizations entrusted with the task of alleviating poverty, hunger or other malaise in the world. In the case of Rome this presence is fundamental to its conscious policy of *welfare community* and to its desire to contribute to the alleviation of world problems, particularly in Africa. Table 11 shows the existence of over 15,000 non-profit organizations in the Rome Province, with 70% of them in the capital city. From 2001 to 2005 the number of these organizations has grown by about 20.4%, in line with their growth in Italy. In terms of voluntary organizations, however, the percentage growth in the province of Rome has been double the growth shown by the country as a whole – 64% against 32%. In absolute numbers, this means the presence of almost 600 voluntary organizations in Rome in 2005, up from 362 in 2001. In terms of international organizations, Rome boasts an extensive presence with 183, including organizations such as FAO and the World Food Programme who are at the forefront of the battle against hunger. Overall, about 5000 international personnel find their workplace in Rome.

Finally, Rome invests heavily in the rich cultural patrimony of the city, something that benefits the city life of all its citizens. In 2005, the cultural expenditure of the city reached €145 Mn, a figure that represented an increase of 41.3% over the expenditure in 2001. Translated into cultural expenditure per inhabitant, this meant an increase from €40.3 to €56.5 per inhabitant. The city has also pursued a policy of improving its contributions and sponsorship for cultural activities. Thus, in 2001 this investment amounted only to €1.4 Mn, whereas in 2005 it reached €8.8 Mn with a percentage increase of over 500%.

In sum, Rome is making a serious effort in the dimension of inclusion, as shown by its commitment to invest and provide services to those sectors of the population in need of assistance or equal opportunities. For an inclusive knowledge society, this is definitely good news, but it is the progress of the city on the more specific dimension of *e-inclusion* (i.e., the degree of access to the technology and its benefits for life and work in the knowledge society) that will have the final word. This is something that will be discussed in the following sections with specific reference to those sectors of the population at risk of exclusion, e.g., the elderly, the disable, the poor, etc.

In the meantime, it is worth considering that the city of Rome is following a path of inclusive development that certainly offers good pointers for the necessary reforms facing Italy in the coming years. At the same time, Rome faces important challenges to gain a rightful place among the best cities in the international arena, particularly, in matters of innovation and education. For instance, the 2004/2005 report on the Roman economy identified the following obstacles to the full development of the medium enterprise in the advanced tertiary sector:

- scant infrastructure and service facilities in the location areas
- difficulties of access to the location areas
- relation with the Public Administration
- cost of recruitment and training of personnel
- research and innovation

- access to credit and finance[45]

The research sector also presents worrying problems that are undermining its current strength and threatening its future development. One problem resides in the relative low participation of the private sector in Rome's R&D system in terms of expenditure and personnel (see Table 8). The highest participation corresponds to the government that accounts for over 50% of both expenditure and personnel. This high incidence means that any decrease in government participation is bound to have a noticeable impact in the evolution of the Roman R&D system. As Leon (2004) notes, this is happening at present:

> The restrictions in public finance, the closure of centers of state participation and of nationalized enterprises, the erosion of the inter-exchange between research centers and the University have meant a loss of potential of activity. By and large, in the decade between census, the university personnel has passed from 13,660 to 15,889 employed people, with an annual average increment of 1.5%. Such increment, slightly higher than the growth of employed people in Roma, is not enough to avoid the decline of the sector, and a 'growing-old' tendency in the personnel, stimulated by the lack of renewal of researchers both in the public sector and the private sector."[46]

These and other problems form part of the challenges Rome will have to face in its path towards an inclusive knowledge society. The city's current growth and direction of development constitute a sound foundation to look at the future with optimism. Continued strategic vision and bold innovative steps are required to build on these foundations the evolving reality of an inclusive knowledge society. The next section tells of the activities of an innovative organization focused on the challenge of an inclusive knowledge society: the *Consorzio Gioventù Digitale* born in Rome with the support of the Municipality of Rome and six ICT companies.

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45   Comune di Roma, 2005, p.138.
46   Leon, 2005, pp.52-53 (translation from Italian). Also, Lo Bianco and Iannini (2005) report with the following words L. Spaventa's argument during the Workshop "Economia e Lavoro" that took place in Rome on 1st July 2004, "the area of research is in full decline in Rome because the few research centers have been decentralized (as the Institute of New Technology to Terni) or are in decline, as the ENEA (National Institute of Nuclear Physics). Rome is therefore in decline and the university is no longer enough to re-establish a balance." (p.48)

4 CONSORZIO GIOVENTU DIGITALE (DIGITAL YOUTH CONSORTIUM - DYC)
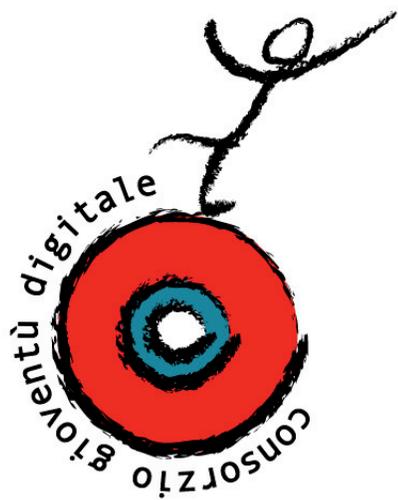
Digital Youth Consortium Logo

The Digital Youth Consortium (DYC) was created in 2001 as a private-public partnership between the Municipality of Rome and the Acea, Elea, Engineering, eWorks, Unisys and Wind Telecommunications companies and with a total budget of €650 thousand. It built upon the success of the first edition of the Global Junior Challenge (GJC), the global contest of experiences of ICT-based innovation in education and inclusion that took place in 2000 at the initiative of the Vice-General Director of the Municipality of Rome.

The Digital Youth Consortium has since its inception pursued an agenda of *inclusive digital literacy* that has sought to integrate all the dimensions in Figure 1 (i.e., innovation, education, e-inclusion and fundamental values). Most importantly, this agenda has been physical and virtual (i.e., *phyrtual*), pursuing activities that are both deeply rooted in the territory - in the Roman school system (with over 200 schools subscribed) and the population at large – and make use of the multimedia/Internet environment. As we shall see, the beneficiaries have included teachers, students, school presidents, school leavers, senior citizens, professional women, projects from poor areas of the world, and others. Particular attention has been given to those sectors of the population at risk of exclusion of the knowledge society. Simultaneously, the DYC has continued the Global Junior Challenge with a view to establishing a synergy between local and international experiences of ICT-based educational innovation and inclusion. In this sense, the DYC is an expression of the following vision of its Mayor: "Rome is truly … the spearhead of that search for unity between global and local that more and more we understand to be the key to face the challenges we have in front of us."[47]

During the five years of its existence, the DYC has built up a wealth of knowledge, expertise, resources and relationships with multiple players in Rome, Italy, Europe and the world, including Africa, Latin America, India and USA. It can be said that the DYC has become the hub of a large constituency or value-network focused on the development of an inclusive knowledge society both locally and globally. In particular, the DYC has laid the foundations for an institutional platform that synergistically integrates:

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[47]   Veltroni, 2005, p.5. Translation from "Roma è davvero … la punta avanzata di quella ricerca di unione tra globale e locale che sempre più capiamo essere la chiave per affrontare le sfide che abbiamo di fronte."

- concepts and processes of educational innovation, social learning, social entrepreneurship and e-inclusion
- multiple actors: schools, companies, banks, NGOs, associations, community organizations
- national and international processes and projects in a context of an ethical globalization

The current transformation of the DYC into the Fondazione Mondo Digitale (Digital World Foundation) will serve to reinforce the achievements obtained so far and, above all, create an institution capable of taking these achievement much further – giving rise to a new form of *institutional capital* for the City of Rome. In this respect, the foundation is expected to become the institutional core of a vast array of partners forming a variety of *project constituencies* targeted on problems of educational innovation, e-inclusion and social entrepreneurship.

The moment is timely with the reconfirmation of the Veltroni Mayorship in Rome, the Gasbarra presidency in the Province of Rome, the Marrazzo government in the Region of Lazio and the new Prodi government in Italy. At all these levels there is wide recognition of the fundamental importance of innovation, education and inclusion in the path to an inclusive knowledge society that melds the local and the global.

4.1   The Legacy of the Digital Youth Consortium

The Digital Youth Consortium gave way to the Fondazione Mondo Digitale in July 2006, having laid a sound platform of projects, content and instruments in multiple lines of action. Importantly, as we shall see in the discussion of the value flows generated by the various DYC projects, many of the elements found in Table 1, specially regarding didactics, life-skills and ICT skills, have been integral to the *raison d'etre* and results of the projects. Of course, the DYC has achieved these results in the measure of its limited resources and much scope exists to scale up the benefits across the city of Rome as well as across the province, region, the country and, indeed, internationally.

Figure 2 illustrates the variety of areas (see circles) in which the DYC seeded and developed projects in its five years of existence. Next to the circles (towards the outside) are the names of the specific projects for each of the areas, while towards the inside are the types of organizations that have participated in one form or another in the funding, development and implementation of the projects.
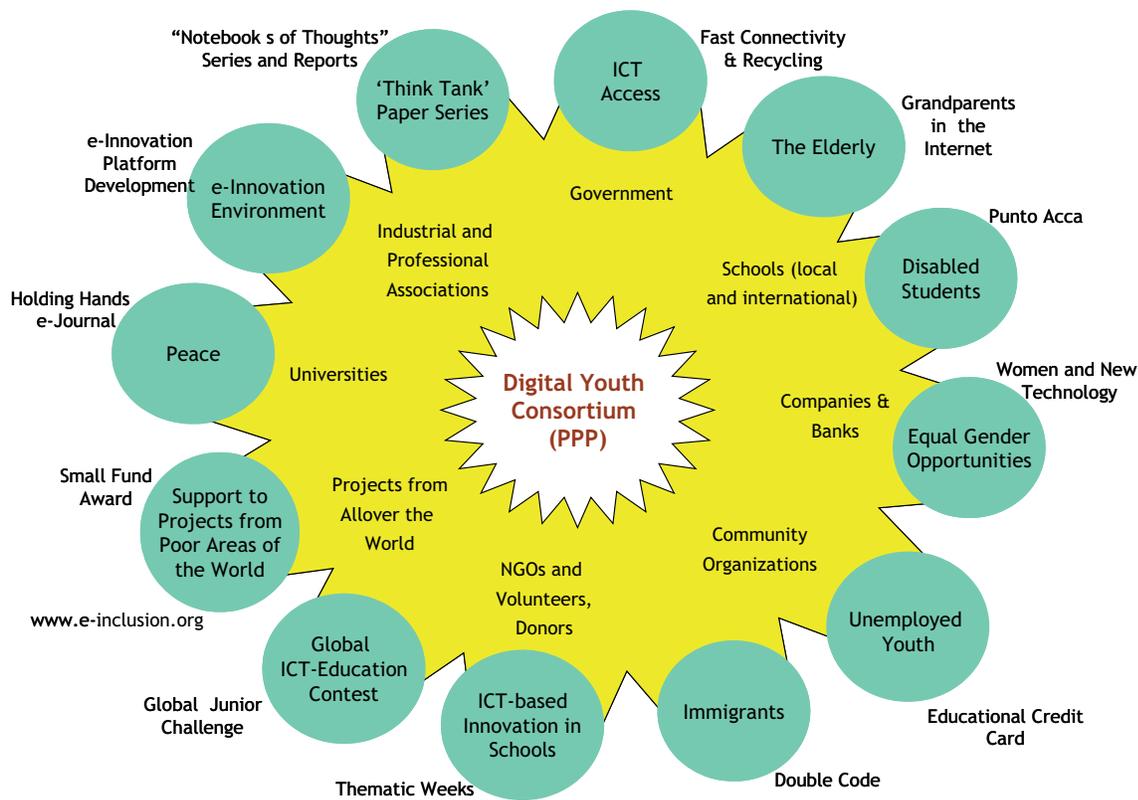
Figure 2. Lines of Action, Projects and Partners of the DYC (2001-2006)

Table 12 briefly introduces the action lines and projects in Figure 2 with a short description of their purpose and the names of the organizations that have made the projects a reality.

Table 12. Action Lines Implemented by the DYC - 2001-2005

Action Line & Implemented Project	Description	Contributors
ICT Access Project: Various initiatives on Fast Connectivity and Recycling	Computers and connectivity for Roman schools and community organizations	Intel, Telecom Italia, Poste Italiane, Fastweb, Roma Wireless, Unidata, schools, others
The Elderly Project: Grandparents in the Internet	School-community educational programme aimed at promoting ICT literacy for the elderly.	Schools, Elderly People Centres, Microsoft, Intel and City of Rome
Disabled Students Projects: Auxilia and Punto Acca	Integration of disabled students in school. European project Auxilia implemented assistive technology for this purpose. Punto Acca aims at stimulating the diffusion of assistive technology for the same purpose.	DYC, Guidonia school, Scuola Sant' Anna de Pisa, The University of Edinburgh, the University of Valencia, the departments of education of the municipalities of Stockholm and Barcelona, Campus Biomedico, Municipality of Rome
Gender and Equal Opportunities Project: Women and New Technology	Promotion of growth of a qualified presence of women in the local ICT industry, through a programme of lectures, testimonials and company internship aimed at young graduate women in the perspective of increasing their presence at high decision-making levels	Dept. of Equal Opportunities of the Municipality of Rome, Industrial Association of Rome (Women Section), companies, and others
Unemployed Youth Project: Educational Credit Card	ICT literacy for youngsters in search of employment, through provision of no-interest financing for computer and ICT course, followed by company internship.	Dept. of Local Development and Employment of the Municipality of Rome, Unionfidi Lazio and Banca di Credito Cooperativo di Roma
Immigrants Project: Double Code	Provision of multimedia-based language course to young immigrants arriving alone and unsupported in Rome	Caritas, Tam Tam Village
Innovation in Roman Schools Project: Thematic Weeks	Programme of awareness and dissemination of good-practices in ICT-based educational innovation focused on weekly themes of social, environmental and ICT educational value. Implements lectures, labs, workshops, public events, etc.	City of Rome, Dept. of Education, Città Educativa (Centro Quadraro), Schools, NGOs, Clubs, Associations, Public Institutes, Foundations, Cooperatives, International Organizations, Companies, Library Organizations and Universities (University of Edinburgh).
International Activities Project: Global Junior Challenge Small Fund Award www.e-Inclusionsite.org Holding Hands	International contest of ICT and Education & Training experiences in the world. Multiple awards and events Award of €5000 given exclusively to projects from poor areas of the world Website to contribute to global e-inclusion movement, with fund-raising "clicking" mechanism for Small Fund Award Electronic Journal for Peace aimed at stimulating dialogue among Palestinian, Israeli and Italian school children and teachers	Municipality of Rome, companies, Roman and Italian schools, University of Edinburgh, University of Santa Clara, educational e-inclusion projects from all over the world, members of the jury, individuals across the world Italian schools, Hebrew schools and Palestinian schools in Israel.
e-Innovation Environment Multiple initiatives to develop the virtual platform and its "knowledge objects."	Virtual environment to support scaling up of educational innovation across the school system and, eventually, to support grass-root e-inclusion projects.	In progress as part of the effort of Thematic Weeks The University of Edinburgh
"Think Tank" Paper Series Project: "Notebooks of Thoughts" Series	Series of analytical papers aimed at communicating the results of the action research of the DYC. Part of the "knowledge objects" for the e-Innovation Environment.	The University of Edinburgh

In the following, most of the actions lines of Figure 2 and Table 12 are reviewed in detail to provide a clear idea of the concepts, achievements and resources and value already created by the DYC. Regarding value, the DYC has started a practice of systematic evaluation as an essential learning mechanism. These evaluations concentrate on eliciting target beneficiaries' perception of value delivered by the projects, with reference to relevant elements of 21st century education (Table 1).

Below, some of the overall results of these evaluations are included in the discussion. We start at the top of Figure 2 with ICT Access and follow a clockwise direction.

4.1.1 ICT Access – "Fast Connectivity and Recycling"

Connecting to the wi-fi system installed in Rome's parks

Th DYC has mediated a number of initiatives aimed at improving access to faster connectivity to schools, to computers in elderly people's centres and to students not able to attend school.

Regarding faster school connectivity, the DYC first negotiated with the company Fastweb for the provision of free broadband connectivity to about 50 schools in areas covered by the company's network. More recently, the Consortium catalyzed an agreement between Telecom Italia and the Municipality of Rome for the provision of ADSL to 70 Roman primary schools. The rationale being that the same financial resource spent by the Municipality to cover the telephone bill of the schools would be sufficient to upgrade to ADSL with the benefit of faster connectivity. The Consortium has also mediated the provision of free wi-fi connectivity to 3 pilot schools by the Consortium Roma Wireless.

Regarding access for students not able to attend school due to long-term illness or disability, the Consortium has engaged, on request of parents, the company Telecom Italia to provide ADSL connectivity between the student's homes and school and between the student's school and hospital. This has benefited two students who have thus been able to continue 'attending' school with consequent health and educational benefits.
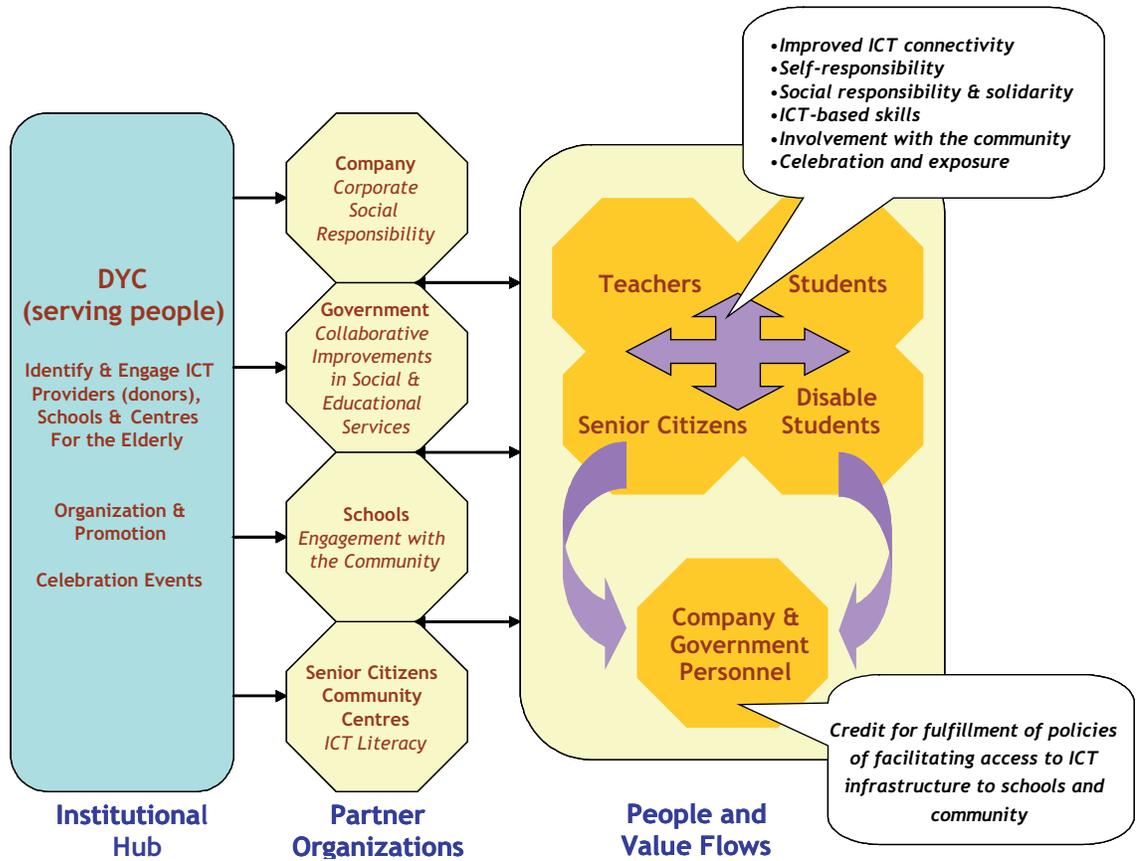
Figure 3. IT Access – Fast Connectivity and Recycling

Recycling of computers for elderly people centres started in 2005 as an accompaniment to the digital literacy project *Nonni su Internet* ("Grandparents on the Internet") (see below). This line of action was successfully launched during a public event with the participation of radical comedian Beppe Grillo and 1200 students from different schools of Rome. Beppe Grillo agreed to be the sponsor and supporter of the recycling campaign that received wide promotion in the press and radio as well as with a public poster campaign donated by the Municipality (see Figure 4). The aim of the campaign was to equip each of the 135 elderly people centres of Rome with at least two/three computers. The process involves:

- companies and local government offices donating computers and software that are initially stored in premises arranged by the DYC,
- schools teachers and students making the computers operational,
- transfer of the computers to the elderly people centres.

Figure 4. Street Poster for PC Recycling Campaign Supported by B. Grillo

The donations of computers so far exceed 500 with a potential for many more. This comfortably permits the recycling of an average of about 4 computers per centre. The private and public sector have participated in the donation of computers, including Acea, Municipality of Rome, Poste Italiane, Engineering, and private lawyer offices. On the other hand, some 10 schools have worked in making the computers operational for use by the elderly centres.

4.1.2 Elderly People – Project "Grandparents on the Internet"

The student-tutor teaches a grandparent to use a computer

The elderly is one of the sectors of society at risk of exclusion from the benefits of the knowledge society. The statistical evidence found in various studies clearly confirms this risk,[48] particularly because the penetration of PCs and Internet in Italian households lags behind the more advanced European countries, although its has grown gradually over the years as seen in Table 13. According to data from Federcomin-Anie (2005), 52% of Italian households had a PC and 35% had Internet access in 2004. These figures are consistent with Censis (2005) data for Internet users showing that 42.7% of the Italian population were Internet users in 2005 slightly up from a 42.1% in 2004.[49]

Table 13. Evolution of PC and Internet Penetration in Italian Households (2000-2004)

Year	PC (%)	Internet (%)	
2000	37	18	21.3 (Censis)
2001	41	25	-
2002	46	29	-
2003	51	34	32.1
2004	52	35	42.1
2005			42.7

<u>Source</u>. Based on data found in Stanca (2005) and Censis (2005).

Looking at the social distribution of PC and Internet penetration, it becomes clear that the elderly suffer from substantial inequality of access to the benefits of the knowledge society. Referring to

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48   See Censis (2005), Federcomin-Anie (2003, 2005), Commissione Interministeriale sullo Sviluppo e l'Impiego delle Tecnologie dell'Informazione per le Categorie Deboli (2003), Misiti (2001), Federazione Nazionale Pensionati (Fnp) CISL (2002), Istituto Nazionale per le Comunicazioni (2003).
49   The Censis data includes use of Internet at home as well as in the workplace.

the results of the E-Family 2005 Report, Tripi points out that: "The family *digital divide* is identified in housewives and elderly people. **Housewives** (40% of the adult feminine population) and **people over 60 years of age** (another 20% of the total population) **make a minimal use** of the digital technology."[50]   Tables 14 and 15 provide a detailed account of the current digital exclusion facing the elderly population of Italy. Table 14 shows the percentage of PC users at home by age and gender in year 2002, while Table 15 shows the percentage of Internet users by age in year 2005. It is plain that most people over 64 years of age are at the moment facing exclusion from the benefits of the computer and Internet. Indeed, in 2005, an overwhelming 92.8% of these persons did not use Internet, and a substantial proportion of people between 45 and 64 years, close to two-thirds, were in the same situation. Looking at Table 14, we can also see that women fared worse than men in access to computers at home in 2002, although this has improved lately as we shall see in the section on women and new technology.

Table 14. PC Users at Home by Age Segment and Gender in Italy – 2002 (%)

Age Segment	Men	Women	Total
Up to 10 years	11,7	7,3	**9,6**
11-14	44,7	39,9	**42,5**
15-17	57,2	53,8	**55,5**
18-24	52,9	47,1	**50,2**
25-34	47,2	31,5	**39,0**
35-44	37,9	21,6	**29,6**
45-54	25,2	11,7	**18,4**
55-64	17,5	6,0	**11,9**
Over 64	9,8	2,2	**5,9**
Average	**31,0**	**20,1**	**25,6**

<u>Source</u>: Adapted from table in Federcomin-Anie (2002).

Table 15. Internet Users by Age Segment and Place of Use in Italy – 2005
(% over total population of over 18 years of age)

	Up to 29	20-44 years	45-64 years	Over 64 years	Total
Internet user	**69.8**	**52,4**	**36.6**	**7.2**	**42.7**
At home	38.5	21.9	19.0	5.3	21.3
Work or study place	6.5	8.0	1.7	0.0	4.3
At home and in work or study place	24.5	22.3	15.9	1.9	17.0
In other place (friend or public places)	0.3	0.2	0.0	0.0	0.1
Non users	30.2	47.6	63.4	92.8	57.3
Total	100.00	100.00	100.00	100.00	100.00

<u>Source</u>: Based on Censis (2005).

If we take into account that in Italy, in absolute numbers, the population of people over 65 years of age was close to 11 million people in 2003,[51] we get an immediate view of the magnitude and necessity of the challenge of digital literacy of the elderly Italian population. Indeed, in Italy, the percentage of elderly people is one of the highest in the world with people over 60 representing 24.2% of the

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50   Tripi (2005), p.5. Translation from "Il *digital divide* familiare si identifica nelle casalinghe e nelle persone anziane. Le casalinghe (40% della popolazione femminile adulta) e le persone con oltre 60 anni (oltre il 20% della popolazione totale) fanno un uso minimo di tecnologie digitali."
51   Istat data found in Marletta *et al*. (2005).

total population (against 24.9% in Japan) and people over 75 representing 8% of the total population (7.9% in Japan) in 2003. In addition, the proportion of women outnumbers significantly that of men for the population over 65 years old. The number of women over 65 is 6,414,595, representing 21.70% of the total female population, compared with 4,468,554 men over 65, representing 16.20% of the total male population.

The DYC's Project "Nonni su Internet" (Grandparents on the Internet)

A grandmother learning to use a computer
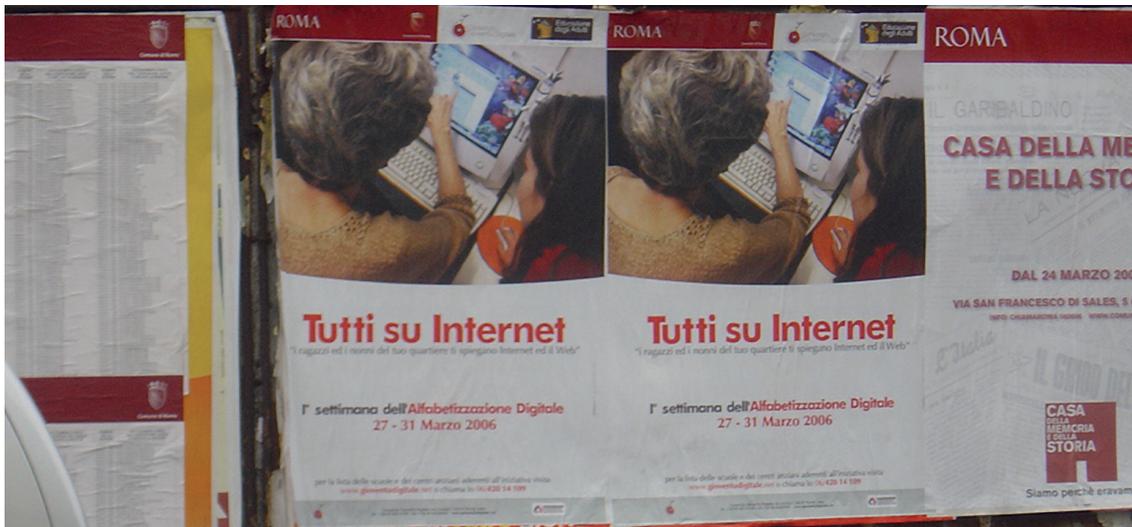
"Nonni su Internet" Programme Poster

The Digital Youth Consortium began addressing the digital inclusion of the elderly in Rome in January 2003 with a pilot course involving 3 schools and 3 elderly people centres. Previously, as part of the build up, the DYC had promoted an official agreement between the Municipality of Rome and the Ministry of Innovation and Technology, signed in September 2002 by the Mayor Walter Veltroni and the then Minister of Innovation and Technology, Lucio Stanca. In September 2003, the project expanded to cover all the 19 districts of Rome under funding from Microsoft. Later, the DYC ran the programme in 2004 and 2005 with its own resources. A key factor in the project has been the existence in Rome of many elderly people centres. These reached 135 in 2005 with a total of 87,380 elderly people subscribed to them (see Table 16). This concentration greatly facilitated the DYC's work of linking

schools with elderly people centres to enable the start of a programme of intergenerational activities in which students under teachers' supervision become e-inclusion tutors for the elderly.

Table 16. Evolution in Number of Elderly People Centres in Rome (2001-2005)

	2001	2002	2003	2004	2005
Elderly People Centres	115	116	123	131	135
Subscribed to Elderly People Centres	78,889	82,202	81,343	82,534	87,380

Source. Comune di Roma (2005a), p.112.

Figure 5 illustrates the synergistic relationship and value flows between organizations, people and resources, created by the Digital Youth Consortium (DYC) through the project Grandparents on the Internet (*Nonni su Internet*). On the left-hand side of Figure 5, the DYC box shows the contribution of the Consortium to making a reality of the project and its results. The DYC contribution is also listed in Table 17.
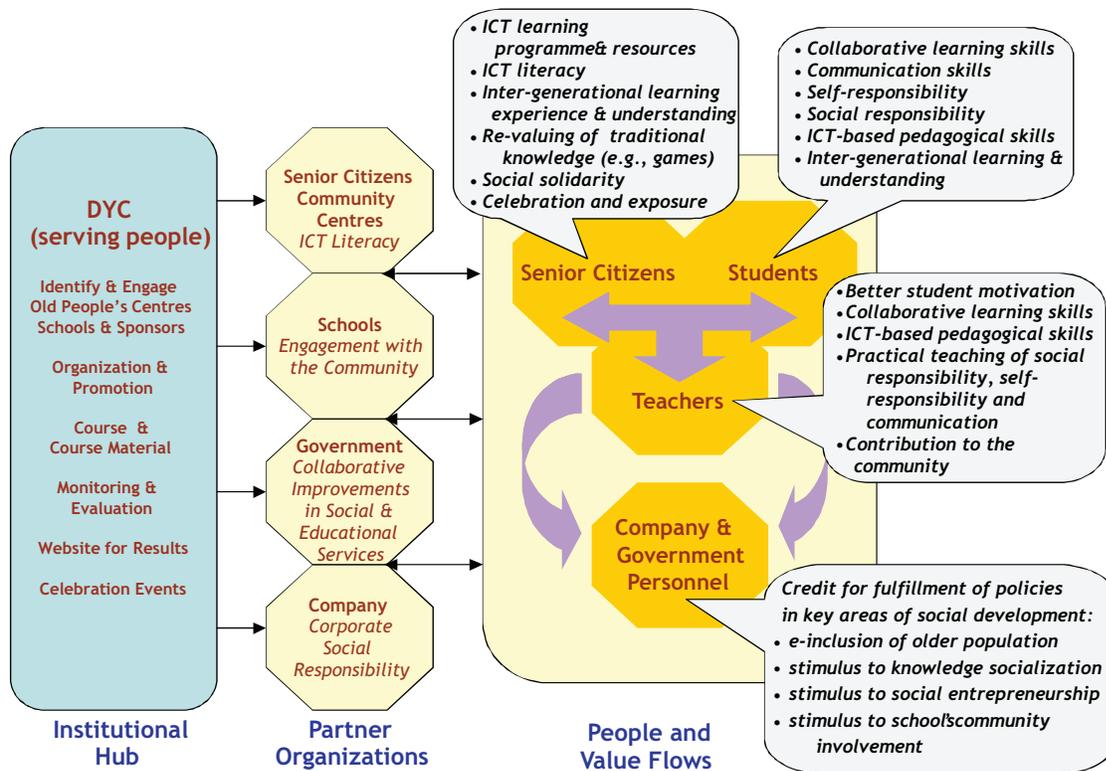
Figure 5. *"Nonni su Internet"* – Organizations, People and Value Flows

Table 17. DYC's activities to Catalyze Project *"Nonni su Internet"*

- Identify and engage Senior Citizens' Centers
- Identifying and engaging Schools
- Identifying and engaging sponsors who can contribute with resources
- Organization and promotion of the annual programme
- Contribution to preparation of course and course material
- Monitoring and evaluation
- Website for the project
- Celebration events

Moving to the right of Figure 5, the four octagons show the different organizations involved in the realization of *"Nonni su Internet",* and the major gain they obtain from this involvement. These are also shown in Table 18.

Table 18. Benefits to Partner Organizations from their Participation in *"Nonni su Internet"*

Senior Citizens Community Centres	ICT literacy for their members
Schools	Engagement with the community and the corresponding positive effects in educational practice
Government	Collaborative improvements in social and educational services to citizens
Companies	Practical fulfilment of corporate social responsibility

Moving further to the right-hand side of the diagram, the "people and value flows" box shows the direct participants in, and beneficiaries of, the activities of project *Nonni su Internet*. These are senior citizens, students, teachers, and government and company personnel. The callouts list the benefits or value reaching each of these groups. These are reproduced in Table 19. Note that there is a link between the value flows and the ingredients in Table 1 for 21st century skills and competences.

Table 19. Benefits to Different Groups of People Involved in *"Nonni su Internet"*

Senior Citizens	*Students*	*Teachers*	*Company and Government Personnel*
• ICT learning program & resources • ICT literacy • Inter-generational learning experience & understanding • Re-valuing of traditional knowledge (e.g., games) • Social solidarity Celebration and exposure	• Collaborative learning skills • Communication skills • Self-responsibility • Social responsibility • ICT-based pedagogical skills • Inter-generational learning & understanding	• Better student motivation • Collaborative learning skills • ICT-based pedagogical skills • Practical teaching of social responsibility, self- responsibility and communication • Contribution to the community	Credit for fulfillment of policies in key areas of social development: • e-inclusion of older population • stimulus to knowledge socialization • stimulus to social entrepreneurship • stimulus to schools' community involvement

So far the number of elderly people reached by the *Nonni su Internet* programme is small compared with the potential demand for the digital literacy activities of the project. Until today, the numbers reveal the participation of 3,000 elderly people (over 60 years old), 1,500 tutor-students, and 200 guiding-teachers, involving 80 elderly people centres and 74 schools across the 19 districts of the City of Rome. Both the Municipality of Rome and Microsoft have provided sponsorship (Microsoft for one year) and, more recently Intel has provided funding to support the codification of the process into handbooks. The scaling-up of the project to reach the many elderly people of Rome and beyond, however, would require a substantial expansion of resources. This will be a task for the Fondazione Mondo Digitale.

Evaluation of Project "Nonni su Internet"

A goal of the DYC is to create a culture of real-time evaluation for its projects. In this view, evaluation is part of the continuous learning process of the organization and, also, a form to know if we are really serving people in the way we intend to with the resources we have. Figures 6 (a, b, c and d), 7 (a, b and c) and 8 (a, b and c) along with Tables 20 and 21 illustrate selected results of the evaluation for the session 2005-2006. The respondents involved 75 elderly people, 76 student-tutors and 10 teachers. The range of questions in the actual evaluation is more extensive but, for the purposes of this paper, the selected key questions suffice to give a general idea of the value delivered by the programme as perceived by its participants. By and large, it can be said that the evaluation reveals a high degree of satisfaction with the activities and the results of the project by the three key participant groups: elderly people, students-tutors and teachers. Most of the elderly respondents (94%) evaluated the experience as either "good" (41%) or "excellent" (53%), while 74% reported having improved their computer ability either "sufficiently" (52%) or "much" (22%) with another 7% reporting "very much." The greatest difficulties identified by the largest number of elderly respondents (28) were "remembering the information from one session to another" and "not having a computer at home to practice." In suggestions for improvements, most of the elderly respondents (57) wished to see a greater number of lessons in the programme and another 22 wanted a wider range of activities.
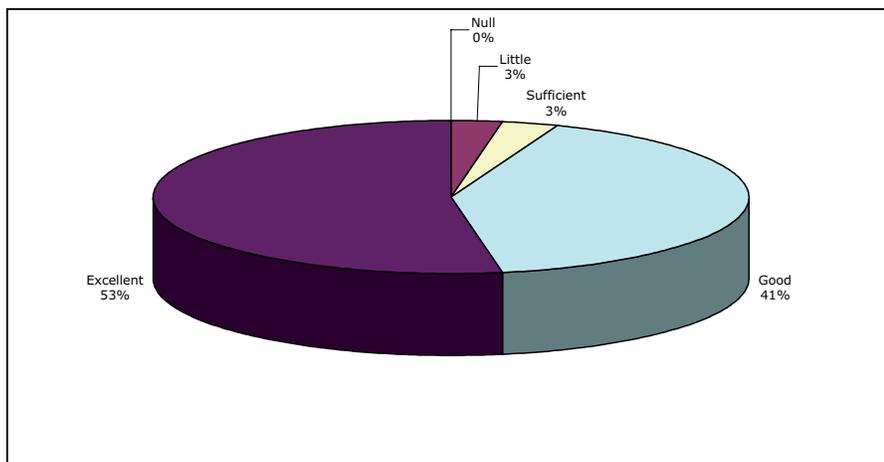
Figure 6a. Elderly People – How Do You Evaluate the Overall Experience?
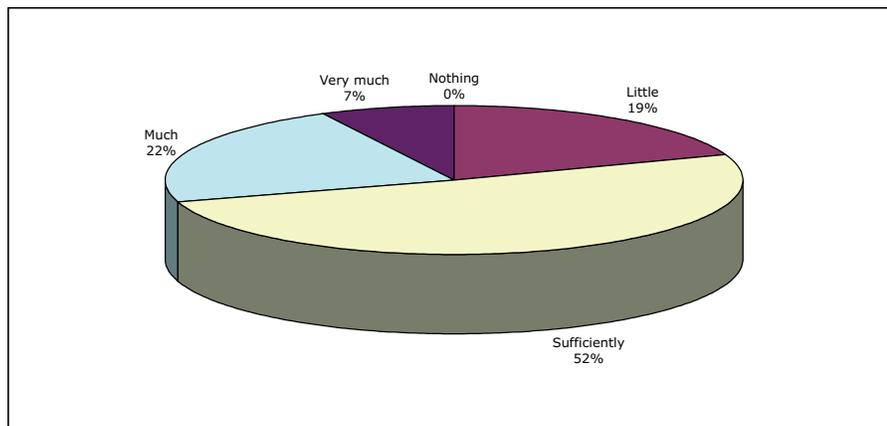
Figure 6b. Elderly People – Has the Course Helped Improve Your Computer Ability?
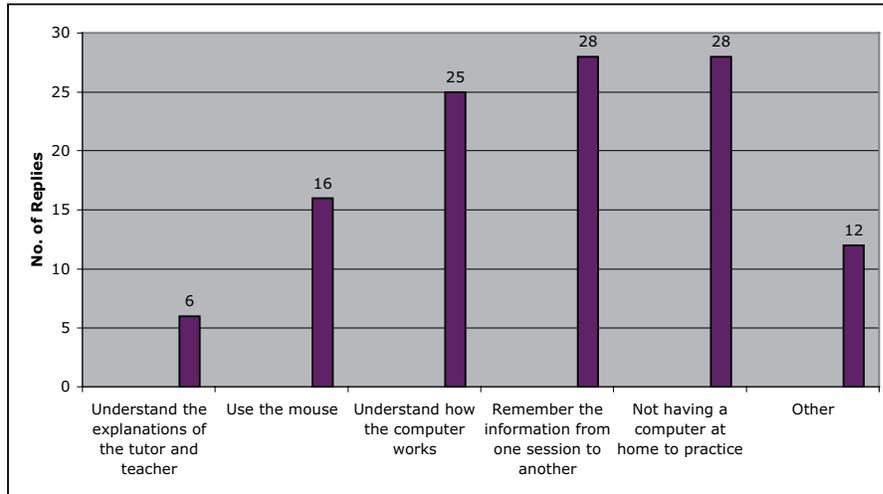
Figure 6c. Elderly People – Which Have Been the Greatest Difficulties Found in the Course?
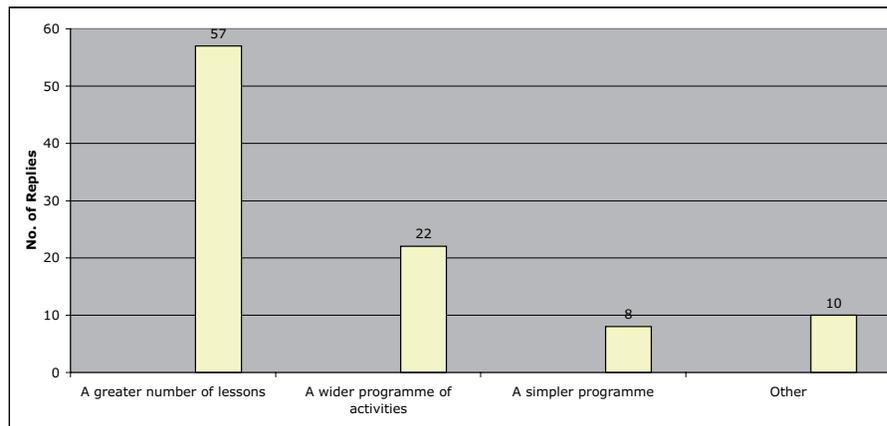
Figure 6d. Elderly People – What Would You Like to See Added to the Course?

Regarding the student-tutors, 95% evaluated the experience as either "good" (54%) or "excellent" (41%), while the greatest difficulty identified by the largest number of respondents (35) was to "have to explain things obvious to them." Another 21 student-tutors found difficulty in the need for patience but 27 respondents did not find difficulties with any of those items. Only one respondent found "disagreements with the elderly" as a great difficulty. Student-tutors concurred with the elderly in the desire for a greater number of lessons (45 respondents) and wider programme of activities (29 respondents) as a way to improve the programme.
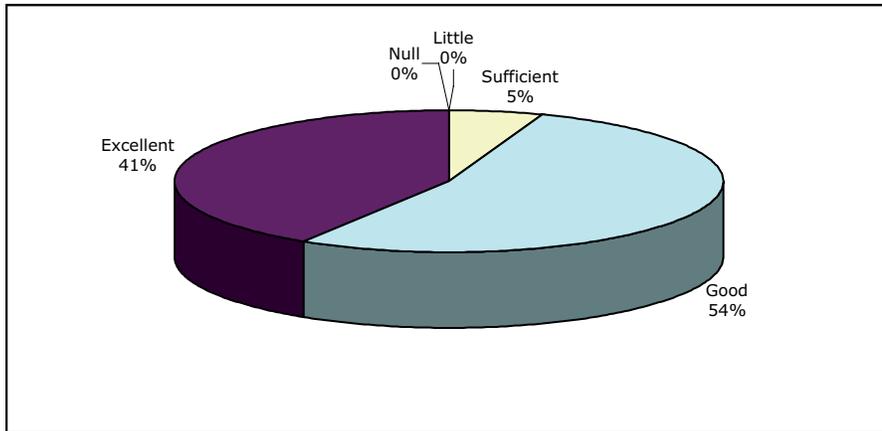
Figure 7a. Student-Tutor – How Do You Evaluate the Overall Experience?
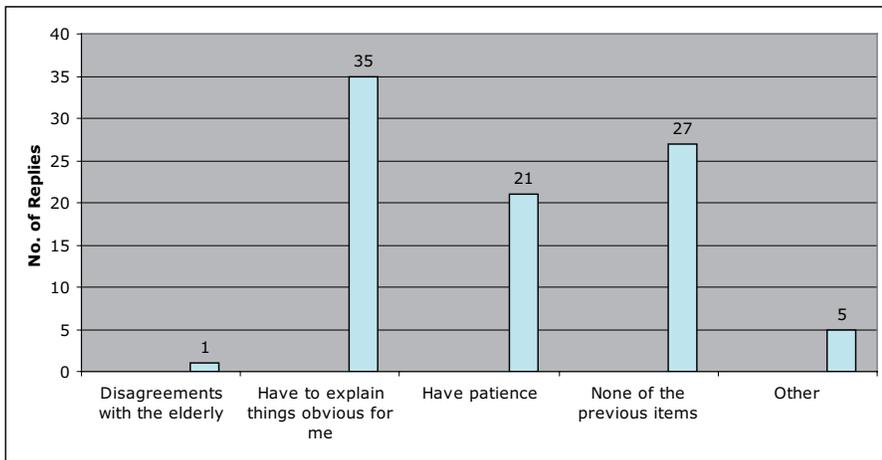
Figure 7b. Student-Tutor – Which Have Been the Greatest Difficulties Found During the Course?
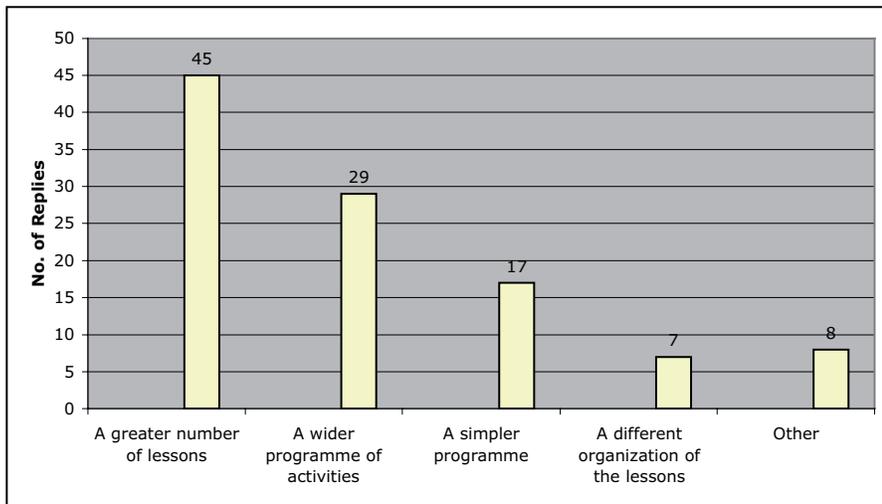
Figure 7c. Student-Tutor –What Changes Do You Suggest to Improve the Course?

Finally, the teachers's assessment of the course concurs with the assessment of the elderly and the student-tutors. The entire group of 10 respondents found the course either "good" (60%) or "excellent" (40%). Three teachers identified the "coordination of the work of tutors and the elderly" as the greatest difficulty, while 4 teachers identified other difficulties such as organisational problems related to the school agenda. Teachers also concurred with the elderly and student-tutors that the programme would benefit from a greater number of lessons (7 respondents), while only 2 thought that a wider programme of activities would be desirable.
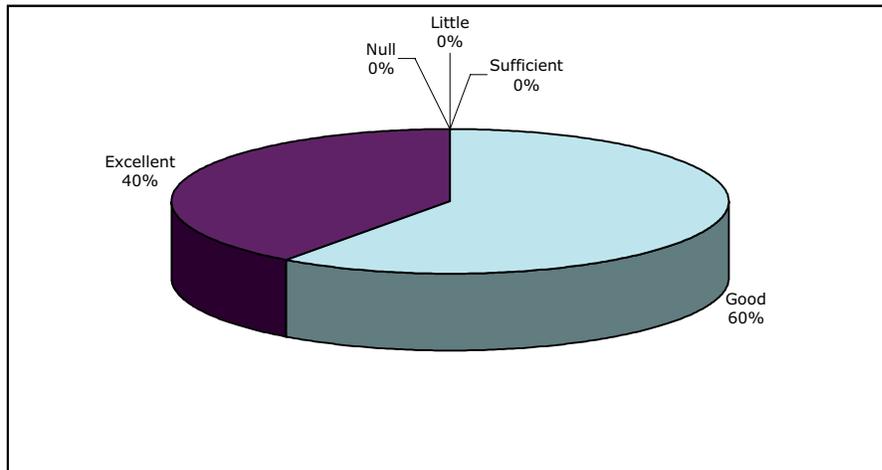
Figure 8a. Teacher – How Do You Evaluate the Overall Experience?
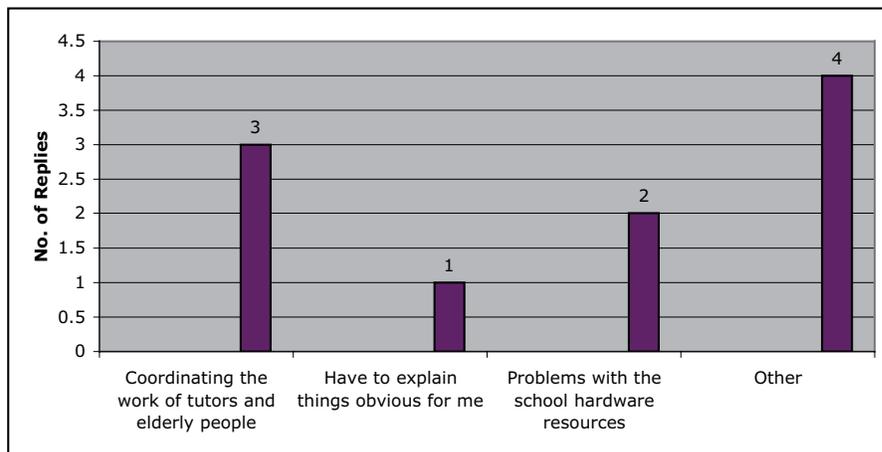
Figure 8b. Teacher – Which Have Been the Greatest Difficulties Found During the Course?
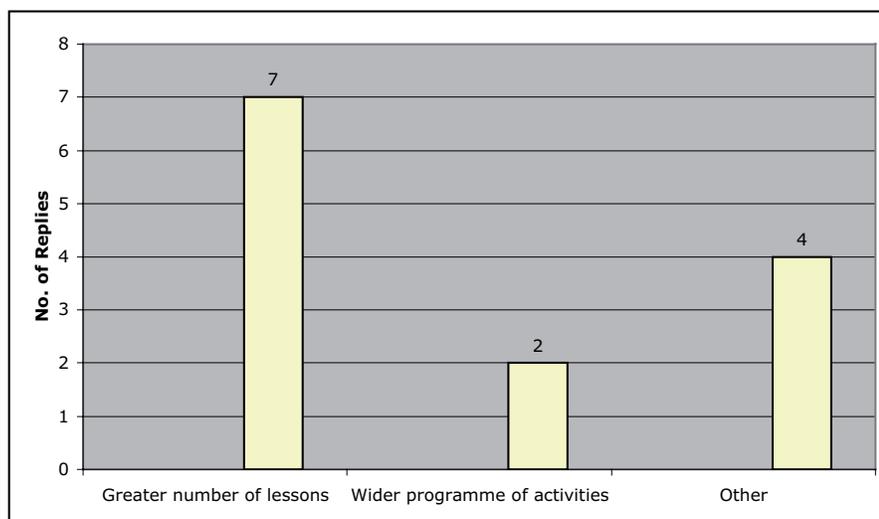
Figure 8c. Teacher – What Changes Do You Suggest to Improve the Course?

In addition, Tables 20 and 21 are interesting because they contain detailed items of perceived social value as well as didactical value bearing relation to 21st century education (see Table 1). In particular, Table 20 contains the ten items identified by the largest number of student-tutors from a larger selection which contained, for instance, "learning with fun," which was identified by only 15 respondents. In contrast, student-tutors found that the course had enabled them "to experiment a new (teacher) role," "make new friends," and discover themselves either intolerant or patient. More related to "21st century skills," student tutors also found that the course strengthened their communication ability, sense of personal responsibility and social responsibility, motivation, and participation in the development of the community.

Table 20.   The course "Nonni su Internet" has enabled me (student-tutor) to:

Experiment a new role - that of teacher	61
Make new friends	40
Discover myself intolerant	44
Improve my communication ability	42
Learn very interesting things from the older generation	37
Discover myself capable of patience	36
Strengthen my sense of personal responsibility	35
Strengthen my motivation	34
Participate in the development of the community	33
Strengthen my sense of social responsibility	32

Note. The table contains only items that were identified by over 30 student-tutors out of the total respondent population of 76.

Table 21 shows the teachers' identification of items of didactic value contained in the course. Thus, over half the teachers agreed that the course helped develop the students' "personal responsibility," "social responsibility," "communication capacity," "collaborative working" and "inter-generational exchange and understanding." Note that only one teacher identified "learning with fun," a rather similar result to that of student-tutors (only 15 respondents out of 76).

Table 21. The course "Nonni su Internet" has given me (teacher) the opportunity to offer my students a didactic path that helps develop:

Personal responsibility	10
Social responsibility	9
Communication capacity	8
Collaborative working	8
Inter-generational exchange and understanding	7
Pedagogical competence using new technology	5
Motivation	5
Participation to the development of the community	4
Importance of recovering and revaluing of memory (games of old, etc.)	2
Learning with fun	1

Note. The table contains only the items most quoted by the population of 10 teachers

All in all, the picture that emerges from the evaluation graphics and tables is highly positive regarding the perceived value of the experience. Simultaneously, the three groups of participants would like to see the course expanded in terms of lessons and, to a lesser extent, programme of activities. These results form part of the learning process of project "Nonni su Internet" and the Fondazione Mondo Digitale will make use of them to improve the programme for the future.

4.1.3 Disabled Students – Project Punto Acca for the School

New technologies for the integration of disabled students

The disabled is another of the sectors of society at risk of exclusion from the benefits of the knowledge society. The term "disabled" hides a large variety of "conditions of special needs " and it has been the subject of long discussions in international settings, as testified by the evolution of definitions by the World Health Organization. The first document was published in 1980 under the title "*International Classification of Impairments, Disabilities and Handicaps*"[52] and a second document with thorough revisions was published in 2001 under the title: *International Classification of Functioning, Disability and Health* (ICF).[53] Among the disabilities addressed by ICTs are blindness, deafness, dyslexia, motor disabilities and mental difficulties.[54]

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52   http://www.who.int/classifications/icd/en/
53   http://www3.who.int/icf/icftemplate.cfm?myurl=introduction.html%20&mytitle=Introduction
54   Commissione Interministeriale sullo Sviluppo e l'Impiego delle Tecnologie dell'Informazione per le

The following Tables provide an overview of the significance of the disabled population in Italy, Lazio, the school system and, also, the use of Internet by this population. Tables 22 and 23 show the number of disabled people who lived with families and those at nursing homes by the year 2000. The combined total is close to 2.8 million or about 5% of the population,[55] split in 34% males and 66% females. Age plays an obvious role with the largest percentage, over two-thirds, accounted for by disabled people over 65 years of age.

Table 22. Number of Disabled People in Italy (over 6 years old) Who Live in Families by Gender and Age – Year 2000 (thousands)

	6-14	15-24	25-44	45-64	65-74	Over 75	Total
Males	40	27	81	153	204	389	**894 (34%)**
Females	40	32	82	209	323	1.035	**1.721 (66%)**
Males and Females	80	59	163	362	527	1.424	**2.615 (100%)**

<u>Source</u>. ISTAT (2000) Survey on health conditions and health assistance, 1999-2000[56]

Table 23. Disabled and Non-self-sufficient Elderly People in Nursing Homes in Italy by Gender. Year 2000

	Disabled people under 18 years old	Disabled people 18-64 years old	Non-self-sufficient elderly people	Total
Males	1,050	14,836	30,721	**46,607 (28%)**
Females	841	13,154	108,558	**122,553 (72%)**
Males and Females	1,891	27,990	139,279	**169,160 (100%)**

<u>Source</u>. ISTAT, survey on nursing homes, 2000[57]

By the same year 2000, the population of disabled people over six years old in the region of Lazio was 204,630, or the equivalent of 41.6 per 1000 population for a total Lazio population of 4,919,000 people.[58]

Table 24 shows the number of disabled students by type of school in Italy by the year 2005. Of a total of 167,804 disabled students, the largest concentration is found in the primary and lower secondary school level with a proportion of over 70%. The Table also shows that the disabled students are catered for by 79,000 support teachers, a ratio of about 2 students per support teacher.

Categorie Deboli (2003).

55   Acording to Marletta et al. (2005) this figure is quite restrictive since it "considers only disabled people who declared a total absence of autonomy in at least one fundamental function of daily life. … Considering people who showed a "significant difficulty" in doing these functions, the figure increases up to 6,980,000 people, that corresponds to 13% of over 6 years old Italian population living in family. This figure doesn't include people who can carry out fundamental activities even if they suffer from mental disability." (p.17)

56   Found at http://www.disabilitaincifre.it/indicatori/tabelle/stimadisabili_1.asp

57   Found at http://www.disabilitaincifre.it/indicatori/tabelle/stimadisabili_2.asp

58   ISTAT (2000) Survey on health conditions and health assistance, 1999-2000, found at http://www. disabilitaincifre.it/indicatori/tabelle/stimadisabili_3.asp

Table 24. Number of Disabled Students by Type of School. Year 2005

Type of School	Number of Disabled Students	Support Teachers
Nursery School (Materne)	14,876	
Primary School (Elementari)	66,315	
Lower Secondary School (Scuole Medie)	51,334	
Upper Secondary School (Secondaria Superiore)	35,279	
TOTAL	**167,804**	79,000

Source. MIUR (2005) found in http://www.asphi.it/DisabilitaOggi/DisabiliItalia.htm

Finally, Table 25 gives an indication of the use of Internet by disabled people in Italy by major type of disability. It first shows that the largest number of disabled people suffer from motor disability (1,411,000) followed by audio disability with 870,000 people and vision disability with 350,000 people.[59] Second, it shows that only 20% of people in each category of disability use Internet, thus leaving four-fifth of the Italian disabled population at risk of exclusion from the knowledge society.

Table 25. Use of Internet by Disabled People by Type of Disability. 2002

	Motor Invalidity	Blindness	Deafness
How many (total No.)	1,414,000	350,000	870,000
How many use the Internet (%)	20	20	20
How many use the Internet (No.)	282.800	70.000	174.000

Source: Nielsen/NetRatings presentation at SMAU 2002, found in Educazione & Scuola, http://www.edscuola.it/archivio/handicap/Internet_e_disabili.htm, accessed on 30 August 2006.

The DYC's Project "Punto Acca" for Disabled Students

The Digital Youth Consortium began addressing the digital inclusion of disabled students in 2003 as part of its coordination of European project "Auxilia" aimed at piloting the use of robotics technology for students with motor disabilities.[60] Scuola Sant'Anna de Pisa and Campus Biomedico (Rome) were also partners in the project, with Scuola Sant'Anna contributing the robotic technology used in the final pilot with two schools and two students affected by severe motor disability. The technology remained with the schools at the end of the pilot. Following project Auxilia, the DYC promoted an official agreement between the Municipality of Rome, Scuola Sant'Anna, Campus Biomedico and the DYC with the aim of stimulating the diffusion of assistive technology for the e-inclusion of disabled students in schools. The agreement was signed on occasion of the Global Junior Challenge 2004 by leading authorities of all the parties to the agreement.

Following the agreement, the DYC took steps to transform its spirit into reality by, for instance, as seen in Section 3.1.1 on ICT access, responding to specific requests for help and mediating the provision of Telecom Italia's ADSL connectivity to disabled students. Most recently, the DYC and Intel have worked together to make possible the provision by Intel of 26 laptops with full video-conference facility to support school-hospital communication. These laptops are for sick school children to maintain their contact with their school class. Thus, when a sick child arrives in hospital, s/he is provided with a laptop computer and a second laptop is provided to her/his school. In this way, the child can continue her/his presence at school, maintaining contacts with schoolmates with obvious beneficial effects.

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59   Fondazione ASPHI estimates another 750,000 people suffering from mental disability (http://www.asphi.it/DisabilitaOggi/DisabiliItalia.htm

60   Auxilia (A European Environment for the Integration of Youth Disabile in Education), auxilia.e-inclusionsite.org

Along with these actions, the DYC has given shape to and piloted an action line devoted to improve the access of schools to available assistive technology. This action, called Punto Acca, has two complementary elements. On the one hand, the creation of a "call-centre" type of reference point for schools to contact in order to identify available assistive technology to help the scholastic integration of particular disabled students. In this activity, the collaboration with the Istituto Leonarda Vaccari of Rome (Ausilioteca) is central, since this organization possesses a "catalogue" of assistive technologies (especially for cognitive disabilities) and already works as reference point for families of disabled people who are referred to it by the health service. Punto Acca is intended as a focused reference point for the school system.

The second aspect of Punto Acca is the training of teachers to create awareness and disseminate knowledge on the availability of assistive technologies for helping the scholastic integration of students with various disabilities. At present, this awareness is limited with the result that disabled students are not benefiting from the e-inclusion potential of existing ICT technologies. In 2005, in collaboration with the Istituto dei Sordi that provided the trainers, the DYC ran a seminar for teachers (mostly support teachers) and also a session on sign languages during the activities of the DYC's programme "Thematic Weeks." Subsequently, the DYC and Campus Biomedico created a course for teachers on assistive technologies for various types of disabilities. This course counted on the participation of 62 teachers as well as assistive technology companies and was piloted and evaluated in 2005 (the results are discussed below).

Figure 9 illustrates the synergistic relationship and value flows between organizations, people and resources, created by the Digital Youth Consortium (DYC) through its activities for disabled students, particularly through the project Punto Acca. On the left-hand side of Figure 9, the box DYC shows the contribution of the Consortium to the project and its results. This DYC's contribution is also listed in Table 26.
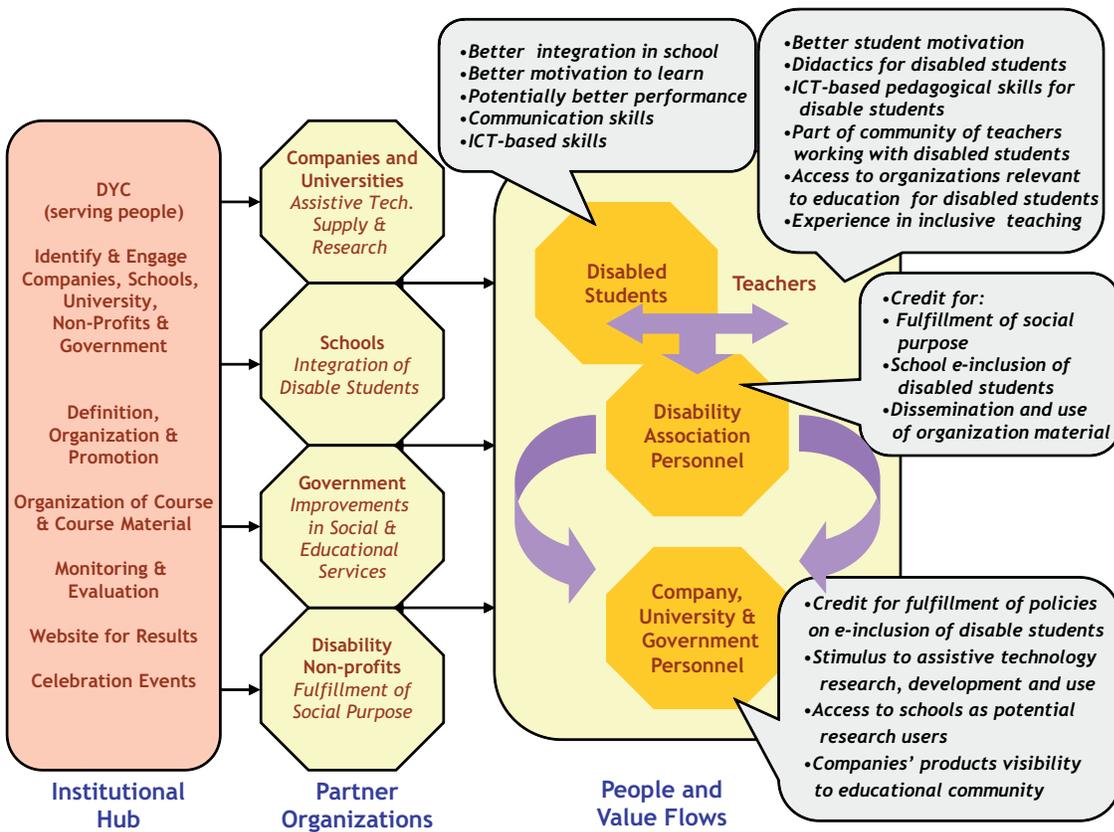
Figure 9. Project Punto Acca – Organizations, People and Value Flows

Table 26. DYC's Activities to Catalyze Project *Punto Acca*

- Identify and engage companies that distribute technology for the disabled – Mondo Ausili, Leonardo Ausili and Tecno
- Identifying and engaging Schools – 14 and 15 Distretto (22 of 28 schools)
- Identifying and engaging Universities – Campus Biomedico and Sant'Anna
- Identifying and engaging non-profit organizations – Istituto Statale dei Sordi, Istituto Leonarda Vaccari di Roma (Ausilioteca)
- Definition, organization and promotion of the "call-centre" concept of Punto Acca (Contact point for support teachers working with disabled students)
- Organization of courses for school teachers (i.e, didactic methodology for deaf and foreign students)
- Monitoring and evaluation
- Website for the project <www.gioventudigitale.net/it/progetti/p_helpdesk.asp>

Moving to the right of Figure 9, the four octagons show the different organizations involved in the realization of Punto Acca and the overall benefit they obtain from this involvement. Table 27 provides greater details about the contribution and overall benefit of each organization.

Table 27. Roles and Overall Benefit to Partner Organizations from Their Participation in Punto Acca

Organization	Contribution or Role	Overall Benefit
Digital Youth Consortium	Organiser, promoter and responsible for the activities involved in the Punto Acca	Fulfilment of the vision and mission of the consortium
Roman Schools	Identification and educational support for the integration of disabled students	Improvement in the inclusion of disabled students in the didactic activities of the school
Technology Companies	Potential suppliers of technological solutions	Visibility, engagement with the educational community and potential for supplying their products
Campus Biomedico and Sant Anna	Technological contribution (research and development)	Access to schools as potential research users
Non-profit Associations	Training and advice	Practical fulfilment of social purpose or responsibility
Local and Regional Government	Access to educational system and support for the realization of the service.	Practical fulfilment of policies on e-inclusion of disabled students

Moving further to the right-hand side of the diagram, the "people and value flows" box shows the direct participants in, and beneficiaries of, the activities of project Punto Acca. These are disabled students, teachers, disability associations' personnel, and company, university and government personnel. The callouts list the benefits or value reaching each of these groups. These are reproduced in Table 28. Note that some of the value-flow items bear relation to those in Table 1 for 21st century skills and competences.

Table 28. Benefits to Different Groups of People Involved in Punto Acca

Disabled Students	Teachers	Disability Associations' Personnel	Company, University and Government Personnel
• Inclusion in school and didactic activities • Better motivation to learn and potential better performance • Communication skills • ICT-based skills	• Better disabled student motivation • Training in didactic methodology for disabled students • ICT-based pedagogical skills • Participation in an inter-school community of teachers working with disabled students • Access to organizations relevant to education for disabled students • Practical teaching of social responsibility, self- responsibility and communication	• Credit for fulfillment of social purpose • Credit for school e-inclusion of disabled students • Dissemination and use of organizations' material	• Credit for fulfilment of policies on e-inclusion of disabled students • Stimulus to assistive technology research, development and use • Access to schools as potential research users • Companies' products visibility to educational community

Evaluation of Punto Acca Pilot Course on Assistive Technologies

To be able to learn lessons from the pilot course on assistive technologies for various types of disabilities given to school teachers in 2005, the DYC ran an evaluation questionnaire with the 62 teachers (mostly support teachers) obtaining replies from 51 of them. Figures 10 shows the result of the assessment given by the respondents to the overall course experience. The highest proportion (63%) found it "good" with another 31% voting it "sufficient." Most interestingly, as shown in Figure 11, prior to the course most of the teachers had little knowledge of assistive technology for various types of disabilities, in particular, for visual, auditive, motor and cognitive disabilities. This reveals the need for activities to stimulate awareness and knowledge dissemination regarding assistive technologies, if the e-inclusion of disabled students in Italian schools is to reach its full potential.
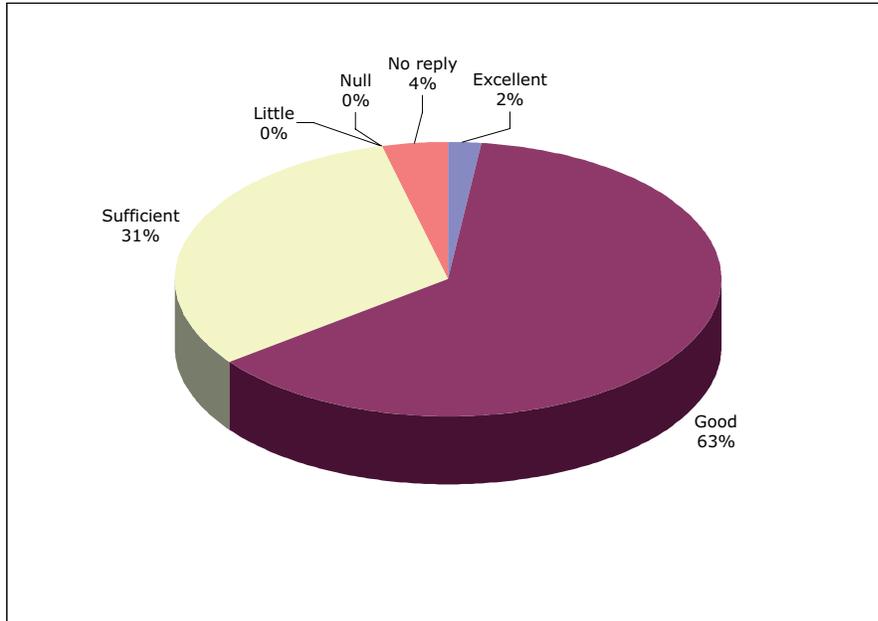
Figure 10. Evaluation of the Overall Experience by Pilot Course Participants (% of 51 respondents)
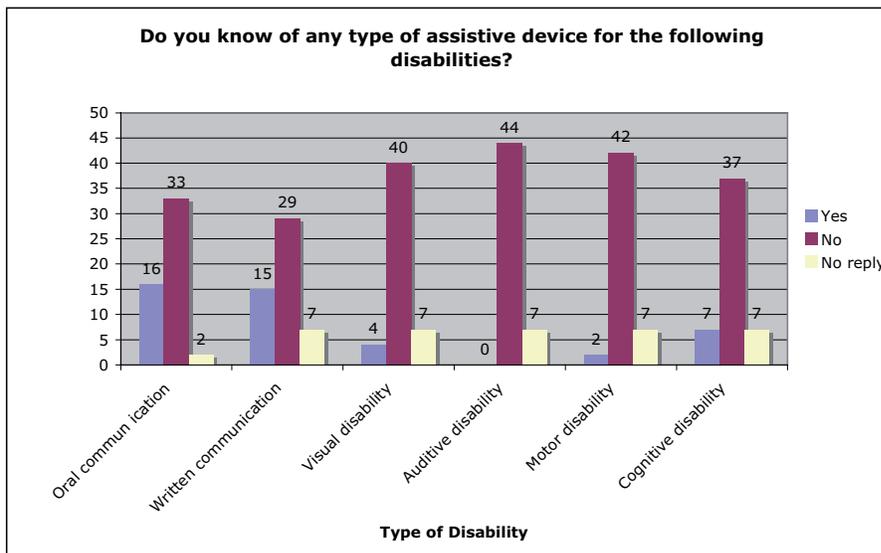
Figure 11. Knowledge of Assistive Technology for Different Disabilities by Pilot Course Participants (51 respondents)

4.1.4   Equal Gender Opportunities – Project Women and New Technology (Donne e Nuove Tecnologie)

Women navigating on Internet through a wi-fi system

The present society is characterised by inequality of opportunities for men and women and the fear is that these will remain in the knowledge society. Table 29 shows data from ISTAT and the UNDP Human Development report 2005 for Italy. The female population is the majority with 30,085,571 (51.5%) as compared with 28,376,804 (48.5%). They also have a longer life expectancy: 83.1 years as compared with 77.3 for men. Socially, however, the status of women is visibly less advantageous than that of men. Thus, economically, women's earned income is estimated roughly at less than half that of men (0.46), while female economic activity is 60% that of male economic activity. In terms of professional and technical workers, women fare a bit better with 45% of the total. Politically, the situation of inequality was very strong in 2005 – only 10.4% of the seats in Parliament were held by women; only 21% of legislators, senior officials and managers were women; and only 8.3% of women made it to the ministerial level of government.

Table 29. Various Indicators Relevant to Gender Equality in Italy

Indicator	Year	Female	MALE
Population (1)	2005 (1st January)	30,085,571	28,376,804
		Total: 58,462,375	
Life expectancy at birth (1)	2003-2004	83.1	77.3
Estimated earned income (PPP US$)	2003	17,176	37,670
Ratio of estimated female to male earned income	2003	0.46	
Rate of female economic activity (2) (over 15 years old)	2003	39.0%	-
Female economic activity as % of male rate	2003	60	
Female professional and technical workers (% of total)	2003	45	55
Seats in parliament held by women (% of total)	2005	10.4	89.6
Female legislators, senior officials and managers (% of total)	2003	21	79
Women in government at ministerial level (% of total)	2005	8.3	91.7

Source. Based on UNDP (2005), ISTAT (2005a), ISTAT (2005b)
1) Data from ISTAT. All other data is from UNDP (2005).
2) Rate of female economic activity is defined as the "share of the female population ages 15 and above who supply, or are

available to supply, labour for the production of goods and services." (UNDP, 2005, p.355)

This picture is confirmed by the Women's Empowerment Ranking of countries of the World Economic Forum.[61] Overall, it ranks Italy in 45th place. More specifically Italy is ranked in 51st place in women's "economic participation," 49th place in women's "economic opportunity," 48th place in women's "political empowerment," 41st place in women's "educational attainment" and 11th place in women's "health and well-being." Commenting the low result in "women's empowerment" in Italy, the WEF report sees it as

> "a clear reflection of the shortcomings of these so-called "advanced" nations in implementing gender equality … As is to be expected of countries notorious for their patriarchal culture, Italy and Greece each perform particularly poorly on the economic participation and economic opportunity dimensions."[62]

This inequality or "gender-gap" finds its own manifestation in the evolution towards the knowledge society, for instance, in the use of ICTs such as the PC and Internet. Thus, early reports on the digital divide showed a significant gap between men and women in the use of these technologies. Table 30 shows how in 1995, the proportion of women who used the PC amounted to one-third of the number of men who used it, while for the Internet this proportion fell to less than 10%. Table 30 however also shows that over the years there has been a marked reduction of the gap between women and men in the use of the PC and the Internet. In fact, by 2004, the proportion of women who used the PC had increased to almost three-quarter of the number of men who used it (72%), while for the Internet this proportion had gone up to 67%%.

Table 30. Women's Catching Up in Italy (women as % of men who use PC and Internet at home) - 1995-2004

	1995	2000	2002	2004
PC	33	52	64	72
Internet	9	41	59	67

Source. Lizzeri (2005).

Tables 31 and 32 provide a more detailed picture of the use of the PC and Internet by gender and class of age for the year 2005. The results come from an ISTAT survey involving 20,000 families with a total of 55,000 persons. The tables show that the largest disparities begin at the age bracket 35-44 and become particularly accentuated beginning at the age bracket 60-64. Instead, between the ages of 6 and 34 the proportion of PC users is not much different and roughly the same if one considers both male and females between 6 and 24 years of age. The pattern regarding the use of the Internet is very similar.

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61   Lopez-Claros and Zahidi (2005).
62   Ibid., p.10.

Table 31. PC Users by Gender and Class of Age in Italy – 2005
(per 100 persons of the same sex and age class)

Age	Male		Female	
	Use the PC	Don't Use It	Use the PC	Don't Use It
3-5	19.6	74.9	14.2	81.6
6-10	51.9	46.0	54.5	43.9
11-14	75.4	23.5	72.0	27.4
15-17	80.9	18.5	79.4	19.3
18-19	75.8	21.7	76.1	21.9
20-24	69.0	27.6	69.2	27.4
25-34	59.8	37.3	54.3	42.8
35-44	57.7	40.3	46.2	52.4
45-54	48.0	50.3	33.4	64.3
55-59	33.7	63.4	16.2	81.2
60-64	20.0	77.5	7.9	89.8
65-74	9.7	87.8	2.0	94.3
Over 75	2.8	94.1	0.6	96.5
Total 3 years and over	**45.3**	**52.3**	**34.7**	**62.8**

Source. Based on ISTAT (2005c). Multiscope survey conducted by the ISTAT involving 20,000 families for a total of 55,000 persons.

Table 32. Internet Users by Gender and Class of Age in Italy – 2005
(per 100 persons of the same sex and age class)

Age	Male		Female	
	Use the Internet	Don't Use It	Use the Internet	Don't Use It
3-5	-	-	-	-
6-10	12.7	84.0	13.3	84.8
11-14	47.0	52.7	41.2	57.9
15-17	64.2	34.6	62.8	35.5
18-19	66.9	30.3	68.1	29.8
20-24	63.7	32.9	62.6	33.9
25-34	53.9	43.1	47.5	49.4
35-44	49.5	48.2	36.8	61.4
45-54	40.0	58.1	25.1	71.9
55-59	27.3	69.3	11.4	84.4
60-64	15.9	80.9	6.1	91.0
65-74	7.2	90.0	1.3	94.6
Over 75	2.1	93.8	0.3	96.4
Total 6 years and over	**37.1**	**60.2**	**26.9**	**70.2**

Source. Based on ISTAT (2005c). Multiscope survey conducted by the ISTAT involving 20,000 families for a total of 55,000 persons.

The same ISTAT survey also looked at the use of the PC and Internet by females and males but this time in relation to their "condition and professional position." The results are shown in Table 33 and reveal a substantial parity in the categories of "employed," "directors, entrepreneurs and free-lance professionals," "managers, cadre, employees," "self-employed workers and assistants," "searching for first job," and "students." Notable differences are shown in favour of men in the categories of "workers and apprentices," "retired" and "other," and in favour of women in the categories of "searching for new jobs" and by default "housewives." However, only 8.8% of housewives use the PC and an even lower 5.7% use the Internet. Considering that housewives constitute 40% of the adult

feminine population,[63] this is an important sector of Italian society at risk of exclusion from the benefits of the knowledge society.

Table 33. PC and Internet Users over 15 Years Old by Sex, Condition and Professional Position – 2005 (per 100 persons of the same characteristics)

Condition and Professional Position	Use of PC		Use of Internet	
	Male	Female	Male	Female
Employed	55.1	58.4	47.5	48.7
Directors, entrepreneurs and free lance professionals	72.1	72.4	67.3	65.6
Managers, cadre, employees	78.9	77.8	71.0	66.3
Workers, apprentices	34.2	25.5	25.3	17.3
Self-employed workers and assistants	39.8	37.7	33.3	30.6
Searching for new job	29.7	38.2	24.7	29.9
Searching for first job	44.9	42.0	36.9	34.6
Students	87.2	85.9	77.5	75.7
Housewives	-	8.8	-	5.7
Retired	10.6	4.6	8.1	3.0
Other condition	21.9	7.9	18.1	6.1
Total	**44.3**	**32.8**	**38.1**	**26.9**

Source. Based on ISTAT (2005c). Multiscope survey conducted by the ISTAT involving 20,000 families for a total of 55,000 persons.

A problem of "digital gender gap" therefore exists above all at the older ages and regarding the female population of housewives. In the categories of directors, entrepreneurs, managers, free-lance professionals, the proportion of men and women using the PC and Internet are not distinguishable. The problem of "gender gap" is rather in the different proportions of women and men who exercise these types of jobs. Table 29 above has shown that female professional and technical workers constitute 45% of the total. This percentage diminishes significantly if one considers the proportion of women exercising the functions of high-level decision making in industry, for instance, directors, managers, entrepreneurs. Table 34 shows that in Italy the percentage of women with management responsibility in companies reaches barely one fifth of the total, while women occupying directorship positions in various types of companies and banks at the most reach 14.5% in joint stock companies and it is as low as 4% in listed companies (excluding banks).

Table 34. Number and Percentage of Women with Management and Directorship Responsibility in Italian Companies

Type of Decision-Making Responsibility and Organization	Total Number	Number of Women	% Women
Management in companies (Spa, Srl, other)	1,54 million	318,000 (management)	20,5%
Directorship in joint stock companies (Spa)	145,431	20.,783	14,3%
Directorship in listed banks	563	9	1,6%
Directorship in listed companies (excluding banks)	2,452	100	4%
Directorship in family-owned listed companies	1,090	73	6,7%

Source: *Il Sole-24Ore,* 21 November 2005 based on research conducted by Cerved.

A *Newsweek* (2006) article looks at the record of various countries regarding women in decision-making positions (legislators, senior officials and managers) and shows that Italy comes last with 19%, compared with US (45%), UK (33%) Sweden (29%) Germany (27%) and the Netherlands (24%). In fact, Italy is well below the world average of 27%.

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63   Tripi (2005), p.5.

In this context, it is encouraging to see that the trends on growth of women enterprises in Rome and Lazio for the period 2003-2005 show a higher degree of dynamism as compared with the growth of total number of active enterprises. As shown in Table 35, in Rome and Lazio, women enterprises grew 6.7% and 5.1% respectively, a rate significantly higher that the 3.8% growth in Italy as a whole, although this 3.8% was also higher than the 2.5% growth shown by the total of active enterprises in the country. The gender gap at decision-making levels is huge however. Suffice to note that in 2005, women enterprises reached just about one-quarter of total active enterprises. Thus, there is a long way to go before the achievement of real equality of opportunities at higher-levels of decision-making in Italian society.

Table 35. Growth of Women Enterprises in Rome and Lazio (2003-2005)

Place	Total Number of Women Enterprises in 2005	Difference 2003-2005	Growth Rate (%) 2003-2005
Rome	56,876	3,562	6.7
Lazio	96,219	4,680	5.1
Italy	1,219,112	44,569	3.8
Total of Active Enterprises			
Rome	230,464	9,334	4.2
Lazio	362,806	11,743	3.3
Italy	5,118,498	122,760	2.5

Source. Censis (2006a).

The DYC's Project "Women and New Technology" (Donne e Nuove Tecnologie)[64]

Woman at computer

In 2003, the Digital Youth Consortium began addressing the problem of gender disparity in industry's decision-making structure through the creation and implementation of an educational programme on Women and New Technology run together with *UIR Femminile Plurale*, the women department of the *Unione degli Industriali di Roma (UIR),* the Roman industrial confederation. This programme was born out of a stimulus from the Department of Policy for Equal Opportunities of the Municipality of Rome and is targeted exclusively to young female graduates (under 28 years old) or with brief working experience. It aims to enhance female graduates' knowledge of the challenges they face in their future careers and the role new technologies play in enhancing opportunities and entrepreneurship potential in the knowledge society. It also aims at facilitating work placement opportunities for female graduates in the companies that are members of UIR. More long-term, it aims at promoting, in the companies of Rome and Lazio, a culture of meritocracy and equal opportunities that fully recognises women's potential and talent to serve at all organizational levels.

In July 2003, an agreement was signed by the Municipality of Rome and the *Unione degli Industriali di Roma.*[65] This agreement provided the framework for the beginning of activities leading to the formulation of the Programme Women and New Technologies aimed at promoting the presence and development of women in Roman enterprises. This was followed by the creation of a network of mentors with female personalities from the world of enterprise, government, culture and finance. Members of this network could give testimony of their successful careers, complementing the work-placement opportunities to be provided by UIR company members. A seminar on Women and New Technology took place in March 2004 and in November 2004 the first pilot course kicked off with the participation of 20 young women from scientific, humanistic and economic disciplines. A second course followed in 2006 involving 28 graduates. In 2005, the thematic blog "donneict" (www.donneict. it) also started with the aim of stimulating the formation of a community with the participants to the course. More recently, with the sponsorship of the training company Challenge SpA, a course grant on "Development of Managerial Competence" (*Sviluppo delle Competenze Manageriali)* has been instituted in memory of the late Raffaella Alibrandi, who led the start of the programme on the side of the *Unione degli Industriali di Roma*. The grant will be given to the best participant in the course "Women and New Technology."

Figure 12 illustrates the synergistic relationship and value flows between organizations, people and

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64   http://www.gioventudigitale.net/it/progetti/p_d&nt.asp.
65   http://www.donneict.it/documents/protocollo_intesa.pdf

resources, created by project Women and New Technology. On the left-hand side of Figure 12, the DYC box shows the contribution of the Consortium to the project and its results. This DYC's contribution is also listed in Table 36.
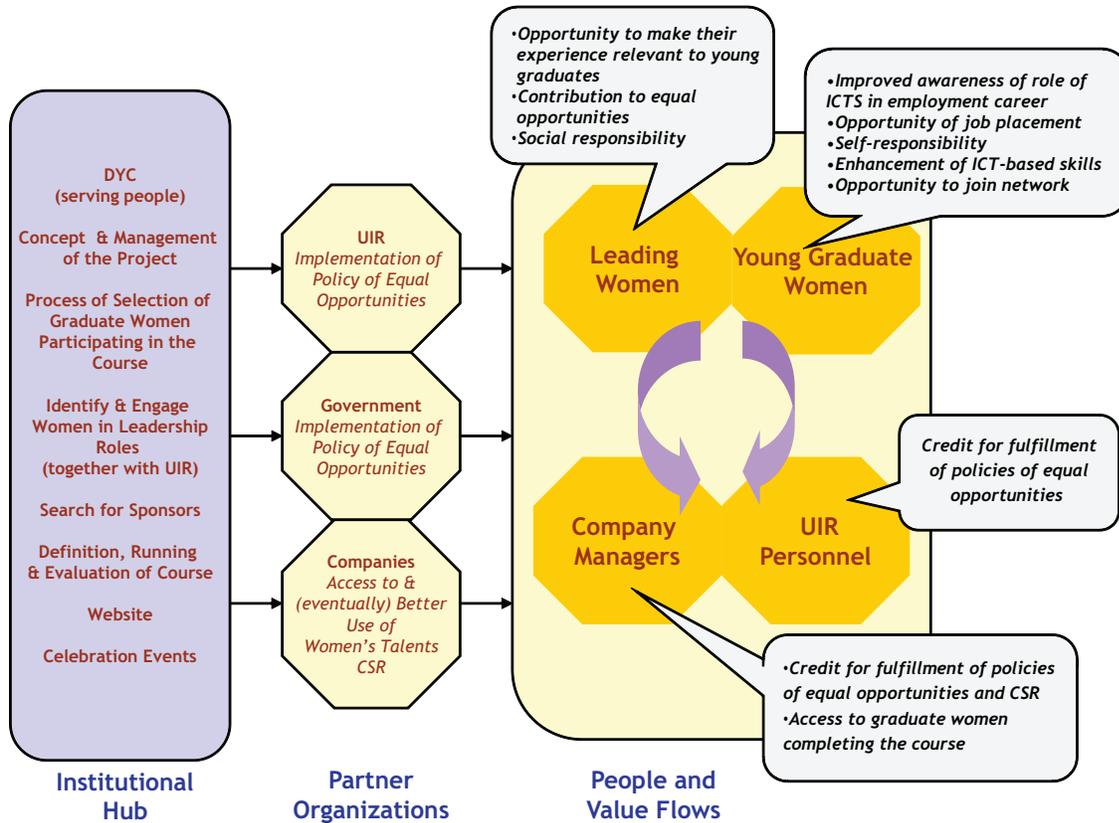
Figure 12. Project Women and New Technology – Organizations, People and Value Flows

Table 36. DYC's Activities in Project Women and New Technology

- Concept and management of the project
- Process of selection of graduate women participating in the course
- Identify and engage women in leadership roles in government and industry (together with UIR)
- Identifying and engage potential sponsors
- Definition and running of courses for young graduate women
- Monitoring and evaluation
- Website for the project www.donneict.it
- Organization of celebration events

Moving to the right of Figure 12, the three octagons show the different organizations involved in the realization of Project Women and New Technology, and the overall benefit they obtain from this involvement. Table 37 provides greater details about the contribution and overall benefit of each organization.

Table 37. Roles and Overall Benefit to Partner Organizations from Their Participation in Women and New Technology

Organization	Contribution or Role	Overall Benefit
Digital Youth Consortium	Organiser, promoter and responsible for the concept and activities involved in project Women and New Technology	Fulfilment of the vision and mission of the consortium
UIR	Promotion of programme inside industrial membership, identifying companies offering job placement opportunities, and helping identify women in leadership positions	Fulfilment of policy of equal gender opportunity inside industry
Companies	Provision of placement opportunities for the women graduates attending and performing well in the course	Fulfillment of policies of equal gender opportunities and CSR and access to graduate women completing the course. Eventually, the intention is that companies also benefit from better awareness and use of their women's talents.
Local and Regional Government	Support through policy of equal gender opportunities	Practical fulfilment of policies on equal gender opportunities

Moving further to the right-hand side of the diagram, the "people and value flows" box shows the direct participants in, and beneficiaries of, the activities of project Women and New Technology. These are graduate women, women in leadership positions, UIR personnel, and company managers. The callouts list the benefits or value reaching each of these groups. These are reproduced in Table 38.

Table 38. Benefits to Different Groups of People Involved in Women and New Technology

Graduate Women	Leading Women	UIR Personnel	Company Managers
• Improved awareness of role of ICTS in employment career • Opportunity of job placement • Self-responsibility • Enhancement of ICT-based skills Opportunity to join network of peers	• Opportunity to make their experience or success relevant to young graduates • Contribution to equal gender opportunities • Social responsibility	Credit for fulfillment of policies of equal gender opportunities	• Credit for fulfillment of policies of equal opportunities and CSR • Access to graduate women completing the course

Evaluation of Course Women and New Technology 2006

The DYC ran an evaluation questionnaire with the participants to the 2006 course session. Figures 13a, 13b, 13c and 13d show the result of the assessment given by 20 respondents in relation to the value of the course for (a) enriched knowledge to face better the labour market, (b) opportunity of contacts with the world of enterprise, (c) opportunity to learn about policy on equal opportunities and (d) improved possibilities of finding work. Close to three-quarters of the respondents found the course good (57%) or excellent (16%) in relation to contacts with the world of enterprise (Figure 13a) and knowledge to face better the labour market (Figure 13b); and similar three-quarters found it good (53%) or excellent (21%) in terms of learning about policy for equal opportunities (Figure 13c).

When it came to improved possibilities of finding work (Figure 13d), 58% of respondents found it good but 21% found the course had given them little (16%) or nothing (5%). This more moderately positive result is related to the greater difficulty of securing work as a direct result of the course. This is also confirmed by the fact that about 10 participants of the course have found placements as a direct result of the course. This is about one-quarter of those who completed the two courses that have taken place. This is clearly and area for improvement and further investment of resources. The small-scale action implemented by the DYC in collaboration with UIR, however, has laid the foundations for a better and more extensive action in the future.

This course has given you the possibility to enrich your knowledge to face better the labour market

Excellent 16%
Nothing 5%
Little 11%
Sufficient 11%
Good 57%
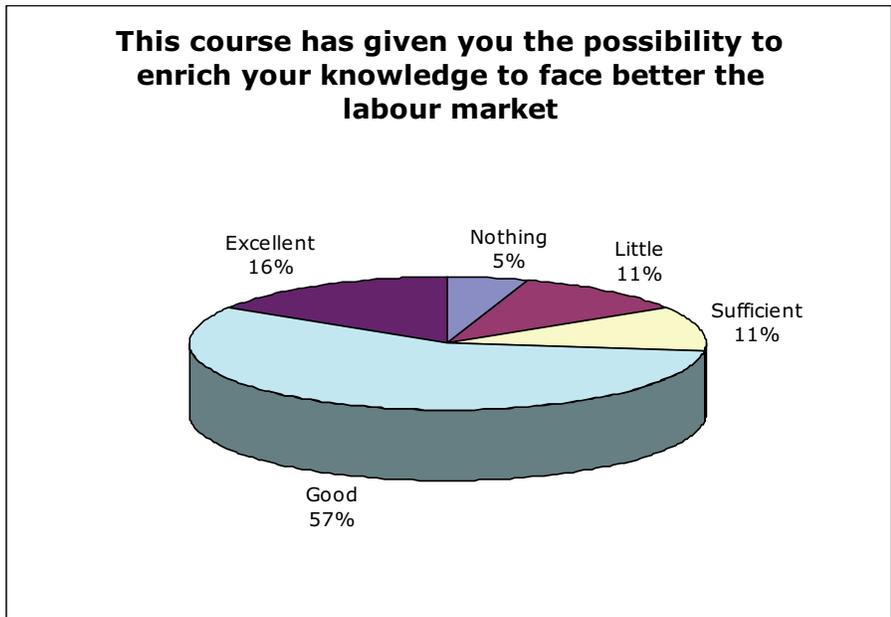
Figure 13a. Assessment of Value Regarding Enriched Knowledge for Facing the Labour Market

This course has given you the opportunity of contacts with the enterprise world

Excellent 16%
Nothing 5%
Little 11%
Sufficient 11%
Good 57%
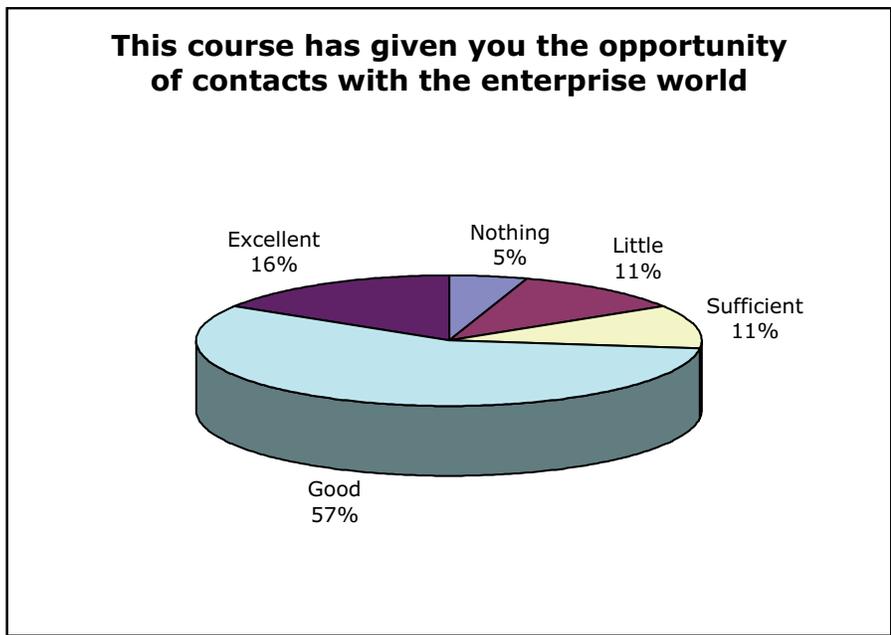
Figure 13b. Assessment of Course Value Regarding Contacts with the Enterprise World

This course has given you the opportunity to learn about policy on equal opportunities

Nothing
0%

Little
0%

Excellent
21%

Sufficient
26%

Good
53%
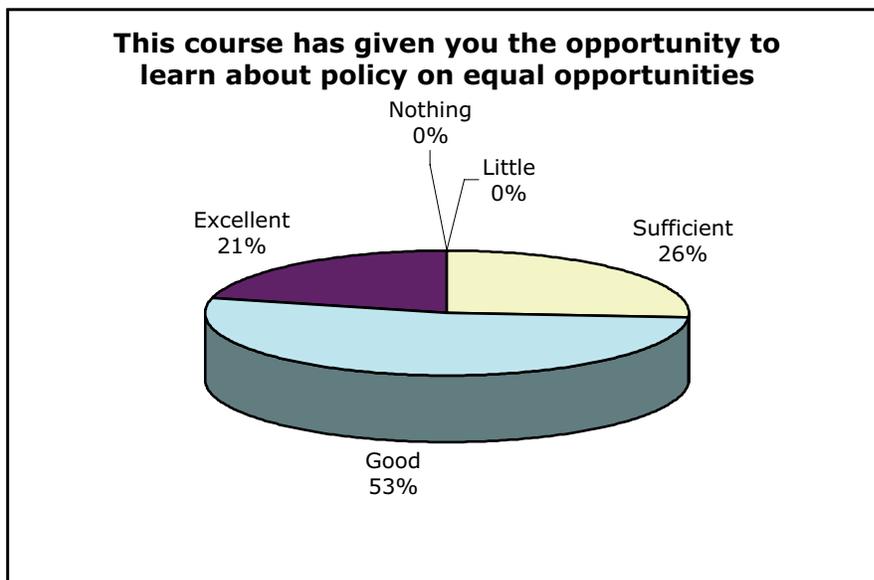
Figure 13c. Assessment of Value Regarding Policy on Equal Opportunities

This course has given you the opportunity to improve your possibilities of finding work

Excellent
0%

Nothing
5%

Little
16%

Good
58%

Sufficient
21%
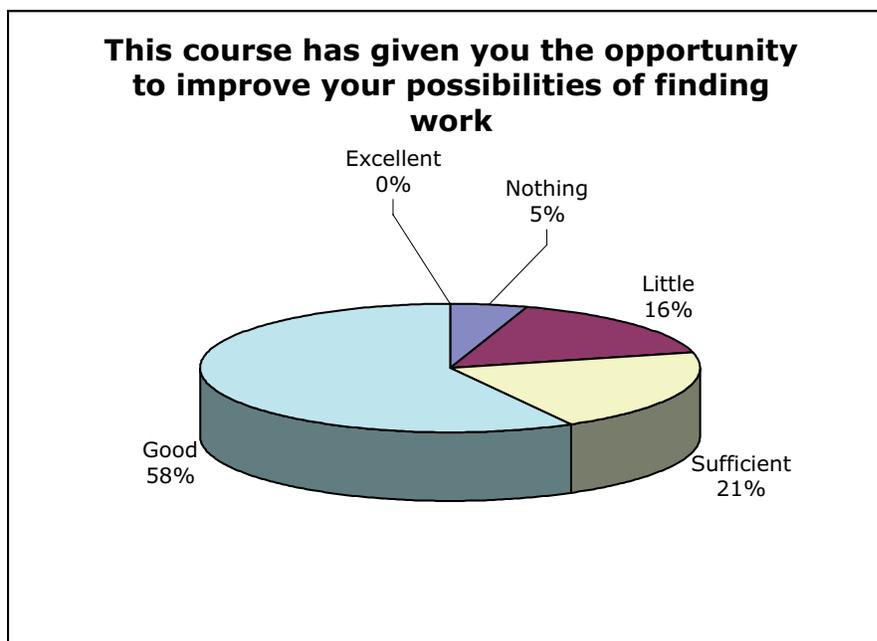
Figure 13d. Assessment of Value Regarding Improved Possibilities of Finding Work

4.1.5 Young Immigrants – Project "Double Code" (Doppio Codice) for Young Unaccompanied Minors Arriving in Rome

Foreign youth learn the Italian language with the aid of technology

Italy has a sizeable immigrant population with a total of 3,035,144 individuals with stay permits in December 2005 and an influx of 319,300 in 2004 (Table 39). This places Italy fifth in total immigrant population in Europe behind Germany, Spain, France and UK, and fourth in immigrant influx in 2004 behind Spain, Germany and UK. By continent of origin, in 2004, the largest proportion of immigrants, almost half, came from Europe (48.8%), followed by Africa with about one-quarter (23.1%), and then Asia (17.4%), America (10.6%) and Oceania (0.1%). Five countries –Romania, Albania, Morocco, Poland, Ukraine - accounted for close to 45% of Italian immigration in 2004, and Romania alone accounted for about 20%.

The gender composition of Italian immigration is well balanced at roughly 50% each in 2005, while the largest group age is made up of people between 19 and 40 years old (54.7%), followed by those in the 41-60 age bracket (23.1%) and then youngsters up to 18 years old (19.3%). Finally, Table 39 also includes some statistics on the immigrant population with stay permits of the Lazio Region for the year 2005. In this year, Lazio reached 418,823 immigrants, with a majority of women (56%) and people within the age group 19-40 (55.8%). Lazio has a larger proportion of people over 40 than Italy with 27.5% of people between 41 and 60 and 4.4% of people over 60 in 2005. Young people (0-18) accounted for 12.2% or just over 51,000 individuals.

Table 39. Overview of Immigration in Italy and Lazio per Sex, Country of Origin and Age

European Countries with Largest Number of Immigrants – 2003-2004			
	Total Immigration	Influx 2003	Influx in 2004
France	3,263,186	130,700	134,800
Germany	7,287,980	601,800	602,200
Italy	2,402,157	388,100	319,300
Spain	3,371,394	429,500	645,800
UK	2,857,000	379,300	373,000
Origins of Italian Immigration per Continent (%) – 2003-2005			
	2003	2004	2005
Europe	47.9	51.9	48.8
Africa	23.5	23.8	23.1
Asia	16.8	13.1	17.4
America	11.5	10.9	10.6
Oceania	0.2	0.3	0.1

Percentage of Immigrants with Stay Permit in Italy per Sex and Age Range – December 2005						
Total	Women	Men	0-18	19-40	41-60	Over 60
3,035,144	49.9	50.1	19.3	54.7	23.1	3.0
Percentage of Immigrants with Stay Permit in Lazio per Sex and Age Range – December 2005						
418,823 (13.8% of Italy's total)	56%	44%	12.2	55.8	27.5	4.4

Source. Caritas / Migrantes (2006).

Most of the immigrant population in Italy works in domestic and agricultural work, followed by work in industry and to a much lesser extent in commerce and services.[66] Above, in Section 3.3, we saw a positive evolution of the presence of foreigners in the entrepreneurial scene of Rome with the number of enterprises owned by foreigners more than doubling from 5,672 to 11,512 between 2002 and 2004.

At school, the presence of students with non-Italian citizenship has increased markedly since school year 1995/96 when they were just over 50,000. In the school year 2004/05, they reached 361,576, amounting to 4,2% of the total school population.[67] Over 90% were in state schools with the remaining 9.4% in non-state schools. Five countries –Albania, Morocco, Romania, China and the ex-Yugoslavia- accounted for more than half (51.35%) of the total. In the Lazio Region, the students with non-Italian citizenship reached 33,823 or 9.35% of the Italian total, representing a number of 4.52 students per every hundred in Lazio. For the school year 2005/06, the number of these students has continued to grow rapidly reaching about 430,000 or almost 4.8% of the total.[68] Comparatively, however, other European countries have a larger proportion of foreign students, for instance, Switzerland (23.6%), UK (15%), the Netherlands (13%), Germany (10%), Spain (5.7%), Portugal (5.5%) and France (5%).[69]

In this immigration scene, there is a group of people at particular risk of exclusion: the unaccompanied minors, i.e., youngsters under 18 who arrive in Italy seeking to improve their living conditions, including security from war or political problems.[70] These youngsters arrive in Italy, leaving behind their countries and often travelling long and adventurous distances.

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66   OIM (2003), p11.
67   Direzione Generale per I Sistemi Informative / Direzione Generale per lo Studente (2005). Also Fondazione ISMU (2005).
68   Direzione Generale per I Sistemi Informative (2006).
69   Fondazione ISMU (2005).
70   Caritas / Migrantes (2006). The parents of some of these minors are actually in Italy but they lack documents so the children appear as unaccompanied.

At the end of 2005, the number of unaccompanied minors in Italy was put at 7,358, with most of them coming from Romania, Morocco and Albania. Rome is the city with the largest concentration of Romanian unaccompanied minors, with 487 of them registering for social services only in the first half of 2005. The Caritas emergency centre of Rome received about 800 unaccompanied minors in 2005, and also witnessed an increase in the number of minors requesting political asylum, particularly from Afghanistan but also from Congo, Eritrea and Iran. These minors often arrive in Italy after long odysseys through various countries, without family, friends or language but with the hope of reaching compatriots and make a life in Italy.

All unaccompanied minors arriving in Italy are highly vulnerable since they speak no Italian and lack a proper support infrastructure to begin their integration in the country. Without support they can easily fall into crime. In Italy, however, the municipalities have the responsibility to respond to the needs of the unaccompanied minors and they can get a stay permit and remain legally in the country after they are 18 if they can demonstrate they have a place to live and a work contract or are pursuing studies. The municipalities are seeking to provide unaccompanied minors with a path of integration through school or training for work but many abandon it in search of an easier way to make money.

In Rome, the Caritas emergency centre is the place where unaccompanied minors arrive for support and it is from this place that they came to do the ICT-based course of Italian devised by the DYC in 2006.

The DYC Project Double Code

The DYC's project "Double Code" started in 2006 to address the problem of integration of unaccompanied minors, including asylum-seekers in Italy. As part of their support activities, Caritas seeks to engage cultural organizations to help minors with cultural and language support. The cultural association, Tam Tam Village, is able to provide this support, for instance, through "cultural mediators," i.e., people who know the youngsters' language and can mediate their initial integration into the Italian culture.

In 2006, Tam Tam Village contacted the DYC for support with teaching of Italian to a group of unaccompanied minors from various countries, mostly from Afghanistan and Romania. The DYC talked to the Department of Education of the Municipality of Rome and it was agreed that the computing facilities of Città Educativa at the Quadraro Centre could be used for a pilot course.[71] The DYC set down to put together the content and material for a course of 14 weeks, including evaluations at the beginning, during, and at the end of the course. Among the resources used was, for instance, the *Vocabolario Multilingue Multimediale*, a multimedia multilingual dictionary produced collaboratively by students from different schools and nationalities.[72] This project had won the Global Junior Challenge, the international contest run by the DYC (see below in international section).

Figure 14 illustrates the synergistic relationship and value flows between organizations, people and resources, created by project Double Code. On the left-hand side of Figure 14, the DYC box shows the contribution of the Consortium to the project. This DYC's contribution is also listed in Table 40.

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71   The DYC runs the Thematic Weeks programme at the Quadraro Centre (see next section).
72   http://digilander.libero.it/vocabulary/
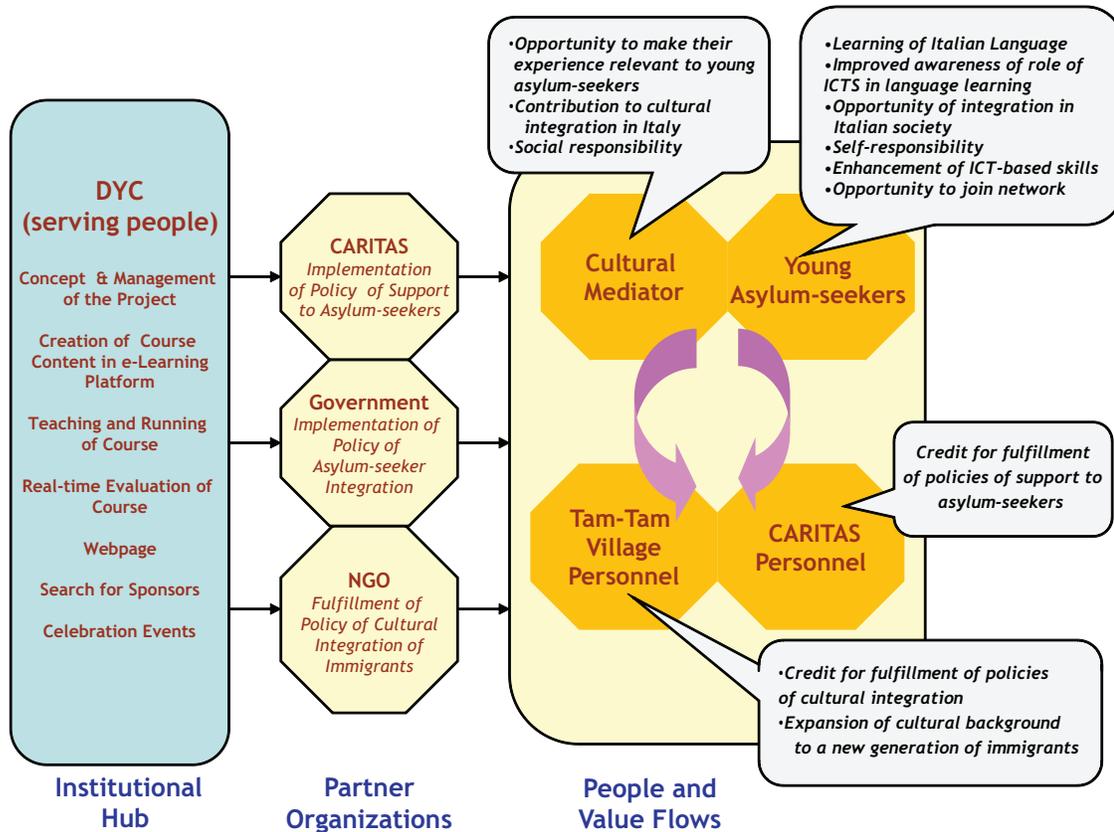
Figure 14. Double Code – Organizations, People and Value Flows

Table 40. DYC's Activities in Project Double Code

• Development of concept and management of the project
• Creation of course content in open source software e-learning platform Moodle
• Teaching and running of the course
• Real-time evaluation of course
• Webpage in DYC's site
• Search for sponsors
• Celebration event

Moving to the right of Figure 14, the three octagons show the different organizations involved in the realization of Project Double Code, and the overall benefit they obtain from this involvement. Table 41 provides greater details about the contribution and overall benefit of each organization.

Table 41. Roles and Overall Benefit to Partner Organizations from Their Participation in Double Code

Organization	Contribution or Role	Overall Benefit
Digital Youth Consortium	Organiser, promoter and responsible for the concept and content and activities involved in project Double Code	Fulfilment of the vision and mission of the consortium
Caritas	Selecting unaccompanied minors to participate in the course	Fulfilment of policies of support to unaccompanied minors
Tam Tam Village	Provision of Cultural Mediators who speak the language of the course participants	Fulfillment of policies of cultural integration Expansion of cultural range to a new generation of immigrants
Local and Regional Government	Provision of facilities through policy of unaccompanied minors integration.	Fulfilment of policies on unaccompanied minors integration.

Moving further to the right-hand side of the diagram, the "people and value flows" box shows the direct participants in, and beneficiaries of, the activities of project Double Code. These are unaccompanied minors, cultural mediators, Caritas personnel, government personnel and Tam Tam Village personnel. The callouts list the benefits or value reaching each of these groups. These are reproduced in Table 42.

Table 42. Benefits to Different Groups of People Involved in Project Double Code

Unaccompanied Minors	Cultural Mediators	Caritas & Government Personnel	Tam Tam Village Personnel
• Learning of Italian language • Improved awareness of role of ICTS in language learning • Opportunity to start integration in Italian society • Self-responsibility • Enhancement of ICT-based skills • Opportunity to join network	• Contribution to cultural integration of unaccompanied minors in Italy • Opportunity to make their experience relevant to youngsters in difficulties • Social responsibility	Credit for fulfillment of policies of policies of support to unaccompanied minors integration	• Credit for fulfillment of policies of cultural integration • Expansion of cultural range to a new generation of immigrants

Evaluation of Course Double Code 2006

The Double Code course started with 13 unaccompanied minors in the first week and, through word of mouth, quickly built up the week after to a number of 25 with little variation thereafter. The age of the youngsters varied from 15 to 18 (24 males, 1 female) and they came from various countries, mostly from Afghanistan (15) and Romania (4), including three Afghan youngsters who were illiterate in their own language. The others came from Moldavia (2), Iran (1), Pakistan (1) Sierra Leone, and Tunis (1).

Twenty-three course participants and 4 cultural mediators responded to the evaluation questionnaire run by the DYC. Here, it is possible to provide only a small selection of the unaccompanied minors' responses. The results are illustrated in Figures 15a, 15b, 15c, 15d, 15e and 15f and they must be considered in the context of an initial situation in which the overwhelming majority of the minors (94%) neither had knowledge of Italian language (two had knowledge of English and one of French) nor experience of learning a language using computers. The vast majority (87%) also declared little

knowledge of Internet and email, and about half (49%) had no knowledge of Office software, with another 38% declaring little knowledge of Office.

Figure 15a shows that over four-fifth of the respondents found the course "excellent" with another 12% finding it "good."

How do you value the experience as a whole?

Little 0%
Null 0%
Sufficient 6%
Good 12%
Excellent 82%
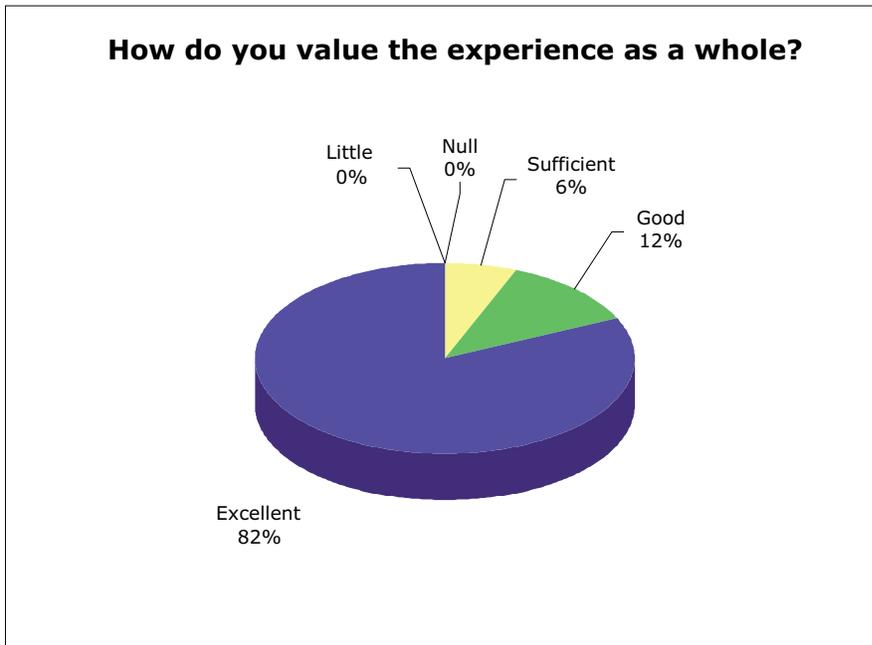
Figure 15a. Assessment of Experience as a Whole

Figures 15b, 15b and 15c show the evaluation of the course from the point of view of learning of Italian language and culture and the use of computers. Over half of the respondents thought that the course was "good" (50%) or "excellent" (6%) in having provided them with an opportunity to acquire basic knowledge of Italian language, with another 38% assessing it as "sufficient" (see Figure 15b).

This course has given you the opportunity to have basic knowledge of Italian

Excellent 6%
Null
Little 6%
Sufficient 38%
Good 50%
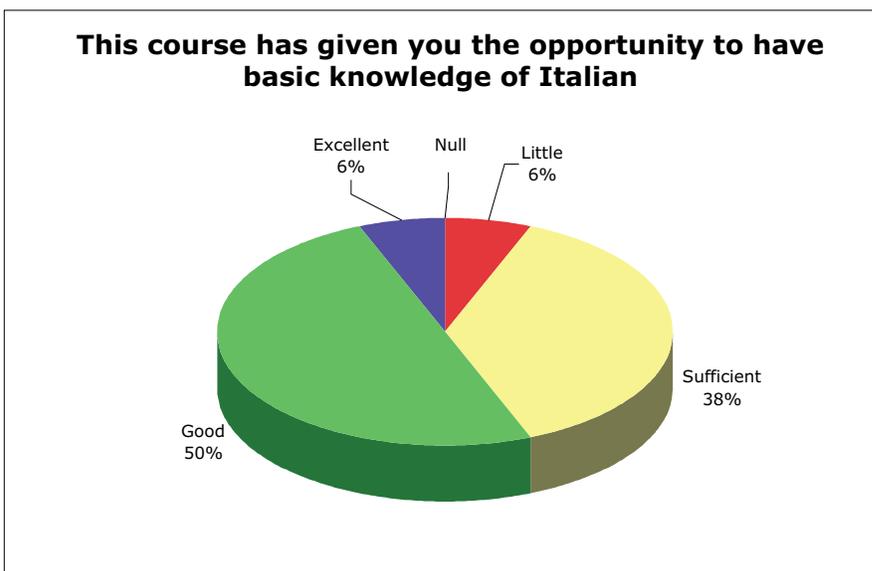
Figure 15b. Assessment of Learning Basic Knowledge of Italian Language

Regarding acquisition of knowledge about Italian culture (Figure 15c), 47% evaluated the course as "excellent" (29%) or "good" (18%), with another 41% evaluating it as "sufficient."

This course has given you the opportunity to have knowledge of the Italian culture

Null 0%
Little 12%
Excellent 29%
Sufficient 41%
Good 18%
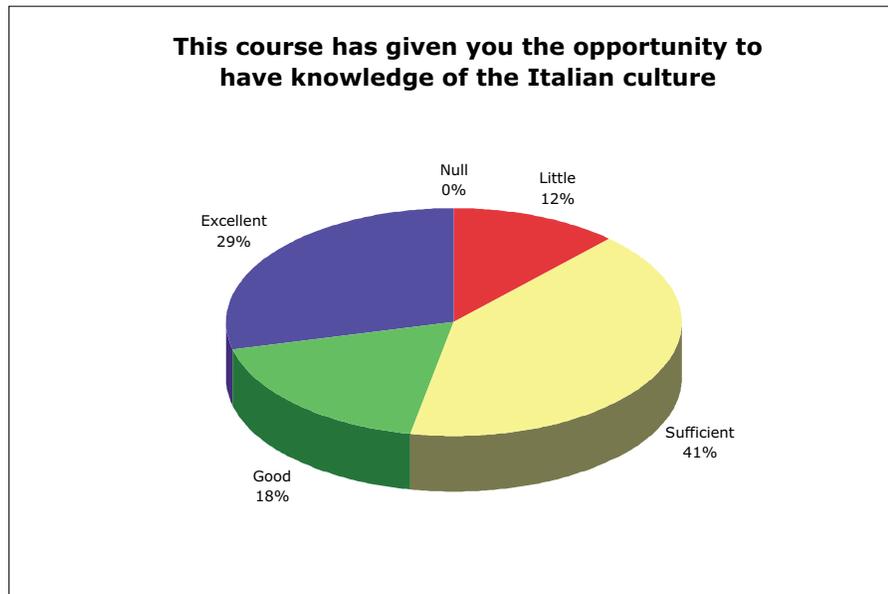
Figure 15c. Assessment of Learning about Italian Culture

Regarding acquisition of knowledge about the use of computers (Figure 15d), 82% evaluated the course as "excellent," with another 18% evaluating it as "good."

Has this course given you the opportunity to learn to use computers?

Sufficient
Null
Little 0%
Good 18%
Excellent 82%
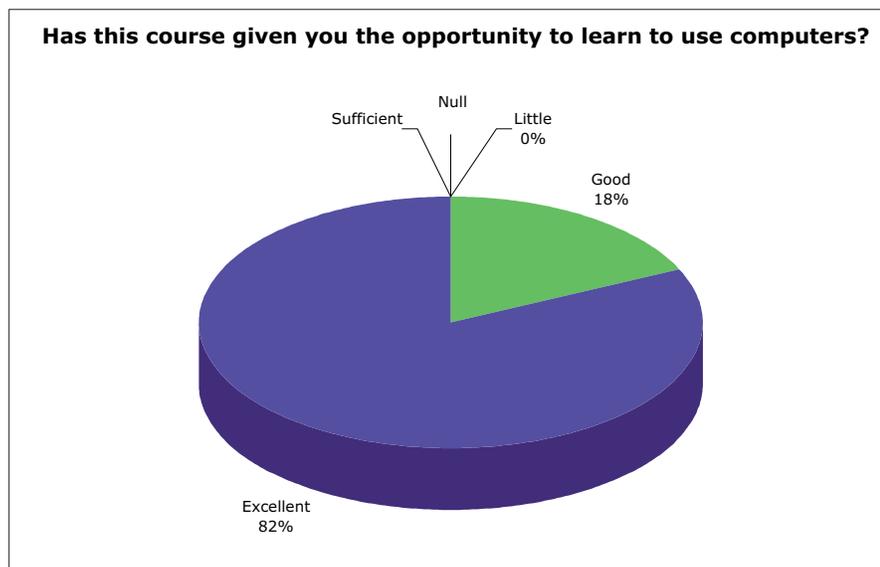
Figure 15d. Assessment of Learning to Use Computers

Finally, the youngsters identified the greatest difficulties they had with the course and made suggestions for improvements. These are contained in Figures 15e and 15f respectively. The most important item refers to the duration of the course. The large majority (78%) thought that "little time" was one of the greatest difficulties in the course, with the other 22% identifying the "use of computers." Consequently, the majority (58%) suggested "expand the time" as an improvement to the course, with

18% suggesting a "deepening of grammar," and another 18% suggesting "deepening of exercises."

What have been the greatest difficulties in the course?

Teacher's explanations

Using the PC
22%

The content of lessons
0%

Little time
78%
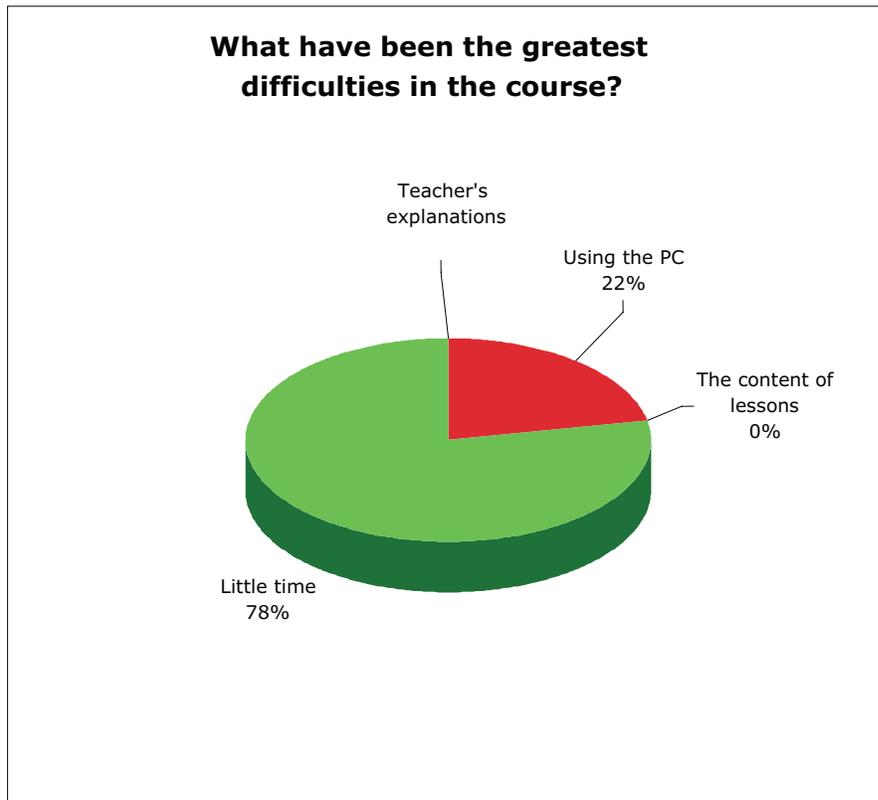
Figure 15e. Identification of Greatest Difficulties in the Course

What would you change of the course?

More breaks
6%

Expand the content
0%

Deepening of grammar
18%

Deepening of exercises
18%

Expand the time
58%
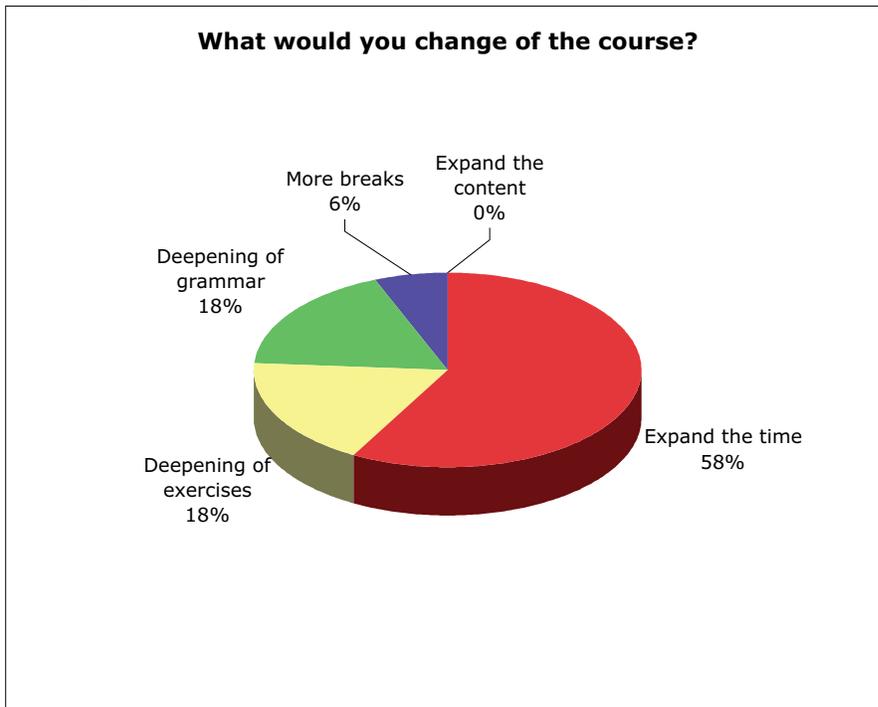
Figure 15f. Suggestions for Improvement

Overall, it can be said that the first experience of Double Code was very satisfactory and left behind good lessons for the future. The role of the "cultural mediators" along with that of the teachers is clearly critical. In this case, 88% of the respondents thought that the teacher and cultural mediators had done an excellent job; with the remaining 12% marking it "good." The cultural mediators tried always to communicate in Italian with the youngsters, using another language only when it became necessary. The languages of the cultural mediators included English, German, Romanian and Persian. It is also interesting to note that the access to the networked computers made available by Double Code also gave the youngsters the opportunity to maintain frequent contact with their countries of origin, at least for the period of the course. Thus, 94% of respondents said that the technology had allowed them to be in touch with their countries, most of them via chat (70%) and at least once a day (65%).

Another interesting aspect is that unaccompanied minors from different nationalities also show differences regarding their attitude to remain in Italy and, hence, to engage in coursework to learn the language. Afghan youngsters, for instance, tend to see Italy as the place to stay and this is reflected in their high degree of application in trying to learn Italian; whereas a good number of Romanian youngsters tend to see Italy as a place of transit towards Germany with consequent lower motivation to learn the language. In fact, a few of the youngsters who came and then abandoned the course were from Romania. These are all aspects to be considered for future versions of the Double Code course. For the time being, the DYC has laid the foundations of an action line concerning some of the most disadvantaged youngsters in Italy.

4.1.6 Innovation in Roman Schools – Project Thematic Weeks (Settimane Tematiche)

Children using a PC during a laboratory session of the Thematic Weeks

Section 3.2 above argued that the education of the Roman population poses a major challenge to the city's progress towards 21st century education and an inclusive knowledge society. It showed that Rome had increased its investment in education by 19% between 2001 and 2005 and that the total number of computers held by 915 schools in 2003 was 26,383, amounting to an average of 29 computers per school. An approximate calculation also showed that the ratio of students per computer was about 12, a figure below the student/computer ratio of the most advanced cities in Europe.

Data from a survey by the Ministry of Education for the school system of the central area of Italy[73]

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73   http://admsmiur.caspur.it/statistiche/Parametrizzazione.aspx. Accessed on 9th November 2006.

that includes Rome and the Region Lazio, along with other regions (e.g., Marche and Umbria), adds further to the picture that emerges from Rome. This survey covered primary schools, comprehensive institutes, lower secondary schools and upper secondary schools. Selected data is shown Table 43. It shows that the average number of computers per school (for a total number of 23,663 schools surveyed) is close to 26, while from 10,345 schools surveyed, 6,013 or close to 58% use email for didactic purposes; 8,912 or 86.1% make didactic use of Internet; and 4,312 schools or 41.7% have websites with didactic services. Finally, the survey revealed the presence of 25,755 multimedia labs in 23,663 schools surveyed, of which 76% are cabled and 87% have Internet. There are also 1,871 multimedia linguistic labs, of which 80% are cabled and 79% have Internet.

Table 43. ICT Facilities in the School System of Central Italy

Computers[a]		
23,663 schools surveyed	617,402 computers in total 16,584 laptops in total	26.1 computers/school 0.7 laptop/school
Email[b]		
10,345 schools surveyed	6,013 schools with didactic email	58.1%
Internet[c]		
10,345 schools surveyed	8,912 schools with didactic use of internet	86.1%
Websites[d]		
10,345 schools surveyed	4,312 schools with websites with didactic service (other services include student services, administrative services, etc.)	41.7%%
Multimedia Laboratories[e]		
23,663 schools surveyed	25,755 multimedia labs in total 19,530 cabled 22,336 with Internet	1.1 lab/school 76% 87%
Multimedia Linguistic[f]		
23,663 schools surveyed	1,871 multimedia linguistic labs in total 1,506 cabled 1,475 with Internet	0.08 lab/school 80% 79%

a. http://admsmiur.caspur.it/statistiche/Computers/
b. http://admsmiur.caspur.it/statistiche/PostaElettronica/
c. http://admsmiur.caspur.it/statistiche/Internet/
d. http://admsmiur.caspur.it/statistiche/Web/
e. http://admsmiur.caspur.it/statistiche/Laboratori/
f. Ibid.

Source. Based on data from Ministero dell'Istruzione (2006), http://admsmiur.caspur.it/statistiche/Parametrizzazione.aspx, accessed on 9.11.06.

The data of Table 43 show that in Central Italy the average number of computers and multimedia labs per school is lower than in Rome (Table 10), even as the data of Table 43 is more recent. It also shows that significant proportions of schools still have to make didactic use of the Internet (about 14%), while an even higher proportion is yet to have websites with didactic services (over 58%), or make use of didactic email (about 42%). This reveals the need for further progress in the use of new technologies in the school system of Central Italy, particularly as the technological frontier keeps advancing with new media instruments becoming available such as blogging and podcasting.

The data of Table 43 and 10, however, do not reveal how school communities - teachers, students, heads- are working and, often, struggling to implement ICT-based innovations that are transforming didactic practices and learning processes at the level of subjects and classes. Systematic information on these innovation processes in Rome and Lazio are very difficult to find, although it is clearly fundamental in order to identify where and how good ICT-based educational practices are being created and implemented by educational innovators. Without this knowledge, it is not possible to promote and disseminate the value and lessons of these innovating experiences with a view to help spread them to the wider school system, in a process of innovation scaling-up. The development of such innovation scaling-up process of good ICT-based educational practices has been the purpose of DYC's programme Thematic Weeks (*Settimane Tematiche*), run in the context of the Educational City (*Città Educativa*) initiative since 2004.

The DYC's Project Thematic Weeks (Settimane Tematiche)

Group of young students during a Thematic weeks laboratory

The Thematic Weeks Programme has run for two editions, 2004-2005 and 2005-2006 (at present a third edition is under way). The programme consists of a set of weeks devoted to awareness and promotion of best-practices in ICT-based education with focus on weekly themes of social, environmental, technological and educational value. The thematic weeks take place at the Città Educativa in the Centro Quadraro, a refurbished school equipped and made available for cultural and educational events for the Roman school system. The Città Educativa is an initiative of the Education Department of the Municipality of Rome. The DYC was responsible for the installation of networked computers and video-conferencing facilities at the Centre and took the task of identifying and disseminating good practices in ICT-based educational innovation across the Roman school system. The DYC's approach was to start working with a long-term perspective of gradual scaling-up of innovative good practice in Roman schools. This demanded the creation of networks of educational innovators and organizational stakeholders around a systematic programme of activities aimed at stimulating and nurturing flows of knowledge, experience and values for 21st century education and an inclusive knowledge society. The long-term perspective points to the creation of a *phyrtual environment* blending goal- and action oriented *physical* and *virtual* activities for the scaling-up of educational innovation across the school system. This *phyrtual* environment must facilitate the growth of what is effectively an ICT-based educational innovation movement.

The start of the Thematic Weeks programme enabled the DYC to begin the journey in the direction of the *phyrtual* environment, making use of its extensive network of school members, companies

and civil society organizations. The physical dimension of the *phyrtual* environment built up quickly through a rich programme of activities that brought together leading and learning organizations around good-practice experience. Simultaneously, the virtual dimension began to take shape through the definition and development of *knowledge objects* in accordance with available resources since R&D for good multimedia products is costly. Section 5 below discusses the virtual dimension of the *phyrtual* environment in detail through the concept of *e-Innovation Environment*. This section focuses primarily on the physical innovation environment (*p-Innovation Environment*) that has taken shape through the Thematic Weeks at Città Educativa, Quadraro Centre, also making reference to those knowledge objects that have been developed during this period.

The first Thematic Week took place in 2004-2005 and the programme ran a set of 15 weeks, while the second 2005-2006 edition ran for a total of 11 weeks, plus workshops and public events. The third 2006-2007 edition is under way. Figure 16 illustrates the entire concept of the Thematic Weeks programme with the specific content of the first 2004-2005 edition. The diagram details the role of the DYC as "institutional hub" (left-hand side of diagram), the specific weekly themes and participating organizations (at the centre of the diagram) and the educational value in terms of 'socialization of good ICT-based educational practices (right-hand side of the diagram). Table 44 provides detail numbers of the large participation by the Roman school system in the Thematic Weeks programme of 2004-2005, with over 4,600 participants in the 15 weeks.

DYC - Institutional Hub

Identify & engage leader schools and learning schools and other organizations playing lead roles in the Thematic Weeks

Organization and management of overall programme , including transport of thousands of students

Preparation and maintenance of HD/SW and comms infrastructure,

Running of events & promotion

Research for course material and web archive

Real-time monitoring & evaluation of value flows

Website for Citta Educativa

Promotion and celebration events, including exhibition

15 Thematic Weeks & Participating Organizations

Municipality - Dept. Education

Lead " ICT-based innovator " Schools

Learning Schools

*The school in today's world
* ICTs and e-inclusion
*Schools and online comms
*Open Office for didactics
* ICTs & disabled students at school
*Educational software at school
*Internet radio
*Audiovisual comms and schools
* ICTs and inter-cultural dialogue and solidarity
*Software engineering and JAVA
* ICTs, the environment and sustainable development
*Education for biodiversity and multi-culture
*The school and equal opportunities
*Tools for learning communities at schools - blogging
*Innovation in Roman schools

Foundations Cooperatives Associations

Companies & Free Software Clubs

International Organizations

Socialization of Good Practices in:

•Range of multimedia ICTs and Free software
•ICT-based educ . innovation
•ICT literacy for all
•e-Inclusion for the disabled
•Inter-generational learning
•Inter-cultural learning for peace
•Social solidarity and responsibility
•Social entrepreneurship
•Environment & biodiversity
•Collaborative learning skills
•Communication skills
•ICT-based pedagogics
•Schools' involvement with the community
•Schools' involvement with companies and cooperatives
•Schools' involvement with NGOs and international orgs.

Figure 16. Thematic Weeks Programme, Contributors and Educational Value, 2004-2005

Table 44. Summary of School Participation in Thematic Weeks Programme 2004-2005

Number of Schools	Number of Students	Number of Teachers	No. of Other Participants
40 Elementary	1462 Elementary	240 Elementary	-Senior Citizens
44 Medium	1551 Medium	172 Medium	-NGOs, Associations, ICT Companies, etc.
38 Superior	928 Superior	95 Superior	
TOTAL: 122	TOTAL: 3,941	TOTAL: 507	TOTAL: 187
	TOTAL NUMBER OF PARTICIPANTS: 4,635		

The 2005-2006 edition of Thematic Weeks saw a change aimed at (a) improving the fit between the agenda of the programme and the agenda of the school system (b) improving the depth of the learning activity happening during the thematic weeks at the Quadraro Centre, and (c) expanding dissemination to schools and the general public through special events. Table 45 shows the specific themes, the organizations and schools that provided the good-practices (i.e., lead organizations and lead schools) and the number of "learning schools" per each one of the 11 thematic weeks that took place at the Quadraro Centre. It also shows the "teachers' training workshops" that also took place at the Quadraro Centre with the attendance of 281 teachers. Last but not least, it shows the public events that attracted over 3,300 students and teachers and completed the entire 2005-2006 programme.

Table 45. Themes, Lead and Learning Organizations, Training Workshops and Public Events in the Thematic Weeks 2005-2006 Programme

Themes	Participants
1. The Use of Multimedia for Learning and Sharing	*Lead Organizations*: Apple Education – Italy Learning schools: 5
2. Creative multimedia is a children's game	*Lead School*: 177° CD "Colli Aniene" Learning schools: 5
3. DIGI-ting words of peace – When technology becomes solidarious	*Lead Organizations*: La Gabbianella, ASIA Onlus, Sev '84 Onlus *Lead Schools*: 197° CD "Massa Marittima" and IC "Carlo Levi" Learning schools: 7
4. The cinema goes to school	*Lead Organizations*: Comitato Cinema Ragazzi *Lead Schools*: SMS "P. Stefanelli", LCS "Pasteur" and SMS "Di Liegro" Learning schools: 4
5. Digital musical paths	*Lead Organizations*: Associazione Centro Tempo Reale *Lead School*: 141° CD "San Cleto" Learning schools: 5
6. New technology, equal opportunities and e-inclusion	*Lead Organizations*: Istituto Statale dei Sordi; CNR – Dipartimento Scienze e Tecnologie Cognitive *Lead Schools*: SMS "G. Mazzini" and IC "Viale Adriatico" Learning schools: 4
7. Science and multimediality – possible didactic avenues	Lead Organizations: Istituto Nazionale di Geo-Vulcanologia Learning schools: 9
8. Digital paths for food education	*Lead Organizations*: Associazione Diritti Sociali – Focus *Lead School*: IC "Via Cassia", 27° CD "Cagliero", SMS "Santi" Learning schools: 4
9. Digital paths for environment and biodiversity education	*Lead Organizations*: Fondazione ENI Enrico Mattei, Coop TERRE *Lead School*: SE "E. Dickinson", 63° CD "Bartolomei", IC "Fucini", IT IS "Giorgi" Learning schools: 5
10. Techno-Art	*Lead Schools*: SMS "Bramante", IT IS "Einstein", LSS "Majorana" Learning schools: 4
11. Communication Technics for a solidarious school	*Lead School*: 196° CD "Walt Disney" Learning schools: 4
Teachers' Training Workshops	
Workshop "Creativity with a click!" in partnership with Apple Education	91 teachers
Workshop "Internet and Multimedia for teaching and learning sciences at school" in partnership with Fondazione ENI Enrico Mattei	30 teachers
Workshop "ICT-based learning processes for the integration of youth disabled students in mainstream education"	80 teachers
Workshop "Sign language and communication skills for teaching and learning"	80 teachers
Public Events	
Beppe Grillo – PC Recycling for the Elderly	974 students and 104 teachers
Intel Event	314 students and 51 teachers
Robodidactics – Parco della Musica	1,252 students and 183 teachers
Digital Literacy Week	429 students and 50 teachers

Table 46 gives a summary of participation at the Quadraro Centre for both the thematic weeks and teachers' training workshops, 2005-2006. In total, over 5,000 people participated in the activities at the Quadraro Centre, including over 240 schools, over 4,300 students, 590 teachers and 120 members from other organizations. Table 47 gives the same information for the public events, which attracted 79 schools, almost 3,000 students, almost 400 teachers and about 1,250 people mostly from the community (i.e., elderly, families, etc.), for a total participation of about 4,600 people.

Table 46. Summary of School Participation in Thematic Weeks and Teachers' Training Workshops at Quadraro Centre, 2005-2006

Number of Schools	Number of Students	Number of Teachers	No. of Other Participants
Elementary 120	Elementary 1,894	Elementary 239	-ICT Companies
Lower Secondary School 63	Lower Secondary School 967	Lower Secondary School 141	-NGOs, Associations
High School 63	High School 1,482	High School 210	
TOTAL: 246	TOTAL: 4,343	TOTAL: 590	TOTAL: 120
	TOTAL NUMBER OF PARTICIPANTS: 5,053		

Table 47. Summary of School Participation in Public Events Related to Thematic Weeks Programme 2005-2006

Number of Schools	Number of Students	Number of Teachers	No. of Other Participants
Nursery 2	Nursery 100	Nursery 6	-Senior Citizens
Elementary 29	Elementary 946	Elementary 75	-Visitors
Lower Secondary School 17	Lower Secondary School 920	Lower Secondary School 60	
High School 31	High School 1,003	High School 247	
TOTAL: 79	TOTAL: 2,969	TOTAL: 388	TOTAL: 1,254
	TOTAL NUMBER OF PARTICIPANTS: 4,611		

Putting it all together, the total number of participants during the thematic weeks and public events organized during the 2005-2006 session amounts to 9,664 people, with 978 teachers, 7,312 students and 1,374 in the "other" category (i.e., contributors, visitors, etc.)

Evaluation of Thematic Weeks Programme at Quadraro Centre - 2005-2006

The DYC conducted a real-time evaluation of the Thematic Weeks programme per every daily activity in every thematic week of the programme. Figures 16a, 16b, 16c, and 16d provide the results of a small selection of evaluation items consolidated at programme level. The results are based on the 11 weeks that took place at the Quadraro Centre since the "Robodidactics" week was open to all schools and the Roman public at Parco della Musica. The evaluation contains the judgement of 214 teachers, close to 92% the total number of participating teachers.

The consolidated evaluation reveals that 84% of respondent teachers found that the quality and value of the daily sessions of the Thematic Weeks programme were "good" (47%) or "excellent" (37%) and another 13% found them "sufficient" (Figure 17a). The next three Figures reveal the value attached by respondents to the daily activities of the Thematic Weeks programme in relation to their ability to advance educational processes and ICT-based innovation processes in their schools. Thus, the consolidated evaluation reveals that 87% of teachers found that the value of daily sessions to advance educational processes in schools was "good" (58%) or "excellent" (29%), with an additional 12% finding it "sufficient" (Figure 17b). It also reveals that 65% of teachers found definite value (Yes) in the daily sessions to the understanding of ICT-based innovation processes in schools, with another 20% finding partial value (Figure 17c). More specifically, 73% of teachers found definite value (Yes) regarding access to resources and methodologies to innovate educational processes at school, with another 15% finding partial value (Figure 17d).

Consolidated assessment of the quality and value of thematic week per daily sessions

Nothing Little 3%

Sufficient 13%

Excellent 37%

Good 47%
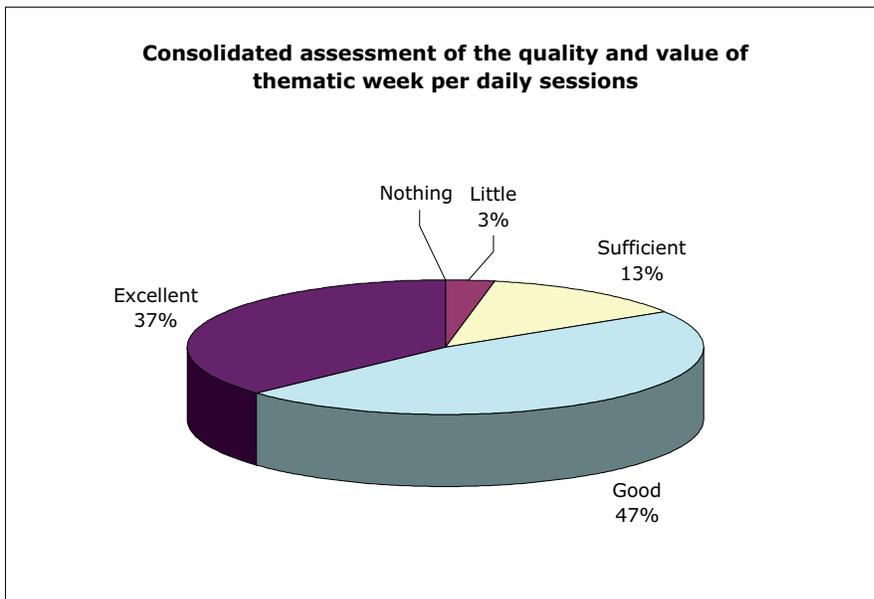
Figure 17a. Consolidated Assessment of Quality and Value of Daily Sessions of Thematic Weeks

Consolidated assessment of the value of daily sessions to advance educational processes in schools

Nothing Little 1%

Sufficient 12%

Excellent 29%

Good 58%
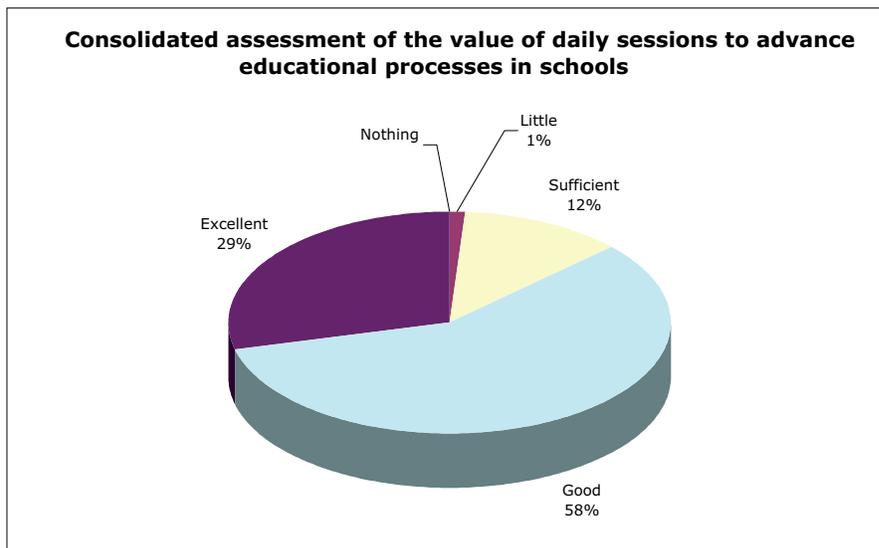
Figure 17b. Consolidated Assessment of the Value of Daily Sessions to Advance Educational Processes in Schools
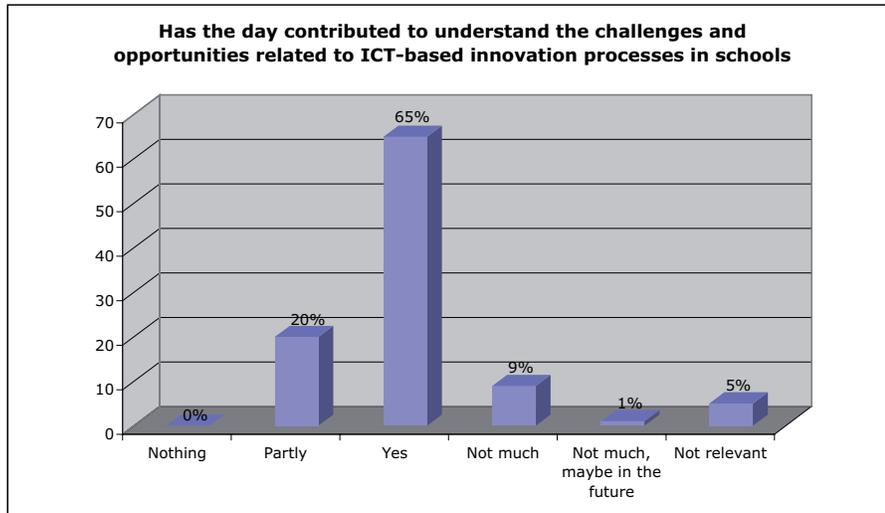
Figure 17c. Consolidated Assessment of Daily Sessions Value to the Understanding of ICT-based Innovation Processes in Schools
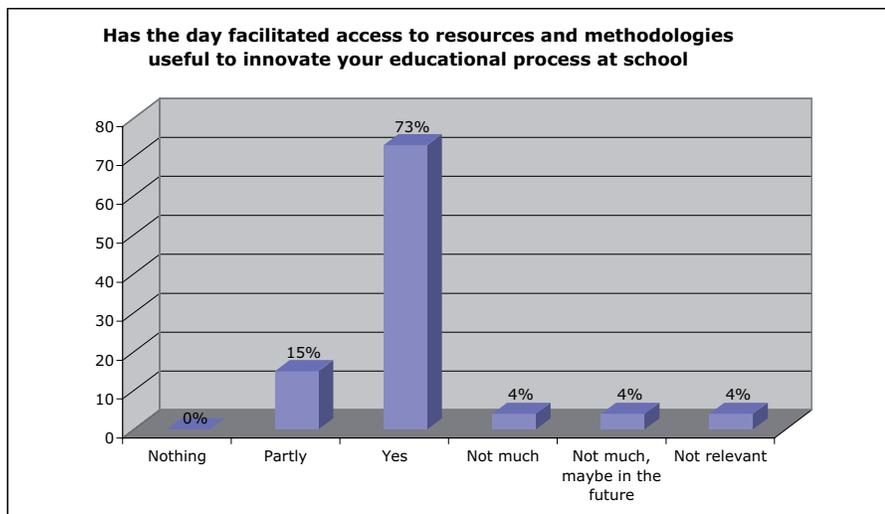
Figure 17d. Consolidated Assessment of Daily Sessions Value Regarding Access to Resources and Methodologies to Innovate Educational Processes at School

These results along with the substantial mobilization of schools, teachers, students and other organizations from the private sector and civil society indicate that the DYC has taken sound steps in the development of the physical innovation environment. The large majority of teachers acknowledge both quality and value in the activities of the Thematic Weeks programme, and an enhancement in their understanding of, and access to, resources for educational innovation processes in their schools. The DYC has not monitored whether the teachers participating in the Thematic Weeks activities have later on made use of their learning and new contacts in innovation processes in their schools.

Indeed, the DYC is working in the preparation of a follow-up programme aimed at extending the innovation impact of the Thematic Weeks beyond the participation in the physical activities at the Quadraro Centre. This follow-on programme will seek to facilitate the formation and operation of small groups of educational innovators who are keen to adopt and adapt good practices into their

schools. At this point, however, the virtual dimension of the *phyrtual* innovation environment (i.e., the e-innovation environment) becomes important to facilitate networking and shared learning activities. The e-innovation environment is dealt with in detail later on. Here it suffices to say that, as part of the work for Thematic Weeks, the DYC has begun the research and development (R&D) of "knowledge objects" for the content of the e-innovation environment. These knowledge objects include tools to guide the assessment and strategic thinking about ICT-based innovation processes in schools, as well as good-practice case studies on ICT-based innovation in schools.

These good practice case studies have led to the creation of a four-layered set of products to facilitate the learning and practice of innovation processes by educational innovators in the school system. The first layer is made up of brief videos of a selection of good practices in the Roman school environment; the second layer is made up of brief articles of these good practices collected into an edited book published by the DYC; the third layer seeks to develop "standardised" case studies to assess and enhance educational innovators' strategies in their ICT-based innovation processes; and the fourth layer produces in-depth processual analysis of ICT-based educational experiences which are published in the Consortium/Foundation's series *Quaderni di Pensiero*. Some of the experiences studied for this fourth layers are among the best in the world, for instance, winners of the DYC's international contest the Global Junior Challenge (see Section 4.1.7 below). This four-layered set of knowledge-objects will eventually become part of the e-innovation environment. For the time being, some of them are made available through the open source e-learning platform Moodle and the website of Città Educativa developed by the DYC as part of Thematic Weeks.

4.1.7 International Projects and Activities for an Inclusive Knowledge Society

The world faces enormous challenges to advance towards the dream of an inclusive knowledge society. At the turn of the millennium, the United Nations launched the challenge of the Millennium Goals. Among its eight goals are (a) to achieve universal primary education, considering that over 100 million children do not attend school, (b) halve extreme poverty and hunger, considering that over 1 billion people lives on less that $1 a day, and (c) empower women and promote equality between women and men, considering that two-thirds of the world's illiterates are women and 80% of its refugees are women and children.

Later, five years into the millennium, Kofi Annan called for the need to ensure freedom from want, freedom from fear, and freedom to live in dignity for all peoples on the planet.[74] He also stated that the "promise of the Millennium Development Goals still remains distant for many. More than one billion people still live below the extreme poverty line of one dollar per day and 20,000 die from poverty each day."[75] K. Annan stressed the need for collective action by the world if the millennium goals are to be achieved. The president of the European Commission Manuel Barroso shared this message. In a speech to the London School of Economics, he said: "My message to you is that Europeans must focus on, and act in, the wider world. … An open Europe. A generous Europe, which spreads its drive and determination for change beyond its borders. A Europe which engages with the world, rather than trying to avoid it. I believe that this is a message which can rally all Europeans, whether in France, Spain or Poland - all across our continent."[76]

The DYC has from the start implemented international activities seeking to share, with other people and organizations from across the world, activities for an inclusive knowledge society. In fact, the Consortium was born out of an international solidarity event, the Global Junior Challenge, in 2000. Since then, the DYC has implemented a number of actions aimed at contributing to projects and

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74   Annan (2005).
75   Annan (2005), p.4.
76   Barroso (2005). The Council of Europe (2002) also expressed a similar position.

organizations working in education, e-inclusion and peace in difficult areas of the world. Figure 18 illustrates the international projects and activities carried out by the DYC during its five years of existence. The inner circles show the 4 projects: Global Junior Challenge, Small Fund Award, e-inclusionsite.org, Holding Hands. The outer circles show various activities associated with the four projects. Table 48 provides a brief overview of the four projects and their interrelationship. Table 49 shows the range of organizations and individuals that have participated in the four DYC's projects and their specific contributions. Also shown is the type of value created by the entire constituency of actors to serve the cause of e-inclusion in poor areas of the world.
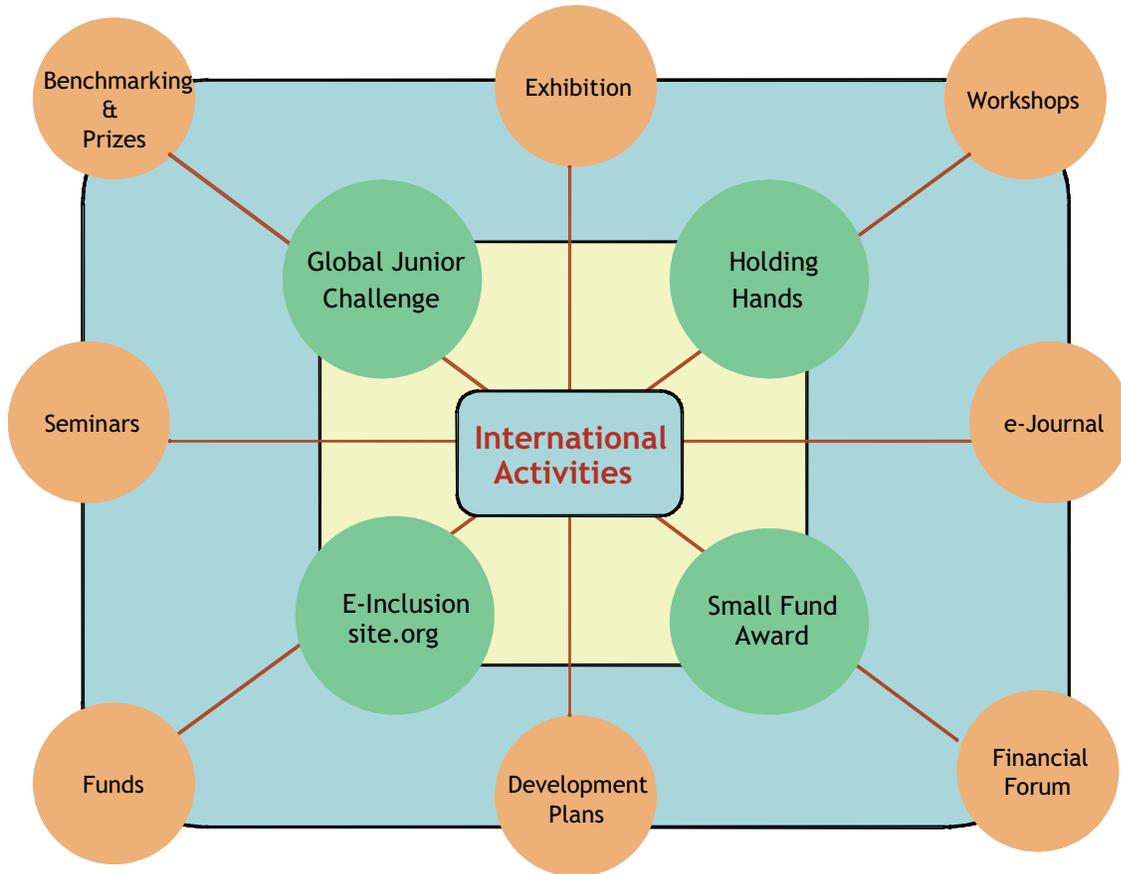

Figure 18. DYC's International Projects and Activities for an Inclusive Knowledge Society

Table 48. DYC's International Projects

Global Junior Challenge <www.gjc.it> – international contest of ICT and Education & Training experiences. Projects are evaluated by an international jury of 25 experts and practitioners, providing (a) a platform for benchmarking, recognition and celebration of good practices, (b) a window into the advancing international frontier of ICT-based educational innovation, (c) a window into e-inclusion efforts to improve the lot of disadvantaged people in poor areas of the world, and (d) a platform for networking, shared learning and activities on educational innovation, e-inclusion and peace.

Small Fund Award – an award of €5000 given exclusively to projects from poor areas of the world selected from those who have participated and become finalists in the Global Junior Challenge. The funding comes from the e-inclusionsite.org (see below). To receive the award, the winners must present a Development Plan detailing the investment of the €5000 in a way that will help advance the development of the project. If winning projects find difficulties in preparing such development plans, the DYC provides support, thus contributing additional value to the projects.

The www.e-inclusionsite.org. This website was born out of an ambition to contribute to the development of a global e-inclusion movement. It contains a Declaration on the Digital Divide[a] and a *clicking mechanism* to help raise funding while stimulating any person in the world to become a donor. The way it works is as follows:
   (a) a sponsoring organization provides funding in exchange for prominent visibility of its logo in the website (e.g., social responsibility branding). Other branding opportunities are also possible.
   (b) each €1 donated by a sponsor is valued at 20 clicks, that is, €5 cents per click. Or put in another way, every times a person clicks in the site, €5 cents of the sponsorship money are released for projects from poor areas of the world
   (c) having reached 1 million clicks for the GJC 2002 and 2004, the released funds were used, in 2002, to support the attendance of the leaders of winning project to a two-week course on entrepreneurship and innovation at Santa Clara University, California, and in 2004, to award €5000 to the winning projects along with support for their development plans. Today, over 1.6 million clicks have been reached.

Holding Hands, an Electronic "Journalino" for Cultural Dialogue, Understanding and Peace http://www. holdinghands.it - Holding Hands is an online journal aimed at stimulating dialogue, sharing of knowledge and experience, collaborative working and mutual understanding between children from schools in Rome, Israel and Palestina. The vision is to try to plant a seed of dialogue and understanding that may humbly contribute to the flourishing of peace in a region in conflict. The content of the online magazine deals with topics connected to peace, culture, politics, news and current affairs seen through the eyes of the students. Other sections are dedicated to music and entertainments, as well as sport and nature.
The schools involved in this project until today are:
From Italy: 194 Circolo Didattico and Liceo Scientifico E. Torricelli
From Israel: Ein Ganim Elementary School, Fineshtein Junior High School, The Association Tapuah
From Palestine: ZEINA center
The worsening of the situation in Palestine has affected the participation of Palestinian schools. Dialogue is the only hope, however, so Holding Hands remains a valid effort.

a. http://www.e-inclusionsite.org/en/index.php?menu=declaration

Global Junior Challenge 2004, exhibit at Palazzo dei Congressi

Table 49. Organizations, Individuals, Contributions and Value Flows Created by DYC's International Projects

		Value
Digital Youth Consortium	Organiser, promoter and responsible for the complex of activities involved in the three projects	• Support to projects in poor areas of the world
Municipality of Rome	Funding sponsor	• Development Plans
Various companies	Funding sponsors	
University of Edinburgh	Scientific direction to entire process, chairmanship of jury, and tutoring with development plans	• High-profile recognition and celebration with impact on future branding
University of Santa Clara	Free placements in two-week course on entrepreneurship and innovation	• Benchmarking
Individuals across the world	Donors of clicks. Over 1.6 million clicks at present	• Database of ICT-based educational innovation and e-inclusion across the world
Members of the jury	Donors of valuable time and expertise for the benchmarking of projects	• Funds and ICT resources (e.g., recycled computers)
Roman and Italian schools	Presented projects and participated massively in the activities and exhibition of the final event, in addition to twinning with some schools from other countries	• Entrepreneurship training
Projects from all over the world	Close to 650 in the last GJC 2004 edition	*The experience has enhanced flows of:*
Schools from poor areas of the world	Participation in GJC 2002 to explore twinning with Roman schools	• Social entrepreneurship • Leadership for e-inclusion
Seven GJC 2002 Small Fund Award winners from poor areas of the world	Participation in Award Ceremony and to two-week Entrepreneurship and Innovation course contributed by Santa Clara University	• International perspective, communication & understanding • Constituency-building
Five GJC 2004 Small Fund Award winners from poor areas of the world	Participation in Award Ceremony and preparation of Development Plans	• Solidarity • Shared learning

Table 50 shows the participation of projects in the Global Junior Challenge per continent along with number of international projects. The number of projects that entered the Challenge in 2002 and 2004 was 433 and 647 respectively. They came from all continents and also international initiatives. The largest number came from Europe and, indeed Italy and Rome, demonstrating the mobilization caused by the Challenge in Italy and, particularly, among schools from the city and the province of Rome that in 2004 entered 325 projects.

Table 50. Number of Projects in the Global Junior Challenge 2002 and 2004

	Africa	America	Asia	Europe (Italy)	Oceania	International	Total
GJC 2002	16	43	57	299 (246)	9	9	433
GJC 2004	42	44	73	477 (437)	4	7	647

The 2002 and 2004 Challenges fulfilled all expectations. They mobilized Roman and Italian schools along with schools and organizations from all over the world to submit their projects on ICT-based educational innovation and e-inclusion. The members of the international jury donated their valuable time to evaluate the projects and selected the finalists and winners to be invited to Rome to participate in the Award Ceremony and a rich series of events that included seminars, workshops, financial forum, and exhibition (Figure 18 above).

Table 51 details the entire set of awards, school twinning and events of the 2002 edition of the Global Junior Challenge. Nine projects of the total 433 were awarded the GJC Award –a statuette of the she-wolf in the legend of the foundation of Rome- in the four educational categories "up to 10, 15, 18 and 29 years old." The prize for the special category of youth employment was awarded to two joint winners; while three Italian schools received the President of the Republic Award –three silver cups donated by the President of Italy and awarded to Italian schools only. Finally, 7 projects from poor areas of the world (Rwanda, Namibia, Philippines, Costa Rica and three from India) received the Small Fund Award consisting of a grant to cover the costs of attendance, for the leaders of the projects, to a two-week course on entrepreneurship and innovation donated by the University of Santa Clara, California.

The GJC 2002 also invited one teacher and two students from schools from poor areas of the world (Argentina, Brasil, Cameroon, Croatia, Israel, Nepal, South Africa, Sri-Lanka, Uzbekhistan, Zimbabwe) to come to Rome to have a dialogue with 10 schools of Rome to explore the possibilities of twinning. The school from Sri Lanka could not make it due to visa difficulties. This led to a series of encounters during the week, culminating in a colourful cultural party with national costumes and dances from the countries of the twinning schools.

African Project at the 2004 Global Junior Challenge

Table 51. GJC 2002 – Awards, Schools Twinning and Events

Categories, Finalists and Winners in GJC 2002		
Award Categories	**No. of Projects and Finalists**	**Winners**
Up to 10 Years Old	85 projects, 15 finalists	The @-Team – Sint Amandus School, Belgium Il Formicaio - IV Circolo Didattico di Udine, Italy
Up to 15 Years Old	87 projects, 14 finalists	SuperHighway Patrol - Childnet International, UK MatMice - MatMice Technologies, Australia
Up to 18 Years Old	109 projects, 10 finalists	Friends and Flags - Ein Ganim Elementary School, Israel Living Heritage - 2020 Communications Trust, New Zealand Kidspace - Kidlink, Norway
Up to 29 Years Old	152 projects, 15 finalists	UNITeS – UN Volunteers, Germany. The Catalyst Initiative - Washington University, Education and New Technology Depart., USA
Youth Employment (special category)	6 finalists	Rwanda Rural Rehabilitation Initiative - Cyber Host, Rwanda. Academos e-Mentoring Program - College de Bois-de-Boulogne, Canada
President of the Republic Award for Italian Schools	10 finalists	"Imparo giocando" - Scuola Media Statale "J.J. Winckelmann "SMART" - I.P.S.I.A., Sede Coordinata di Sanremo "Skilpass" – Skillpass spa
Small Fund Award	27 finalists	-Rwanda Rural Rehabilitation Initiative, Rwanda -The Impact of HIV/AIDS in Katutura, Namibia -Orphan IT and Glow ICT Centres, Philippines -New Millennium Electronic Magazine, Costa Rica -Katha's IT Challenge 2010, India -Narrowing the Digital Divide, India -Community Led Environment Action Network (CLEAN-India), India
School Twinning		
E.Q. "Visconti" (S.E. Gianturco) S.M.S. "Majorana" 141° C. D. (S.E. San Cleto) 196° C. D. (S.E. Walt Disney) S.M.S. Belforte Del Chienti I.T.I.S. "Einstein" I.T.T. "L. Bottardi" Liceo Ginnasio "Virgilio" Liceo Classico "B. Russell" Liceo Scientifico "Talete"	Escola Estadual Comendador A. V. Gregorio, Brasil Vladimir Nazora, Croatia Horizon School, Sri-Lanka (1) Ein Ganim Elementary School, Israel Tashkent International School, Uzbekistan Nepal Yubak Secondary School, Nepal Centro Educativo N°6 Subsecretario C. S. San Martin, Argentina Tsholotsho High School, Zimbabwe Government Secondary School Fontem, Cameroon Nathaniel Nyaluza High School, Grahamstown, South Africa	
Events		
Exhibition: 50 stands for GJC finalists. Attracted 6,000 students, teachers and parents		
School Twinning Cultural Event: Party with national costumes and dances from twinning school		
International Seminar: "Learning about e-Learning Innovation Processes in Schools." Speakers from Italy, UK, Sweden and Spain		
International Workshop - "Searching and Encouraging Synergies and Commitment for a Global e-Inclusion Movement" (See Appendix 2 for participants)		
Financial Forum for e-Inclusion: 7 international experts gave financial advice to leaders of 18 projects		
Award Ceremony at the historic Giulio Cesare Room of the Campidoglio City Hall in the presence of the Mayor of Rome, Walter Veltroni, and other personalities.		

(1) Horizon School could not arrive to Rome due to visa problems

The GJC 2002 Exhibition became a magnet for contacts, networking and visitors, with finalist projects occupying stands along with sponsors and talking to a large number of people. Around 5,000 students, teachers and parents visited the exhibition. Two additional international events took place:

the educational seminar "Learning about e-Learning Innovation Processes in Schools," and the e-inclusion workshop "Searching and Encouraging Synergies and Commitment for a Global e-Inclusion Movement." This workshop attracted youth and senior participants from a rich blend of civil society and international organizations (see Appendix 2) and it was organised around four questions for youth and senior participants (see Appendix 3), who met in parallel sub-workshops but blended their insights in plenary meetings. A position paper was made available to the workshop (Molina, 2002a) and a final report followed soon after the realization of the event (Molina, 2202b). The discussions on e-inclusion were complemented with the organization of a Financial Forum in which 7 international experts provided one-to-one financial advice to leaders of 18 projects. The GJC 2002 ended with the splendid Award Ceremony at the historic Giulio Cesare Room of the Campidoglio City Hall in the presence of the Mayor of Rome, Walter Veltroni, and 300 other participants including the members of the jury, finalists, ambassadors and other personalities.

Table 52 details the entire set of awards, school twinning and events of the 2004 edition of the Global Junior Challenge. Seven projects of the total 647 were awarded the GJC Award in the four educational categories "up to 10, 15, 18 and 29 years old." The prize for the special category of youth employment was awarded to a single winner; while three silver cups of the President of the Republic Award went to three Italian schools. In the 2004 edition, there was an additional special category, "women and equal opportunities," and the prize went to a single winner. Finally, 5 projects from poor areas of the world (Brasil, Cameroon, Chile, South Africa and Uganda) received the Small Fund Award consisting of €5000 per project along with support for development plans detailing the use of these funds.

Work table at the 2004 Global Junior Challenge

Table 52. GJC 2004 – Awards, Schools Twinning and Events

Categories, Finalists and Winners in GJC 2004		
Award Categories	**No. of Projects and Finalists**	**Winners**
Up to 10 Years Old	160 projects, 17 finalists	A new world in one, two, t(h)ree, Sint-Amandus Elementary School, Belgium.
Up to 15 Years Old	121 projects, 18 finalists	We the children, Master's Academy and College, Canada
Up to 18 Years Old	179 projects, 22 finalists	E-learning and SARS, Hong Kong Education City Limited, Hong Kong Youth Have a Say against Terrorism, Interactive Education and Resource Network, Macedonia
Up to 29 Years Old	187 projects, 28 finalists	Boat Based Distance Education Sharing Open Learning, Knowledge, Resources and Technologies, Shidhulai Swanirvar Sangstha, Bangladesh Accessa Sao Paulo, Imprensa Oficial, Brasil
Youth Employment (special category)	14 finalists	PC Youth Project - PC World IT, Uganda
Women and Equal Opportunity (special category)	15 finalists	E-Tlalim: The virtual School for homebound children with special needs-Making Technology Humane, Tlalim, Israel
President of the Republic Award for Italian Schools	21 finalists	"Animazioni" - Scuola elementare "A. Azzolini" di Mirano (VE) "Vocabolario Multilingue Multimediale" - Terzo Circolo Didattico" di Cremona "Suono e Immagine" - Itis "A. Einstein" di Roma.
Small Fund Award	14 finalists	"Operation Ukufikelela," Ikamva Lisezandleni Zethu, South Africa "PC Youths Project," PC World IT, Uganda "Community–based ICT Training Centre," Helps International (HINT), Cameroon "Digital Inclusion for Young People and Adults in Poor Communities," CDI-DF, Brasil Telecenter "The Meeting," Corporacion Encuentro, Lo Hermida, Chile
Events		
Exhibition: 50 stands for GJC finalists. Attracted 6,000 students, teachers and parents		
GJC 2004 Inaugural International Seminar: "Are ICTs a Resource for Didactics? Speakers from Belgium, Israel, Italy, Spain, Sweden, UK, USA.		
International Seminar; "Sustainable Enterprises for e-Inclusion and Equal Opportunities," speakers from Argentina, Australia, Bostwana, Italy, Nepal, USA		
International Seminar: " Free Software for Education and e-Inclusion," Speakers from Cuba, Ecuador, Italy, Spain (Extremadura and Andalucia)		
Seminar: "Integration and Innovation of Disabled Students' Learning Paths through the Use of ICTs" – 12 Italian speakers		
Signature of Protocol "Scholastic Integration of Disable Students in the Roman Schools," by the Municipality of Rome, Campus Biomedico di Roma, Scuola Sant'Anna di Pisa and the Digital Youth Consortium.		

International Workshop "e-Inclusion and Education," organized in 5 Working Groups as follows:
Theme 1: *Twinning for e-Inclusion and Education*
      Sub-group 1: *Holding Hands* – participants from Israel, Palestine and Italy
      Sub-group 2: *Telecentre for Poor Schools* – participants from Kenya and Italian schools
      Sub-group 3: *General Twinning Approaches* - – participants from Finland, Italy, UK, Belgium, USA, Spain
Theme 2: *Sustainable Enterprises for e-Inclusion* – participants from Argentina, Australia, Bostswana, Nepal, Italy, USA;
Theme 3: *Free-software for e-Inclusion and Education* – participants from Brasil, Ecuador, Spain, Italy, UK.		

Financial Forum for e-Inclusion: 6 experts provided financial advice to leaders of 25 projects		
Award Ceremony at the historic Giulio Cesare Room of the Campidoglio City Hall in the presence of the Mayor of Rome, Walter Veltroni, and other personalities.		

The GJC 2004 Exhibition repeated the success of the 2002 version as a place for contacts, networking and visitors. About 6,000 students, teachers and parents visited the fifty stands occupied by finalist projects and sponsors. An inaugural international seminar raised the question "Are ICTs a resource for

didactics?" and opened a series of encounters. This was followed by two international seminars on "sustainable enterprises for e-inclusion and equal opportunities," "free software for education and e-inclusion," and one seminar for Italian schools on the "scholastic integration of disabled students through the use of ICTs." The focus on the scholastic integration of disabled students was further highlighted by the signature of a protocol on "Scholastic Integration of Disabled Students in the Roman Schools," signed by the Municipality of Rome, Campus Biomedico of Rome, Scuola Sant'Anna di Pisa and the Digital Youth Consortium.

The GJC 2004 continued the work on the e-inclusion movement initiated by the GJC 2002 large international workshop. This time however the intention of the workshop "e-Inclusion and Education" was to allow small focused groups of organizations working on grass-root projects to explore synergies for possible joint actions in the future. Table 52 shows that three main strands gave form to 5 working groups, including the sub-group "Holding Hands" that brought together representatives from the school systems of Israel, Palestine and Italy to define the concept of the "e-journalino" *Holding Hands*, launch it and begin the process of involving schools. This meeting gave a strong impulse to the start of the "e-journalino," but as explained earlier in Table 48, the worsening of the situation in Palestine affected the participation of Palestinian schools. The sub-group "Telecentre for Poor Schools" was intended as a dialogue between a Kenyan organization trying to promote the formation of telecentres for poor schools and representatives from various Italian schools to explore the opportunities, difficulties and possible mechanisms for the participation of Italian schools in an effort of this kind. The discussions on e-inclusion were again complemented with the organization of a Financial Forum in which 6 international experts provided one-to-one financial advice to leaders of 25 projects.

Thus the GJC 2004 arrived at the Award Ceremony in the historic Giulio Cesare Room of the Campidoglio City Hall in the presence of the Mayor of Rome, Walter Veltroni, and the 300 other participants that filled the historic room. On reflection, there is something very fitting about the prizes being given by the Mayor of Rome to educational and social innovators under the watchful eyes of the oldest known statue of Julius Caesar.

The GJC 2007 is under way and, this time, there are more projects coming from poor areas of the world, particularly Africa, something that can be attributed at least in part to the Small Fund Award. As to the "e-journalino" Holding Hands, as said before, dialogue is the only hope for peace in the Middle East. Thus, the Fondazione Mondo Digitale will continue with this effort started by the Consortium as soon as the conditions are propitious again.

5 FONDAZIONE MONDO DIGITALE (THE DIGITAL WORLD FOUNDATION)

Launch of the Foundation: Mariella Gramaglia - Councillor of Rome Municipality, Walter Veltroni - Mayor of Rome, Tullio De Mauro - President of the Foundation, Mario Michelangeli - Councillor of Lazio Region,
Mirta Michilli - General Director of the Foundation

The Fondazione Mondo Digitale came to life officially on July 31, 2006. In practice, the Foundation fully takes over, and continues building upon, the Consortium's distinctive public mission and rich legacy of activities and relationships aimed at fostering digital literacy and innovation for the development of an inclusive knowledge society. Indeed, the creation of the Foundation is a clear recognition of both the achievements of the Consortium and the strategic importance of its unique mission for Rome and the Lazio Region.

The Foundation's vision is thus a "vision in the making" – not just a set of ideas and aspirations but a truly unfolding reality that has already touched the lives of many people. In its five years of existence, the Consortium demonstrated in a small-scale the importance of bringing ICTs to people potentially at risk of exclusion or discrimination in the emerging knowledge society. It also demonstrated the importance of blending into a single process the four dimensions of education, innovation, inclusion and fundamental cultural values. This blend is the distinctive characteristic of an inclusive knowledge society.

The Fondazione Mondo Digitale aspires to multiply many times over the contribution made by the Consortium to the spread of digital literacy, innovation and inclusion. The Foundation will seek to expand and improve the scale, operation and impact of the action lines started by the Consortium, of course, in a process of co-evolution with the Foundation's organization, resources and capabilities. In the following, this section concentrates on five areas requiring innovative developments from the Foundation: (a) focused action units, (b) stakeholders involvement, (c) culture of learning, efficacy and accountability, (d) e-innovation environment and rooting in the territory, and (e) income-raising for enhanced action.

5.1   Focused Action Units

The Consortium developed, on a small-scale, a range of action lines for an inclusive knowledge society. The scaling-up and deepening of impact of these action lines constitute a much stronger goal, demanding a more effective targeted organization. In the future, successful action lines should evolve into "dedicated action units" focused intensely on achieving the best results for a wider number of the potentially excluded people in their areas of concern (e.g., elderly people, immigrants, etc.). These action units should develop and nurture their own networks of stakeholders, as well as develop strong projects to help raise the necessary resources for carrying out the Foundation's mission. At the same time, these dedicated action units should be open to both (a) the exploitation of synergies with other action lines or units in the Foundation and (b) inputs from, and interactions with, the outside world (see below Stakeholders Involvement). The effective use of advanced social-networks technologies will be critical for these purposes (see below e-Innovation Platform).

In practice, it is unlikely that all action lines will evolve into "dedicated action units" at the same speed or depth, since this development implies the availability of greater resources. This means that those action lines able to attract the necessary resources will have the opportunity to evolve first into action units. At all times, the Foundation must maintain a strategic assessment of the available resources and potential of all action lines in order to make informed decisions about the prioritization of efforts in the different areas. At the same time, the Foundation will seek to enhance its fund-raising capacity, exploring and exploiting fruitful avenues, including the potential packaging of distinctive knowledge into training activities.

5.2   Stakeholders Involvement

The Foundation's *raison d'etre* is to serve and facilitate people's participation in the knowledge society, identifying, developing and implementing the best ways for this to happen. Various relevant concepts have taken hold of the policy-making arenas of digital divide and e-inclusion in past years. For instance, private-public partnerships (PPPs) have been high on policy-makers' agendas, as it was realised that the private sector could make significant contributions to social and community developments as part of policies of corporate social responsibility. Lately, the partnership concept has been expanded to include NGOs and other organizations having a stake in the solution of major social challenges such as e-inclusion, poverty, etc. This is reflected in the concept of multi-stakeholder partnership.

The Digital Youth Consortium was created as a private-public partnership and, during its five years of operation, it clearly fostered the development of multi-stakeholder partnerships in its various action lines. Previous sections have shown the wide range of partners (NGOs, companies, associations, schools, community organizations, etc.) that have participated in the Consortium's action lines and, without whom, it would have been very difficult to achieve results of significance. A key success factor is then the ability to mobilize and catalyze the involvement of those stakeholders capable and willing to work together in projects and activities of mutual benefit and, above all, of enhanced benefit for the people who are the target beneficiaries.

The Fondazione Mondo Digitale builds on the public-private and multi-stakeholder partnership approaches of the Consortium and proposes a further development in the light of the challenging goals of scaling-up and enhanced impact of the present small-scale action lines. Today, in the international arena, scaling-up in its most advanced form is essentially understood as processes of "replication" of good practices intermediated by some international agency that asks the originators of the experience to reflect and try to codify their approach, steps and mechanisms into a handbook or manual to be used by potential "replicators." This codification of knowledge from good practices is certainly an essential ingredient of the Foundation's concept of "scaling up" and, indeed, the Consortium already took important steps in this direction through its research and publication activities.

The goal of digital literacy and innovation for the development of an inclusive knowledge society, however, requires a much greater level of diffusion across cities and regions of those good practices found in the different action lines. This kind of scaling-up must aim to create a stimulating environment of rich interactions and joint learning among organizations and people driving targeted, grass-root processes of ICT-based innovation and e-inclusion. This environment must be *phyrtual*, that is, integrating physical (in the territory) and virtual activities into a single programmatic and flexible framework of activities, learning and change. The Consortium's Thematic Weeks programme of diffusion of ICT-based good practices has made significant progress in this direction, but more is needed to realize in full the concept of *phyrtual* environment, particularly, its action-oriented e-Innovation platform (see below).

In practice, the kind of scaling-up processes just described are closer to the activities of what could be seen as targeted, programmatic movements for digital literacy and innovation. These programmatic innovation movements contain public-private and multi-stakeholder partnerships but take the concept further by providing the mechanisms for the inputs and involvement of the people and communities who are the target beneficiaries. In this respect, the integrated use of innovative social networking technologies such as blogging, v-blogging, podcasting, video streaming and others is fundamental to facilitate multiple forms of communication and expression from within the community of innovators and beneficiaries. This, supplemented with the implementation of evaluations as a continuous learning factor (see below), should stimulate the necessary flows and exchanges of knowledge and experience to make a reality of the scaling-up of good practices through what are effectively processes of innovation diffusion. The role of the Foundation is to contribute to the *phyrtual* environment and serve as catalyzer for the formation of programmatic innovation movements in their target areas.

5.3   Transparency and Accountability for Learning and Continuous Improvement

In the last decade, issues of NGOs transparency and accountability have acquired great prominence as the sector has grown strongly across the world.[77] Zadek (2003) point outs that "[i]n highly organized societies in North America and Western Europe, for example, the organized nonprofit sector is now a major element in the economy, employing as much as 12 percent of the workforce, and with annual expenditures reaching nearly 15 percent of GDP." A growing literature has discussed multiple aspects of the strategic importance of accountability, including historical reasons, NGOs responses, traditional and new approaches to accountability, various instruments available, and the benefits and difficulties brought about by the new trends.[78] Experience has shown that good application of accountability practices can lead to learning and better outcomes for target beneficiaries, while badly applied, it can lead to costly bureaucratization and diversion from value creation for target beneficiaries.

The Fondazione Mondo Digitale aims at implementing good practices in this area in line with its objective of contributing effectively to the digital literacy and inclusion of those sectors of the population at risk of exclusion from the knowledge society. In this perspective, good governance practices of transparency and accountability are intimately related to the creation and delivery of value for the Foundation's stakeholders, involving issues of communication, participation, dialogue with internal and external stakeholders, evaluation and continuous learning and improvement. A small organization such the Foundation must pursue transparency and accountability simply to serve better. It must therefore avoid the pitfalls of bureaucratic over-burdening that may result from the proliferation of form-filling and particularly evaluation practices that add little to learning and continuous improvement, as recently reported by Snibbe (2006). This is particularly relevant for the Foundation with its multiple stakeholders that include: government and private sector as founders;

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77   Keystone (2003), Salaman et al. (1999), Zadek (2003).
78   Ebrahim (2003), Frumkin (2006), Jordan (2005), Kovach (2003), Lee (2004), Naidoo (2003), Patrizi (1998), Prewitt (2006), Slim (2002), Snibbe (2006).

schools as partners, subscribers, and target beneficiaries; communities (the elderly, immigrants, youngsters, etc.) as target beneficiaries; NGOs as collaborators; general public; and the Foundation's own staff. All these stakeholders play some part in the e-inclusion and innovation processes pursued by the Foundation and to an important extent help shape the content of these processes.

Indeed, the Consortium has left the Foundation a sound legacy of governance practices of transparency, accountability, dialogue, participation, real-time evaluations, etc., and the Foundation will continue to enrich it. In line with the Foundation's stakeholders, the Foundation must satisfy at least four forms of accountability (Ebrahim 2003, Jordan 2005):

- *upward accountability* to founders, sponsors and government
- *downward accountability* to target beneficiaries (people and communities)
- *horizontal accountability* to organizations interacting with the Foundation in the performance of its activities
- *internal accountability* to staff and mission

Table 53 shows possible types of accountability mechanisms and their relevance to forms of accountability (upward, downward, internal) and, hence, type of stakeholder. The legacy of the Consortium shows the use of various transparency and accountability mechanisms both of legally-mandatory and voluntary nature.

Legally-mandatory mechanisms refer primarily to the first two types in Table 53: disclosures / reports and performance assessment and evaluation. They have a clear character of "upward accountability" and potentially of 'downward accountability" to the extent that reports are public and can be read by beneficiaries or other stakeholders. Thus, the Consortium/Foundation was/is controlled by a Board of Directors and the General Assembly involving representatives of all founders, including local and regional government and the private sector. The Board of Directors meets at least 4 times a year to examine the performance of the organization, receive reports from the General Director, who must also submit an annual financial report and an annual performance report to be examined and approved by the Board. These reports demand a detailed degree of transparency, with use of financial resources accounted by action line (projects). In this way, founders and the government can control the proper conduct of the Consortium/Foundation and assess the value and quality of its performance.

Table 53. Accountability Mechanisms and Their Relevance to Stakeholders

Accountability Mechanism (tool or process)	Accountability to Whom? (upward, downward, or to self)
Disclosures/ reports (tool)	-Upward to funders and oversight agencies -Downward (to a lesser degree) to clients or members who read the reports
Performance assessment and evaluation (tool)	-Upward to funders -Significant potential for downward from NGOs to communities and from funders to NGOs
Participation (process)	-Downward from NGOs to clients and communities -Internally to NGOs themselves -Significant potential for downward from funders to NGOs.
Self-regulation (process)	-To NGOs themselves, as a sector -Potentially to clients and donors
Social auditing (tool and process)	-To NGOs themselves (by linking values to strategy and performance) -Downward and upward to stakeholders

Source. Adapted from Ebrahim (2003), p.825.

The Consortium started a deeper process of "downward accountability" by developing and implementing concepts of real-time evaluation per action line. Here evaluation is conceived as a learning and improvement factor and seeks to assess, among other aspects, the perceptions of target beneficiaries regarding the value delivered by the activities, including areas of difficulties and improvement suggestions. The few items of evaluation given in the sections above are part of

this real-time evaluation effort. The processing of the evaluation material consumes a significant amount of time for a small organization and, for this reason, the Consortium has not produced public reports and has used the results primarily for its own performance. The Foundation will seek to further develop the steps taken by the Consortium by systematizing and "automatizing" as much as possible the processing of the evaluation material. The aim is to migrate evaluation tools to the online environment and use statistical engines for the graphical processing of the raw data. This will give a more concrete reality to the concept of real-time evaluation. It will also enable the immediate communication of results to all Foundation's stakeholders, thus increasing transparency and accountability, as well as the potential for feedback and learning.

Real-time evaluation by target beneficiaries of action lines also opens a channel for their participation in shaping the content of these action lines. This is possible because the evaluation is not one-off, but rather an integral part of the process of constructing the action line. Participation also has another manifestation in the performance of the Consortium/Foundation. Many NGOs, associations and schools participate in the definition and provision of the educational content to be disseminated through the Foundation's activities such as the Thematic Weeks Programme. These NGOs and teachers are the holders of knowledge and material on innovative ICT-based educational experiences of social value. The collaboration with the Foundation allows for the greater diffusion of these experiences to the wide educational community. The Consortium/Foundation has also implemented a policy of communicating its activities to the general public through a successful engagement with the media. High-profile public activities of the Consortium are regularly reported in the press, online sources, radio and TV.

Regarding internal accountability, the Consortium/Foundation has a flat structure with a lot of informal communication and responsibilities clearly allocated to individuals. Formally, everybody responds to the General Director who also supervises the performance and growth of each member of the team. Several members of the Foundation's personnel arrived to do a *stage* from the University or with temporary contracts and today have permanent jobs and coordination responsibilities. They have expanded their skills and confidence and become very important to the fulfilment of the Foundation's goals. The Foundation will aim to enhance the opportunities for further development and growth of its personnel, supplementing the informality of its learning environment with some more structured activities aimed at the socialization of skills or knowledge from the more senior personnel.

Table 53 also shows self-regulation as an accountability mechanism. This is associated to the development and adoption of codes of conduct and ethics for the NGO sector as a whole. Various codes are emerging particularly by international NGOs and, in some countries such as the Philippines where NGOs can be certified by the government for the appropriateness of their operation. The Foundation will look closely at the development of this trend and will seek to adopt those codes that will enhance the fulfilment of its values for an inclusive knowledge society. For instance, "gender equal opportunities" is an important item in the emerging codes and one that the Foundation has applied effectively with female colleagues making up slightly more than half of its personnel. The Consortium/Foundation also pursues a policy of long-term employment for the people who come first to work in conditions of temporary contract.

Finally, social auditing is not a completely different mechanism from those above. It rather integrates them into a process of assessment, reporting and improvement of social and ethical performance, with special emphasis on stakeholder dialogue. There are a variety of social auditing instruments, but they seem to share five key aspects: stakeholder identification, stakeholder dialogue, use of indicators and/or benchmarks, continuous improvement, and public disclosure (Ebrehim, 2003). The Consortium made advances in this direction to the extent that it progressed in the accountability aspects just seen. A full-blown, integrated social auditing, however, is a more formalised process of benchmarking and dialogue with stakeholders that has been beyond the scale of human and other resources of the Consortium. Just as in the case of codes of conduct and ethics, the Foundation will look closely at formal systems of social auditing and will seek to adopt those practices that will enhance its objective

of e-inclusion for the knowledge society.

5.4   e-Innovation Environment

"The "killer apps" of tomorrow's mobile infocom industry won't be hardware devices or software programmes but social practices. The most far reaching changes will come, as they often do, from the kind of relationships, enterprises, communities, and markets that the infrastructure makes possible."[79]

The previous discussion on scaling-up in the "Stakeholders Involvement" section identified the strategic importance of creating a stimulating environment of rich interactions and joint-learning among organizations and people driving targeted, grass-root processes of ICT-based innovation and e-inclusion. It defined the nature of this environment as *phyrtual*, that is, integrating physical (in the territory) and virtual activities into a single programmatic and flexible framework of activities, learning and change. The Consortium carried out research and development (R&D) on the *phyrtual* environment, advancing significantly in its physical dimension through the structuring of organizational networks and multiple joint-learning activities in the territory. It also made progress in the *virtual* dimension, particularly by using the Moodle e-learning platform and developing "knowledge objects" in the form of survey and assessment tools, and case studies processed at four levels of communication: (i) short videos, (ii) edited collection of short case studies, (iii) deeper level of "standardized" case studies and (iv) in-depth processual analysis of ICT-based educational experiences published in the Consortium/Foundation's series *Quaderni di Pensiero*.

The Foundation continues the Consortium's R&D effort in order to develop in full the strategic potential of the virtual environment. This effort is conducted in close integration with the continuous development of the physical environment, particularly the extension or follow-on of learning activities beyond the Thematic Weeks and other educational programmes. Of course, the follow-on requires a virtual environment to reach maximum effectiveness. In the following, this section examines issues of relevance to the development of the virtual environment in the understanding that the Foundation's focus is on helping to catalyze innovation processes for digital literacy and inclusion. For this reason, the virtual environment is referred to as e-innovation environment.

5.4.1 The rapid evolution of web environments

In just about a decade websites have rapidly evolved from the original pages of information into ever-richer functional environments for relationships, networks, transactions, community-building, etc., with a huge variety of purposes from information-provision, to advocacy, to collaborative working. For instance, Ryze is structured to facilitate the networking of business-oriented people around an open set of categories created by the users themselves. Orkut offers a similar networking environment but its purpose is more general since users can start a community around any topic. MoveOn is structured to facilitate democratic advocacy on a massive scale (2.5 million members). A site structured to create a specific product is, for instance, Wikipedia, the free online encyclopaedia developed by the community contributing both knowledge and inputs to continuously improve the process of collective building of an encyclopaedia. Other sites such as e-Bay offer auction environments, while e-learning sites are seeking to offer complete environments to facilitate the learning processes of subjects, courses, etc. Much closer relationships for a common purpose are found in private collaborative working environments facilitating product design, development, and partnerships along the supply chain right through to customer relationship management. To this category belong those Intranet/Internet environments used by extended enterprises or virtual companies or networks, for instance in the automotive sector and the computer sector (e.g., Dell). The e-innovation environment envisaged

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79   Rheingold (2002), p.xii.

here is to support grass-root processes of innovation focused on digital literacy and inclusion.

5.4.2 Aspects of an e-Innovation environment

The e-innovation environment is conceived to serve the effectiveness of actions on the ground, in the physical world of people's trying to improve themselves and the world though education, innovation and inclusion. In particular, this environment should be freely available to all those working to empower and help improve the lives of excluded people in Rome, Lazio, Italy and the world. It should adhere to principles of open content and free(libre) and open source software with a view to invite others who have relevant expertise and share the concern for innovation, digital literacy and inclusion, to join and contribute to the R&D effort on the e-innovation environment. In this respect, the generation of the e-innovation environment is conceived as a journey, as a long-term evolutionary process seeking to integrate the best facilities and knowledge objects at the reach of the Foundation at any given time.

The structure of an e-Innovation environment is multi-faceted since it is not limited to networking, or academic e-learning, or collaboration in the generation of a technical product, even a mass-movement product such as Wikipedia. As said, its purpose is to support grass-root digital literacy and innovation processes that enhance the quality of people's lives. The realization of such change-oriented environment requires the structuring of multiple aspects. In particular, it requires structuring of:

- online platform with all the required functionalities and content to facilitate the creation and/or improvements of concrete social and educational processes

- flows of human, financial, material (tangible and intangible), time and space resources. Here human resources include not just knowledge and expertise but also reputation, values and feelings such as solidarity, fraternity, equality, compassion, unity, etc.

- strategic thinking, understanding and support of digital literacy and innovation processes, resulting in collaborative strategy-making and resource-finding aimed at enhancing the effectiveness of such processes.

- instrumentalization and operationalization of scientific understanding on the nature of ICT-based innovation processes to facilitate collaborative learning, strategy-making and constituency-building of grass-root processes.

- mechanisms and processes enabling social and educational innovators to both: (i) contribute structured knowledge, lessons and information about the nature and state of development of their processes, and (ii) initiate collaborative strategy-making and constituency-building actions around their processes.

- communities of people capable and willing to provide collaborative support to grass-root processes.

- promotion and exploitation of synergies between the many different grass-root efforts and processes for mutual benefit and for the strengthening of a programmatic movement realizing the scaling-up of good practices

5.4.3 Illustration of a functional e-innovation environment

Figure 19 provides an illustration of a functional e-innovation environment. The process starts with social/educational innovators and leads to target beneficiaries. Thus, people furnish the drive and the purpose in a relationship of continuous interaction and feedback around the characteristics and requirements of concrete digital literacy and innovation processes. The key drivers are the social and educational innovators leading the processes of change. In Figure 19, the "People" arrow on the left of the diagram represents them.

Moving to the right along the central arrow leading to target beneficiaries, the first step (1) sees social innovators entering the e-innovation environment providing information about their process, motives and requests. The main tools used in this step are questionnaires and dialogue boxes.

The second step (2) sees social innovators searching the e-innovation environment for relevant available resources, for example, case studies on similar experiences, other social innovators prepared to play mentoring or supporting roles, information on sources of finance and other resources needed by the innovation project. In more advanced versions, the e-innovation environment will automatically provide customised information on relevant available resources once step (1) is completed. Once available resources are identified, educational and social innovators have the choice to content themselves with what they have, or to use the environment further to work on improving their processes by following the options of (a) *mainly dissemination* in which they have access to facilities of personal profiling, blogging, podcasting as well as document uploading; and (b) *creating a support group* in which they have access to social networking tools such as chat rooms, forums, Wiki, social innovator's agendas of availability, etc. In both cases, the e-innovation environment should provide access or links to productivity and creativity tools such as project management, mind and concept mapping and other tools for knowledge modelling and creativity. The selection and use of these tools may be a matter of individual or group decision.
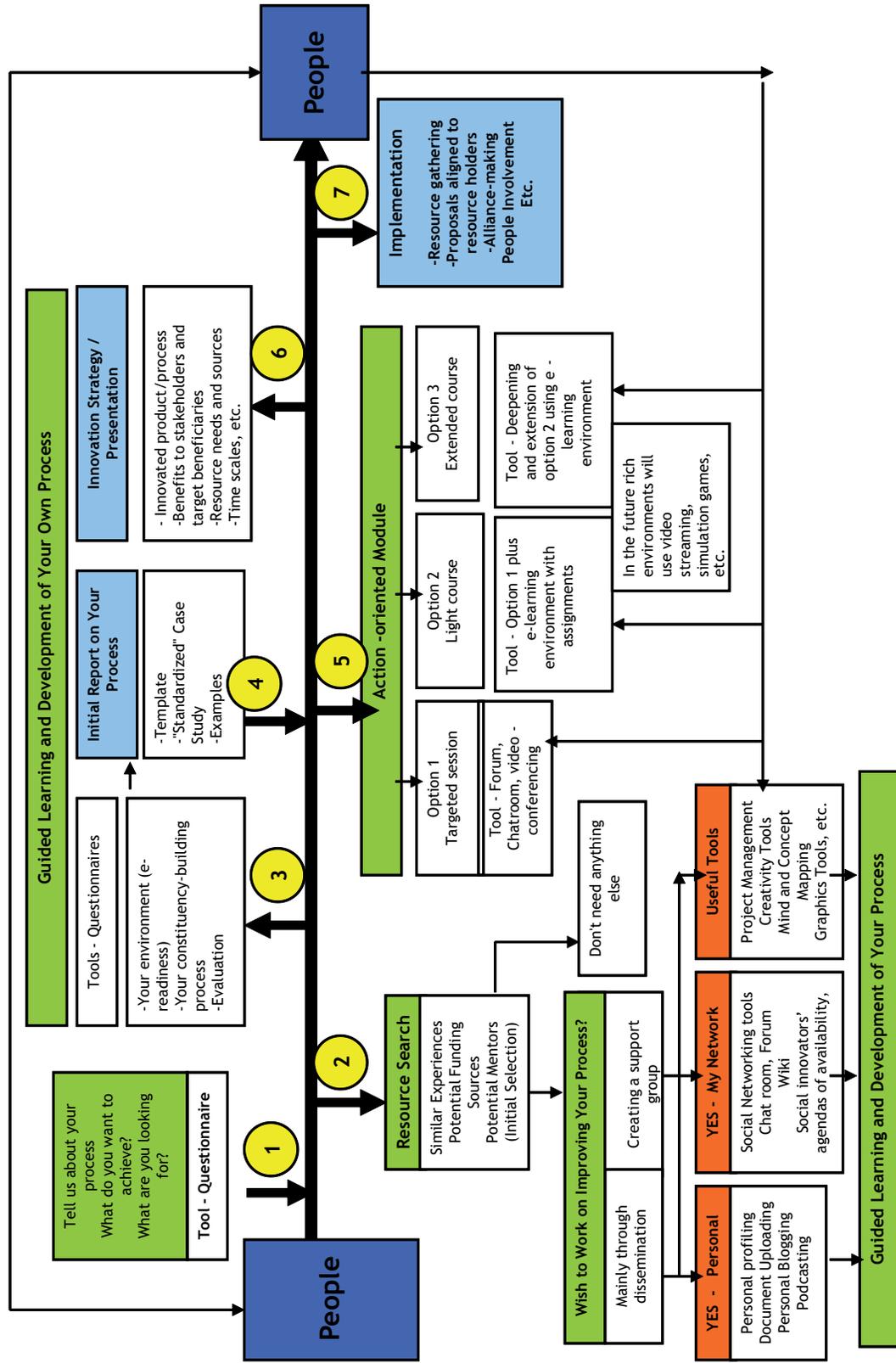
Figure 19. Illustration of a Functional e-Innovation Environment

The steps (3) and (6) see social innovators entering the "guided learning and development" of their innovation processes. Specifically, in step (3), social innovators are guided through questionnaires into a deep exercise of thinking systematically about the environment and the character and state of development of their constituency-building processes, with a resulting strategic evaluation of strengths and weaknesses to be faced to enhance chances of success. This leads to step (4), the generation of an initial strategic report on the social innovator's process following a template of "standardized case study." This "standardized case study" becomes the base for step (5) and joins other cases in the ensemble of knowledge objects making up the e-innovation environment.

In step (5), social innovators have the options of (1) using the "standardized case study" to call for a targeted forum with other social innovators prepared to discuss it with a view to improving the strategic development of the innovation process. The availability of the "standardized case study" facilitates the communication and understanding of the challenges facing the innovation process. The result should be a brief report with the suggestions and recommendations generated by the targeted forum. In option (2), the social innovators implement option (1) along with a short course or study period in which the innovation process becomes the subject of research and follow brief assignments of relevance to improving the understanding of innovation processes. This course of study period may be of one or two weeks depending on time availability. The content of these assignments may be a reflexive exercise on the implication of other experiences for the project and/or analysis of social trends that reinforce the validity of the innovation process. Option (3) deepens and extends the exercise of option (2) in terms of innovation concepts and persuasion arguments based on analysis of trends, state of the art, etc. Again time is flexible but it should aim for a period of a month or so. Online support for this light course activity would be arranged by the Foundation, making use of its contacts with universities and, as the community of social end educational innovators grow, support would also be provided through a peer system.

The previous process should enhance the social and educational innovators' capacity to strategize and mobilize resources for its innovation process with the support of other social innovators and it should lead to step (6) - the formulation of an explicit strategy for the future in a form similar to a "business" or development plan as well as to a well-prepared presentation to communicate the case to stakeholders of importance for the success of the innovation process. Elements of the development plan include product and/or process to be innovated, benefits for stakeholders and particularly for target beneficiaries, resource needs and potential sources, time scales, etc.

Finally, in step (7), social and educational innovators pursue the implementation of the innovation strategy, making use of the enhanced knowledge, support network and resources available in the e-Innovation environment. They can use the new capacities for preparing proposals for potential funders, seek alliances, etc. In addition, as the feedback arrows in Figure 19 show, the process described is the beginning of a continuous learning loop for social innovators who can always re-visit steps, establish new relations and become themselves supporters and mentors of innovation processes led by other social innovators. At all times, as illustrated by the "people" box on the right hand side of Figure 19, the effort to improve the effectiveness of educational and innovation processes leads to fulfil the ultimate goal of improving digital literacy for an inclusive knowledge society.

5.4.4 Collaboration with research and higher education institutions and other knowledge providers

The development of the e-Innovation environment is a long-term process of gradual accumulation of knowledge objects and systematic learning processes to enhance the capacity of social and educational innovators. For the Foundation, the challenge of configuring such environment demands a flexible approach that combines the use of available systems with investments in the development of critical missing elements, preferably in collaborative efforts with other organizations sharing the goal of an inclusive knowledge society. The Consortium/Foundation has started the development of knowledge objects in the form of four-layers of good-practice cases, questionnaires, evaluations, etc. This area is appropriate for collaboration with research and higher education institutions, particularly with those active in the fields of innovation, education and inclusion. The knowledge and learning processes of the envisaged e-innovation environment should prove a valuable resource for these institutions, offering a channel for students to learn about practical innovation processes with an integral component of social responsibility and a vision of a better world in the inclusive knowledge society.

The Foundation will pursue the formation of alliances around knowledge and learning activities of mutual benefit. For instance, it is possible to explore the creation of a joint research programme with grants for young social innovators to enhance their leadership capacities. As part of the research programme, they would contribute to improve concrete innovation processes while generating content for the e-innovation environment. The research would be under the supervision of academics and would lead to the achievement of an academic qualification at postgraduate level. In time, these social innovators would be able to support other social innovators working in poor areas of the world, for instance, by helping with the development plans requested to the winners of the Small Fund Award of the Global Junior Challenge.

Furthermore, as mentioned above in step (5) of the e-Innovation environment, research and higher education institutions can play a role in helping support light course activity associated with specific innovation processes. This light support activity can be integrated in educational programmes. For instance, it can be offered as assignments in postgraduate programmes seeking to imbue values of corporate social responsibility or, simply, social responsibility. In time, it is possible to think of the formulation of an online M.Sc programme for social and educational innovators that could be made available as open content to any institution of higher education in the world. Each institution would be able to adapt it to its own reality and all those adopting it would become part of a learning community for an inclusive knowledge society. Some of these ideas have already been mentioned in preliminary conversations with universities in Italy and the UK and it is clear that they constitute a promising avenue of collaboration for the future of the Foundation.

Looking back at this document, it is clear that the Consortium/Foundation has achieved a great deal in its first five years of existence. Above all, it has created the potential for deepening and scaling up the achievements and impact of its activities. Certainly, the ambition to contribute to an inclusive knowledge society and serving our fellow human beings at risk of exclusion represents a strong challenge. The Foundation has taken this challenge, looking forward to it with the strength of its experience and convictions and a passionate belief that a better world is possible. The Foundation is thankful to all those organizations that have made it possible to arrive to this point, and invite many others to travel together the journey delineated in this vision in the making.

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APPENDIX 1

Creativity Index in the Province of Rome - 2001					
Index	Year	Value	Ranking	Reference within Italy	Europe
Creativity (overall)			1	2nd Milano 3rd Bologna	
Talent			1	2nd Trieste 3rd Genova	
Creative Class[a]	2001	24.62 %	1	2nd Genova (23.99%) 3rd Trieste (23.63%)	Stockholm 45.75%
Human Capital[b] % pop. with univ degree	2001	11.62	1	2nd Bologna 3rd Milano	Edinburgh 29.40% London 29.29 %
Researchers[c] (per 1000 workers)	2001	15.37	1	2nd Trieste 3rd Genova	
Proportion of researcher In the private sector (%)	2001	12.19	-	Trieste 58 Torino 80.16	
Proportion of researchers in the public sector (%)	2001	87.81	-	Trieste 42 Torino 19.84	
Technology			4	1st Milano 2nd Bologna	
Hi-tech[d]	2001		5	1st Milano 2nd Torino	
Innovation[e] (patents per 10,000 inhab)	2001-2003		17	1st Bologna (26.16) 2nd Milano (22.19)	
Connectivity[f]	2004		6	1st Trieste 2nd Livorno	
Tolerance[g]			1	2nd Milano 3rd Firenze	
Integration	2001		12	1st Rimini 2nd Bolzano	
Diversity	2001		1	2nd Prato 3rd Milano	
Gay	2004		4	1st Bologna 2nd Pisa	

a. The creative clas includes the following professions: entrepreneurs, public and private directors, managers, researchers, professionals (lawyers, accountants, architects, engineers, medics, etc.), highly specialized technical and artistic professions.
b. Percentage of population having a university degree (i.e., laurea or diploma).
c. Percentage of researchers employed in the private sector and the public sector (universities and research centres) over the total employed population.
d. Hardware and physical products, software and services and telecommunications and audio-visual
e. Patents
f. ADSL and UMTS coverage
g. "Tolerance" assesses the degree of foreign presence as well as its diversity (based on country of origin), level of education, uprooting and integration in the territory through marriage, family and children's schooling. (Tinagli and Florida, 2005, p.10)
Source. Based on data found in Tinagli and Florida (2005)

APPENDIX 2

PARTICIPANTS TO "SEARCHING AND ENCOURAGING SYNERGIES AND COMMITMENT FOR A GLOBAL E-INCLUSION MOVEMENT" WORKSHOP, ROME 11-12 DECEMBER 2002	
Youth Participants	*SENIOR PARTICIPANTS*
African Youth Parliament	Bytes-for-All
AnimaFac	CEPAL Comisiòn Econòmica para América Latina
Association International des Etudiants en Sciences	Converge Magazine
Economiques et Commerciales	Development Alternatives,TARAhaat
Café Babel	Development Gateway
European Law Student Association	Digital Vision Fellowship, Stanford University
European Union Student Council	International Federation of Multimedia Associations
European Youth Forum	(FIAM)
Generation Europe	Glocal Forum
Glocal Youth Parliament	Government Technology Magazine
GOAL ITC Kenya	IICD
International Association of Political Science Students	Information Society Development Office (Egypt)
International Council for National Youth Policy	Information Technology for Development Division
International Cultural Youth Exchange	(SDS/ICT), IABD
International Federation of Red Cross and Red	Institute of the Information Society (Russia)
Crescent Societies	MIT-Global Knowledge Net
Junior Journal	MitraMandal Challenge
Oxfam IYP	OneWorld
Southern Youth Forum	Oxfam
Student Action India	Stockholm Challenge
Student International Exchange Network	TechMuseum Award
TakingITGlobal	TEN (Tech Empowerment Network)
Unesco Youth Unit	UAE Educational IT Challenge
United Nation Youth Foundation	UNITes
World Assembly of Youth	Members of the Jury
World Youth Alliance	
World Youth Service and Enterprise International	
Youth Action Net	
Youth for Inter-Generational Justice and Sustainability	

APPENDIX 3

Set of Working Questions for Senior and Youth Workshops

Senior Workshop:

- Is it important to search and exploit the synergies existing between digital-divide multiplier organisations in order to enhance collective impact and give stronger force and visibility to the global digital-divide social movement? What would be the gains?

- If the answer to question (1) is yes, what are the concrete areas (at least five) and targets where it would be possible to join forces and work together to enhance impact? Who else we should invite to join in?

- What are the most effective practices and mechanisms to realise the collaboration and achieve the concrete targets identified in question (2)?

- What are the key tasks and timeline to be fulfilled following the meeting? Who are the organisations responsible for their success?

Youth Workshop:

- How can the Youth movement contribute to bridging the Digital Divide?

- What is a Global e-Inclusion Movement? How can Youth contribute to building it up?

- How can youth organisations and ideas influence multiplier "senior" organisations in order to achieve collective and efficient results in creating the Global e-Inclusion Movement?

- What actions can we implement as youth leaders? How can we collaborate with the "seniors"?

THE AUTHOR

Alfonso Molina is Professor of Technology Strategy at the University of Edinburgh (UK) and has provided the scientific direction to the development of the Digital Youth Consortium, recently transformed into the Fondazione Mondo Digitale in Italy.

Alfonso's research interests focus on theories of innovation and technology management and strategy, particularly on his *sociotechnical constituencies* approach, applied to understand and inform the strategic development of a variety of information and communication technologies and processes of industrial cluster-building. A particular interest has been to transform this academic theorisation into instruments of practical application for technology strategies. These include the "diamond of alignment," "evolving business plans," "evolving bottom-up roadmapping," "real-time evaluation methodology" and "dynamic strategy mapping."

Alfonso has worked on numerous occasions as advisor and consultant for various directorates of the European Community and has published numerous books, papers and reports on areas such as microprocessors, multimedia newspapers, information society, e-commerce for public administrations, technologies for major business and work challenges, models for extended enterprises, regional cluster-building, evaluation of entrepreneurship networks, Internet tourism, e-banking development, free/libre and open source software for e-government, ICT-based educational innovation and sustainable enterprises for e-inclusion. Alfonso also designed the original strategy for the Global Cities Dialogue, including the writing of its Helsinki Declaration now signed by over 180 cities from all over the world. He has worked with the cities of Rome, Stockholm and Edinburgh and he is former Chairman of the international juries of the Stockholm Challenge Award and the European Citizenship for All Award run by Telecities and Deloitte and Touche; and present Chairman of the international jury of Rome's Global Junior Challenge.