



THE NETWORK
OF MAJOR
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CITIES



COMUNE DI BOLOGNA

Candidature of the City of Bologna

Knowledge Society Forum – Telecities

Chair

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1. OUR VISION

1.1 A new phase for ICT in the cities

The steady increase of opportunities offered by the ICT sector represents a clear motivation for the interest of local public administrations.

For European cities ICT innovation may represent a way to overcome the boundaries of modern urban aggregations, to find new models for the provision of services, to build relations between the citizens and public administration, to improve the sense of community.

The interest of cities for ICT witnessed a great expansion when the World Wide Web was created and as a consequence of the extraordinary spread of the use of the Internet among the wider public at the beginning of the '90s. It is thus not by chance that Telecities was founded in 1993.

The use of the Internet as a new media available for citizens has been the drive of experimentations at first and, afterwards, of concrete applications for an advanced use of ICT in cities. This has subsequently become the main focus of Telecities network and more recently of EURO CITIES Knowledge Society Forum, promoting an intense exchange of experience and a growing awareness of cities with regard to such a future-projected sector.

However, ten years from then, we need to recognise that we are now beyond that first phase and we are clearly approaching a different stage. This can be seen in at least three aspects.

The first concerns the access to the Internet and to technologies, which does not currently consist simply in a rushing and uncontrolled growth of possibilities. Today's key issues are the definition of access standards so as to overcome discrimination and the digital divide, the clear definition of the rights of citizens in the information society - that have already been addressed by the Knowledge Society Forum - Telecities in the Charter of eRights. Also the choice of the most suitable network connection architecture - among the many available - not only by considering the speed of data transfers but also by taking into account the different aspects at stake such as the consequences on applications, economic sustainability and health-related issues.

The second aspect regards all the applications that we can by now define mature: these are the ones on which all the cities have been working, like for instance civic networks or online public services. Generally these applications already existed in different forms before and have afterwards been transposed into the new world of the Internet. They have been adapted to the new context or they were relatively simple applications that were immediately realisable when the Internet became available. On this group of applications we are now in the position to draw conclusions, making evaluations and comparisons allowing us to identify the best characteristics in the various experiences that are worth extending. At the same time, by working together, we

need to identify the lines of further development so as to concentrate investments in a common direction.

The third and last aspect is instead related to the new frontiers, the emerging applications that are going to be developed in order to provide adequate responses to the challenges of the future. These are those applications that, for different reasons, couldn't be fully developed up to now and that on the contrary have a strategic relevance for the cities of the future. Suffice it to think of the automatic analysis of moving images and its strategic importance for security in cities, that already now witness the wide dissemination of video cameras: they will remain largely under-utilised until when it will be possible to delegate the vision and identification of potentially risky situations to automatic software. Nevertheless, new frontiers do not only involve those application sectors that are still waiting for decisive technological progress, but also those where the basic technology is already largely available but where social and organisational aspects still have to be properly addressed. An example could be the eCare and eHealth sectors that can't only be faced as a technological issue. On the contrary, we need to identify a solution that involves all social aspects and where technology is a support to the network of relations among individuals so as to redefine the organisational aspects. More generally the keystone for new frontiers is a multidisciplinary approach, allowing ICT experts to drop the sheer internal debate on very technical issues and open the dialogue with specialists from different sectors like urban planning, mobility, economy, social affairs and health, where ICT still have to provide a crucial contribution necessary for the future model of the city. Moreover, the evolution of technologies need to be of course followed closely, especially those from which cities can particularly benefit like, to provide only two examples, wireless access and sensors to be applied in many different fields.

Clearly, recognising this shift to a new phase, not only requires a redefinition of the agenda and of the issues to be addressed within EUROCIITIES Knowledge Society Forum – Telecities, but also a deeper reflection that should involve a redefinition of relations with the ICT industry and the academia, as well as new methodologies of work and of relation with the other EUROCIITIES Forums and defining new objectives to be achieved.

1.2 A new pace for Eurocities KSF-T

It is therefore worth opening within the Forum a reflection to reconsider the themes to be addressed. Some examples were outlined in the considerations mentioned above, but of course they don't involve the whole range of possibilities.

Clearly, the issues of eRights and eDemocracy need to be further developed, widening the range of action in the aforementioned direction.

As regards mature applications a process of convergence should be brought forward with respect to the existing experiences, in order to define their future development in a participated way. From this perspective one of the objectives could be to reach forms of integration and

development of platforms shared by a certain number of cities, with common projects, not necessarily linked to EU funding but as a result of a real convergence of ideas. If this convergence exists and is real it can and has to bring us to shared products and platforms.

As far as emerging applications are concerned it is clear that the priority should go to the testing ability, but with a real multidisciplinary approach, open to interaction with experts from the different sectors on which we think ICT can represent an opportunity and a qualitative leap. Within EUROCITIES this means seeking modes of co-operation with other Forums, hopefully foreseeing joint meetings or at least links and relations among Working Groups.

Concerning the working methods, further possibilities both related to meetings and group work as well as to other aspects need to be considered. As already proposed within the framework of the ongoing discussion on how to make Forum functioning more effective, periodical meetings could foresee a different structuring, in addition to the mere speeches. They could include round tables in which to develop a real debate, or contributions in the form of interviews, if possible preceded by an in-depth study of the subject that the interviewer - coming from a different city - could do in advance. In this way he/she would be able to address questions and animate the debate. Also different means could be envisaged to make contributions more lively and interesting. Apart from meetings, different ways of realising surveys could be defined, together with the creation of databases allowing the comparison of experiences. Furthermore, presentations and up-to-date communication tools could be developed, coherently with the themes the Forum intends to address.

Finally, the reflection could appropriately regard also the ICT-related companies that are often asked to make presentations during the periodical conferences, as well as – even though in a different way – the contributions coming from the academia and research sector. The competencies matured inside the cities as well as within Telecities at first and currently KSF, allow us to schedule presentations in which experts from the private sector and the academia do not simply tell us about their vision of ICT in cities anymore. On the contrary, it is desirable that they are called to respond to questions and priorities that are autonomously elaborated and proposed by cities. This means they should measure themselves with potential customers/partners that have set off their experiences and can now face more thoroughly and competently the challenges of the future.

All this does not mean to be an already defined programme for the future activities of EUROCITIES Knowledge Society Forum – Telecities, but simply the base for the discussion that Bologna intends to propose within the Forum. This will allow us to define, afterwards, priorities, themes and working methods that we are going to share in the coming activity.

2. ICT EXCELLENCE IN BOLOGNA

2.1 City's background

Bologna, located in the north of Italy, ranks seventh in the country as regards the number of inhabitants (almost 400,000) and sixth for economic importance. The metropolitan area of Bologna (more than 900,000 inhabitants) ranks second after Milan as regards quality of life.

Bologna is the administrative capital and main city of the Emilia-Romagna Region; it is also one of the most important nodes of communication in Italy (railways, roadways and telecommunications). Alongside its strong commercial and entrepreneurial tradition, Bologna has always been a city of "teachers and students", earning the nickname "La Dotta" (the Learned).

Bologna is the home of the oldest University in Europe and among the oldest in the world, founded in 1088. Bologna's rich cultural heritage can be seen in its 43 museums, 14 theatres, 50 cinemas, and more than 200 libraries. The emphasis on the city's cultural offerings and its artistic heritage should not overshadow the fact that Bologna is also a global and cosmopolitan city. Alongside its cultural tradition, Bologna is a commercial city: it is one of the most important business centres in Northern Italy, oriented towards international markets and exports, and it has one of Europe's leading exhibition centres, hosting every year around 27 trade fairs, 22 of them world leading international events.

Bologna was also the home of Guglielmo Marconi, the pioneer of wireless: he was born in 1874 and carried out his first experiments in Villa Griffone set in beautiful grounds less than 10 miles from the centre of the city. It was in the attic of this seventeenth century villa that as a teenager Guglielmo Marconi worked on his invention of a practical system for sending messages by wireless telegraphy. After his first successful experiments Marconi decided to move to England; in London Marconi brought his vision and his determination to develop his invention both from a technical and commercial point of view. Between 1896 and 1897 he applied for a patent, founded a company, and gave important demonstrations of his system that caused a sensation and made him a celebrity.

When he was only 21, he initiated a true revolution in telecommunications and dedicated his entire career to the development of the radio, combining scientific skills, entrepreneurial qualities, great intuition and extraordinary determination. During his long career Marconi was celebrated as a living symbol of wireless on dozens of occasions: the most prestigious moment was certainly the award of the Nobel Prize for Physics which he shared in 1909 with the German scientist Karl Ferdinand Braun.

Bologna is also known as a "digital city", since the Municipality has always been open to the use of the most advanced information and communication means both in the administrative and organisational action as well as in the relation with citizens and the local community.

The Municipality is characterised by a number of high level individual services, a strong commitment for administrative simplification and the constant efforts made to improve the relation with citizens. A process was started which made Bologna able to be at the forefront regarding the telematic penetration and distribution of public services.

The plan for a "digital Bologna" was launched in order to further improve the results already achieved, by pursuing the objective of delivering as much as possible information, services and documents issued by the Municipality - registrations, tax and service fee payments, certificates, permits and licenses - at citizens' homes or nearby, through the use of as much as possible new technologies potential, first of all the Internet and other networks.

Through the last ten years, the Municipality of Bologna has been constantly focusing its government action towards a considerable increase in the use of new networking technologies for the distribution of information and service delivery to citizens, enterprises, professionals and the organised civil society.

In addition to the participation in Eurocities' activities (see chapter 3), Bologna is also member of some other European and international thematic Networks of Cities like ICLEI (International Council for Local Environmental Initiatives), Educating Cities, the UNESCO Global Alliance for Cultural Diversity, the European Coalition against Racism and Xenophobia, Educating Cities and the Healthy Cities Network. In all these contexts, the City of Bologna is involved in many different activities, as best practice sharing, development of common projects, participation in conferences, workshops and round tables.

With reference to Bologna's candidature as KSF-Telecities Chair, it is worth mentioning that the City of Bologna is part of the European WHO Healthy Cities Network¹ and, in the person of its Deputy Mayor for Health and Communication, is Chair of the Italian section² of WHO Healthy Cities Network. This shares the interest with KSF-Telecities as regards the issues related to eCare and eHealth.

The Italian Network, created in 1995 as a healthy municipalities movement, gathers today 130 Italian Municipalities and aims to reassert the role and the political commitment of the municipalities in promoting health and developing the Healthy Cities movement at the local and national level.

¹ www.euro.who.int/healthy-cities

² www.retecittasane.it

WHO appointed Bologna as "Project City", which means that it is one of the six Italian cities called to experiment new project methods developed by the European Network.

The Presidency of Bologna is also committed to promote and implement intersectional actions and initiatives aimed at safeguarding public health, safety, social solidarity and environmental standards, to raise individual awareness about healthy life styles and to support all the activities of its health stakeholders, as non governmental organizations, Public Administrations, Professional Orders, private Associations, Workers' and Volunteer Associations, Health Boards and Universities. The City of Bologna is currently working on the implementation of the activities envisaged for the Phase IV of the Healthy Cities Project.

As regards eParticipation, Iperbole, the civic network of Bologna Municipality, pursues the development of eDemocracy, administrative transparency, the right to information, distribution of services, interactivity with citizens for their participation in the decision-making processes, as a necessary condition for the renewal of public institutions.

2.2 Iperbole Civic Network - www.comune.bologna.it

Bologna is one of the most advanced cities in Italy in the area of electronic contacts between the citizens and their administration.

Iperbole - the portal of the Municipality - was set up in January 1995 as a «telematic bridge» between the virtual community (at that time just starting to create) and the real city in order to build a «digital information society at local level». Since the beginning, when connections were still very costly, free Internet access and e-mail accounts were provided to residents, and in the following 12 years of activity Iperbole continuously promoted new services. It is now a still ongoing project/service employing the Internet to open a public doorway to the connectivity and to state a leading role for local Public Administration in the promotion of an equal and "aware" information and knowledge society.

The service is characterised by two main features: Iperbole users ("iperbolians"- iperboliani) and the site/portal of the Municipality. The Municipality offers all residents for free, as public internet services provider: access to the Internet, the use of electronic mail and newsgroups, and several other specific services for subscribers. During these 12 years of activities projects, policies and services were promoted aimed at improving social cohesion, local development, e-participation and equal opportunities to ICT access and - at the same time - a concrete and innovative model for an integrated portal rich in resources available for all the territory, both urban and metropolitan.

Iperbole's goal is also to move from a "hierarchical" and complex administration's organisation to a citizens-oriented one and to increase the efficiency and quality of the services offered by the Municipality. The implementation of the "Digital City" project has had since its starting point

several positive consequences on the economic and social life of the city as well as on its culture in the widest sense.

Iperbole's strategy is built along four main lines:

- simplify language and administrative procedures for citizens;
- facilitate the back-office reshaping and contents flow to different front offices, both virtual and phisical;
- improve the development of information and communication technologies for the local community and its non profit bodies;
- improve interactive communication and e-participation.

2.3 eActions of the City of Bologna

Aware that technologies move fast, the City of Bologna has continuously developed new online services for citizens, keeping up-to-date with the new opportunities offered by technological innovations. A turning point has been reached and we intend to follow the new route both through experimentations in the field of electronic democracy and in innovative services provision. Our aim is to help the inhabitants of Bologna to become active partners of the city and the public administration.

Our path toward eDemocracy is based on the experimentation of the following key elements:

- publication of documents and official regulations on "Iperbole" with summaries
- glossaries and simplified language
- virtual space and forums, self-managed by candidates and parties during the pre-elections time
- network of free Internet access points (attended and not) and training opportunities
- e-participation processes policies and actions

In fact, the issue of e-democracy seems to show an increasing "perspective shift" by the public administrations, which are moving over from the quite complex delivery of services to the crucial phase of interaction and knowledge sharing with the community, and from debate and dialogue to the capacity to "listen". "Good government" must give priority to the needs of the users, meaning all the actors involved at any level (citizens, private individuals, public bodies, NGOs, etc.) in interaction with the Public Administration. Being tuned in with the town is the foundation for receiving and correctly interpreting needs and expectations and a particular commitment is devoted to the e-participation processes (co-decision making). Along these lines of actions, the Municipality of Bologna has opened the participation processes to several initiatives as:

- the consultation on the plan of mobile and wireless aeriels' stations location in the city,
- the consultation on the new master plan for the city,
- the review of the municipal regulation system for the support of civil society bodies,

- consultations in different city districts about the new plans (topics: environment, culture, mobility, urban planning, etc.) brought on together with citizens, communities and associations, through some so called "laboratories", a kind of "participative and creative platform" on the proposed projects
- a consultation on the the regulations for the management of the "sport plants and resorts system".

The processes happens both physical and electronical, through on-line forums and e-mail but also through on-site meetings and seminars.

In Bologna – thanks to a stimulating, mature and reacting community – e-democracy and participation activities have been often contributed by many citizens, singularly or in associations. So electronic democracy should be considered in practice as the participation in the entire decision-making process - and therefore not merely as an "e-vote" - down to the validation and community control over decisions being made.

The future development can be summed up as the technological improvement of the tools of democracy, combined with greater participation by citizens and voice-processing tools applied to the resources of the Web, also within the framework of European projects.

Bologna City administration is focusing its government action towards a considerable increase in the use of the new networking technologies for distributing information and delivering services, addressed to the citizens, to the enterprises, to professionals and to the organised civil society and also to those people who are running the risk to be excluded from the electronic citizenship society by age, gender, financial, cultural and social condition.

Some relevant examples of this work are the design of innovative projects in co-operation with the rich and various networks of associations acting at grassroots level (district laboratories) or the improvement of the web site in compliance to the accessibility and usability rules.

Also the new public access points for disabled people in the Iperbole front office area and in public places and the new communication and production models for ICT applications and processes «gender-oriented» in collaboration with women associations are part of the action oriented to the future.

Finally, among the future projects mention should be made of policies and actions in favour of «telematic and e-citizenship inclusion» of new citizens (migrants) and their communities.

Web accessibility. The new Italian Law n° 4/2004 is the first European law granting web-based applications accessibility for all Public Administration web sites. It is much stricter than the U.S.A. Law 508 or WAI/W3C "AAA" standard. Both objectiveness (i.e. 22 topics are identified) and subjectiveness (i.e. experts) in evaluating accessibility are met. The Municipality of Bologna is investing resources in order to implement this innovative legislation.

In these years the Municipality of Bologna has been carrying out an e-literacy programme, providing training on new technologies and on the opportunities – in terms of information, services, interactivity – offered by Iperbole civic network and by the Internet, an action tailored to fit different targets, needs and expectations. There are over 250 public Internet access points available in town, distributed in libraries and other public places in town.

The Municipality of Bologna participated in the past and is still part of some European projects devoted to computer literacy for specific targets, held to be at risk in terms of digital marginalization. Some examples: the research and development project called Senior Online and its continuation, Senior Online Ten Telecom, to involve elderly people and also the so-called «typewriters generation», through the publication of a dedicated website and of a users' manual for facilitated access to the Internet; the Netizens and Leonardo-Exchange of Skills projects to provide voluntary associations, and the third sector in general, a first facilitated and «protected» access to the net, as providers of information and services regarding their own activities, but also in order to get to know and to co-ordinate with each other in a new and environment rich of opportunities; the e-Government Guide for Senior Citizens project aims at fostering a better quality of life for senior citizens through dedicated e-government offers created according to their needs and trained e-government guides who accompany elderly people during the learning processes. The result of the project is a manual with guidelines for the composition of relevant senior e-government applications and a curriculum for the purposes of training e-government guides.

Moreover the Municipality of Bologna is focusing on the development of many projects regarding innovative services.

Broadband access: the aim is to create a metropolitan broadband infrastructure, sharing efforts with other Public Bodies reached by the network. A Fibre Optics Metropolitan Area Network (MAN) is being deployed in order to cover the whole city of Bologna. The project is chaired by the Emilia Romagna Region, with the participation of other partners, such as the Municipality of Bologna, the Province of Bologna, the Health Care Centre and Bologna University. The secondary connections with 16 fibre optics cables, in charge of other partners. This project will foster the broadband access to innovative and band-consuming services from every work places (61), offices, libraries, districts, etc. of the Municipality. This will also be a test-bed for experimenting Voice over the IP services for mobile workers.

In the Wireless access area, a public Wi-Fi hotspot (point-multipoint) with multiple access points is placed at the Municipality Front Office. It provides free of charge wireless broadband Internet connection for tourists and occasional visitors at the Municipal Office in Piazza Maggiore – Bologna's main square. The network supports IEEE 802.11b/g (up to 54 Mbps) and is intended to

extend the current PIAP (*Public Internet Access Points*) capability at the Municipality front desk. It enables free Internet access for laptops & PDAs.

An infrastructure Wi-Fi Mesh Network (multipoint-multipoint), covering a wide area of the city centre of Bologna has been activated. Access is free of charge for registered users (Iperbole Civic Network subscribers: residents, students & professors). This is an experimental service with a Wi-Fi Mesh backbone and Wi-Fi access. This brand new "Wireless Iperbole" is providing free wireless Internet access and VoIP for registered users. After a trial period, scalability and performances will be evaluated, in order to cover the whole city centre. This project is intended to boost the impact of the Civic Network and foster the bridging of the digital divide in town and in the metropolitan area.

A Wi-Fi Mesh hotzone is foreseen in a formerly manufacturing area, now converted into a new Cultural and University district in Bologna. Firstly, it will grant wireless access to municipal services only to municipal workers, with services like traffic congestion analysis, video surveillance, police network support, wireless parking meter managing. Secondly, it should provide free web access to Iperbole Civic Network for students and professors. The infrastructure will consist in 5 Mesh Access Points and 5 IP Video-cameras with zoom and tilt capability.

The Municipality is also planning to establish a network of wired and wireless videocameras, to monitor construction sites. The aim is to control those building sites, increasing both the surveillance and the safety of workers.

Mobile services on 2G mobile phones (covering almost all Italian people from 12 years old) is the solid basis for existing or trial mobile services in town, such as:

M-Library: SMS to inform on books / video / cd availability, to remind the status of books hiring (i.e. expiring of due dates) .

M-info: Request of information on specific subjects: exhibitions, open chemistries, circulation restrictions;

M-bus: arrival time of buses at a given stop, bus timetable, public local transport information.

Since the elderly population is rapidly increasing in our cities, many efforts are foreseen in order to allow them to move safely and freely in the city, being able to call for assistance at any moment, to be automatically localised in case of need or absence of contact, to get any kind of information (vocal, visual and written). In urban areas, where UMTS coverage is full, the approach is to use 3G devices and services.

Finally, the Municipality is providing IT services for disabled people, focusing on existing technologies to support specific skills. The Internet user accessibility is being stressed, according to the Italian law on this matter; providing collaborative and interactive support for internet

application (VoIP, chat, videoconferencing) and installing RF-ID tags or other wireless devices to identify obstacles for blind people (like "Portici" , the arcades in Bologna), red traffic lights, etc.

As regards enterprise resource integration a project was started at the end of 2004, introducing a brand new enterprise multi-channel Intranet portal, in order to enhance internal communication and consolidate enterprise knowledge. It is provided with a Natural Language search engine on-board, identity management (with Single Sign On), collaborative applications (i.e. chat, videoconferencing, SMS) and advanced Content Management System. This is the one-system to connect legacy applications (i.e. mainframe) and web-based applications in a user-friendly environment. In the long run, the Intranet network is meant to be integrated with the ERP system and the GIS system, as a unique framework for enterprise applications.

In the field of Digital Terrestrial Television the Municipality of Bologna is now experimenting information delivery and "interactive" services also through the Digital Terrestrial Television (DTT) channels: a new "converging" medium in order to reach also those citizens that do not use the web.

The National co-funded multi-partner CASPER-LEPIDA TV project is experimenting access to DTT services in the Emilia Romagna Region (max 1 Mbps downstream).

The objectives are to experiment access to up to ten existing web-services, like the School portal (information and goals for tenders) of the Municipality of Bologna, Health Care personal information, traffic situation and weather forecasts.

2.4 The University of Bologna

The University of Bologna, founded in 1088, was the first University in the Western world.

Following the Industrial Revolution, the University promoted scientific and technological development. In this period came the studies of Luigi Galvani who, along with Alessandro Volta, Benjamin Franklin and Henry Cavendish, was one of the founders of modern electrotechnical studies.

Today the University of Bologna is made up by 24 Faculties and 70 Departments; among the Departments teaching and research come together in order to promote the scientific activities and the research projects.

It has about 100 000 students (4000 of which come from foreign Countries) in its main seat, at the centre of Bologna, and in the four other campus distributed in the cities of Forlì, Rimini, Cesena and Ravenna.

Thanks to the international exchange programmes, such as Socrates-Erasmus, Leonardo or Overseas, the University of Bologna attracts every year many foreign students and many travel every year to foreign universities.

The University of Bologna offers a wide range of Master schools, and some of them are strictly related with the themes of KSF-T. It is the case, for example, of the Masters in Free and Open Source Software Technologies, in Management of I.T. for Public Administrations, in Biostatistics, in Intellectual Property, in Management and Innovation Technologies and in Wireless and Mobile Television³.

Moreover, some Departments of the University of Bologna have a specific focus on Communication and ICT and have developed researches and projects in these domains.

The **Department of Communication Disciplines**⁴, one of the most recent departments created within the University of Bologna, has a strongly multidisciplinary approach and it is one of the most developed research centres at the international level, mainly thanks to the direction of Umberto Eco's High School of Humanistic Studies, the institution that coordinates the research area. Its members are specialised in the fields of semiotics, sociology, geography, and psychology, and their research area focuses especially on theories and systems of communication, mass media, public communication, conversation analysis, epistemology of geography, cultural studies, political communication, new media, spatial aspects of communication, public opinion, fashion, social communication, philosophy of language, interpersonal relationships, consumer behaviour, linguistics.

The **Department of Computer Science (DSI)**⁵ was founded with the aim to promote and develop the research activities in the field of computer sciences and technologies.

The DSI areas of interest span from theoretical studies, focused on the methodologies for information representation, elaboration and communication, to the experimentation of new technologies developed in the computer science field. The Department is involved in numerous research projects funded by the European Commission, as DELIS (Dynamically Evolving, Large Scale Information Systems), BISON (Biology-Inspired techniques for Self Organization in dynamic Networks), ADAPT (Middleware Technologies for Adaptive and Composable Distributed Components), MKM-Net (Mathematical Knowledge Management Network), TAPAS (Trusted and QoS-Aware Provision of Application Services), MOWGLI (Mathematics on the Web: Get it by Logic and Interfaces), COORDINA (Linguistic Support for Multiple Cooperating Agents), CONFER (CONcurrency and Functions: Evaluation and Reduction), BROADCAST (Large-Scale Distributed Systems), PageSpace (Using coordination for active pages in the Web), CaberNet (Distributed Computing Systems Architectures), RENOIR (Requirements Engineering) and ToolIP (Tools and Methods for IP).

3 A complete list of the Masters instituted by the Bologna University can be found at the following web page: www.unibo.it/Portale/Offerta+formativa/Master/Master+Universitari/default.htm

4 www.dsc.unibo.it

5 www.cs.unibo.it

The DSI is also partner in several projects funded by the Italian Ministry of Education, University and Research as well as by companies active in the field of Information and Communication Technologies.

The **Department of Electronics, Computer Sciences and Systems (DEIS)**⁶ was established as the outcome of the merge between the two former Institutes of Automatic Systems and Electronics of the School of Engineering. It has sites in Bologna, Cesena and Forlì.

The research and educational activities at DEIS involve the following main fields: automatics, biomedical engineering, computer science, electromagnetic fields, electronics, operations research and telecommunications.

DEIS is currently involved in many international projects funded by the European Union, and in several national projects funded by CNR (National Research Council) and MIUR (Italian Ministry for University and Research). These funds represent the 50% of DEIS's total income. Concerning the European projects, DEIS participation to the following ones is worth mentioning: ERNET (European Robotics NETwork), EUROFORM (European Association of Universities and Firms), PRO-COM (Project Prometheus Eureka), EEC(Development of an Integrated European system for Biomedical Equipment Assessment and Management), EEC-AIM (Advanced Informatics in Medicine), COMPULOG NET (Network of Excellence in Computational Logic), CEE CRAFT (Project Paint Manufacturing), HCM network on "Molecular Dynamics" and SATIN (IP-based packet mode on the Satellite Universal Mobile Telecommunication System (S-UMTS) design).

The DEIS is also involved in several national and international academic bilateral projects and programmes with Switzerland, U.S.A. as well as the University of Leuven (Belgium).

During 2002, more than 160 papers written by DEIS researchers appeared in International journals, while more that 200 papers have been presented at conferences world-wide. Several International conferences have also been directly organised by the structure itself. The application for some industrial patents is a further confirmation of the achieved scientific results. Finally, research contracts with important private and public companies represent a further relevant source of funding.

2.5 Public or participated ICT agencies

CINECA

CINECA⁷ is a non profit Inter-university Consortium, set up by 27 Italian universities, the CNR (National Research Centre) and the Ministry of the University and Research.

Founded in 1969, today it is the largest Italian computing centre, one of the most important at the European and world level.

⁶ www.deis.unibo.it

⁷ www.cineca.it

It operates in the technological transfer sector through high performance scientific computing, the management and development of networks and web-based services, and the development of complex information systems for treating large amounts of data. It also develops advanced IT applications and services, acting like a connection between the academic world, the sphere of pure research and the world of industry and Public Administration.

CINECA has a double mission: first of all, it offers support to the research activities of the scientific community through supercomputing and its applications. It has a computing environment with the maximum in available architectures and technologies and has very advanced hardware resources. Its specialised personnel is highly qualified and assists researchers in the use of the technological infrastructure in both the academic and industrial sectors.

From the end of the 1980s, CINECA is also concretely engaged in technological transfer activities for businesses and public administration. In particular, it creates advanced systems for data management and analysis in the biomedical and health, manufacturing and large-scale retail trade sectors. It offers services related to the implementation and integration of new technologies in support of eLearning, through the creation of portals for complex organisations and the management of information system protection.

Concerning Universities, CINECA has developed several systems for the management of the staff's careers and salaries, for the integrated accounting and for services to students through an Internet-oriented system, as well as the management control through data warehouse technologies.

As regards the Ministry of the University and Research, CINECA has realised instruments that allow electronic interaction, data and information exchange between the different offices of the Ministry and with its advice offices and the national academic system.

In the biomedical and Health field, CINECA has realised several different instruments for data management and analysis: from the management of clinical experimentation and epidemiological registers to the pre-operating planning, through scientific visualisation instruments.

For private and public Institutions, CINECA has set up advanced systems that allow to face and solve the typical problems of a complex organisation: from the realisation and management of web portals to the development and application of Business Intelligence and Knowledge Management instruments. It also provides infrastructure services as communication network advice, multi-channel services, information system outsourcing, as well as data protection and support to the didactics and training through eLearning technologies.

As a centre of excellence with high technological expertise, CINECA takes part in more than 40 projects funded by the European Union, through initiatives for the development, promotion and dissemination of the most advanced information technologies in the following fields:

- supercomputing for technological and scientific research;
- technological transfer to enterprises;

- telematic nets realisation and management
- setting up of complex systems for the data management and analysis.

CNR – National Research Council

The Italian National Research Council (CNR)⁸ is a public organisation of great relevance in the field of scientific and technological research in Italy, created in 1923.

The CNR primary function is to carry on, through its own institutes, advanced basic and applied research, both to develop and maintain its own scientific competitiveness, and to be ready to effectively and timely take part in the strategic fields defined by the national planning system. CNR has scientific research institutes distributed over Italy, that carry out activities of primary interest for the promotion of science and the progress of the Country.

The Institutes of the National Council of Research (CNR) in Bologna, in collaboration with CINECA, the University and other research centres, have realised and use the electronic networks starting from the 80s.

CNR was involved, with the Municipality of Bologna and a cultural association, in a project for the use of the Internet in schools. Starting from 1992 more than 100 schools of Bologna were hosted on the CNR servers for the exchange of e-mails with others students around the world and to develop their web sites. The "Bologna Kidslink project"⁹ was for ten years a national and international reference in the use of the network technologies in the primary and secondary schools.

Moreover the Bologna CNR promotes the use of the Open Source software to set up network servers for education with the Scuolan project¹⁰, servers adopted in many schools in Bologna and in Italy.

There are 10 CNR institutes in Bologna¹¹: here follows a brief description of the 4 institutes that are more relevant to the subject of the present document.

⁸ www.cnr.it

⁹ kidslink.bo.cnr.it

¹⁰ www.scuolan.it

¹¹ The CNR institutes in Bologna are:

INAF - National Institute of Astrophysics, composed by IRA - Institute of radioastronomy (www.ira.cnr.it); by IASF - Cosmic physics and space astrophysics institute (www.bo.iasf.cnr.it) and by the Bologna Astronomic Observatory (www.bo.astro.it);

ISOF - Institute for organic syntheses and photoreactivity - www.isof.cnr.it

ISAC - Institute of atmospheric sciences and climate – www.isac.cnr.it

IBIMET - Institute for biometeorology – www.bo.ibimet.cnr.it

IEIIT - Institute of Electronics, Computer and Telecommunication Engineering – www.bo.ieiit.cnr.it

IMM - Institute for microelectronics and microsystems – www.bo.imm.cnr.it

ITOI - Organs transplantation and immunology institute – itoi.bo.cnr.it

ISMAR - Marine science institute (Section of marine geology, Bologna) – www.bo.ismar.cnr.it

ISMN - Institute of nanostructured materials - www.ism.bo.cnr.it

CNR IEIIT-BO

The "Institute of Electronics, Computer and Telecommunication Engineering", IEIIT (that belongs to the ICT Department of the National Research Council - CNR), has one branch at the University of Bologna, where research activity has been developed in the areas of Information and Communication Systems in the last thirty-five years. The activity is carried out in close cooperation with the University of Bologna and CNIT (Inter-university National Council for Telecommunications), in the framework of the WiLab (Wireless Communication Laboratory). The main activities are related to Heterogeneous Mobile Network Simulation, Multimedia Wireless Communication System, Virtual Immersive Communications, Intelligent Transportation Systems, E-learning, Network of Laboratories and Telemetry Systems, Localisation, Modulation, Coding and Multiple Access, Digital Signal Processing, Joint Source and Channel Coding, Cross Layer Design, Radio Resource Management.

The main fields of application are:

- Mobile communication systems
- Immersive services and technologies
- Integration of heterogeneous mobile networks
- Telemetry
- Intelligent Transportation Systems
- Wireless Metropolitan/Local/Personal Area Networks
- Sensor networks
- wireless video.

The research activity is mainly performed within the context of important projects, in close relation with some of the most important manufacturers and service providers, such as, for instance, Siemens Mobile, Alcatel Alenia Space, Telecom Italia Mobile, the European Space Agency (ESA) and the Italian Space Agency (ASI).

A close cooperation has been established with the Regional Government of Emilia-Romagna, in the framework of the InSeBaLa Project ("Integration and Services for Broadband), which is aimed at the development of an integrated regional network for the public administration. The project goal is to realise the concept of "distributed desk", allowing access to plenty standardised services whatever the user's location, with an optimised and dynamic resource allocation.

A continuous cooperation has been established with colleagues of the Massachusetts Institute of Technology (MIT), with the University of New York and the University of California in San Diego.

Since 2004 the research unit participates in the activities developed in the framework of the European Network of Excellence in Wireless COMMunications NEWCOM. Most researchers were also involved in the activities of the past European Actions on mobile communications COST259

and COST273 and Prof. Roberto Verdone, which is one of the unit affiliates, is the chairman of the forthcoming European Action COST 2100.

The research unit, in the framework of a cooperation with CNIT, won the European SEEL Quality Award 2004 for the eLearnig Project Teledoctorate 2¹².

CNR IRSIG-BO

The Research Institute on Judicial Systems (IRSIG-CNR), located in Bologna, has been carrying on a research area that aims at developing knowledge on the organisation and functioning of the administration of justice to improve its performance with a specific focus on the development and implementation of information and communication technology. The research is conducted through a comparative perspective with a particular attention to European countries.

Among the various research projects the following are worth mentioning. In 1999 the Institute directed and organised the first "European Seminar on Court Technology", funded by the European Commission under the Grotius Programme. In 2001 the Institute coordinated the two-year research project "Judicial Electronic Data Interchange in European Civil and Criminal Proceedings: Applications, Policies and Trends". In 2002, the Institute received a grant to coordinate the four-year research: "Information and Communication Technology for Justice", project co-funded by the Italian Ministry of Education, University and Research (MIUR). The research is carried on in partnership with the Department of organisation and political systems of the University of Bologna, industry partners such as Cineca, and Cm Sistemi, and the Italian Ministry of Justice. The research concerned the development of e-services for the local office of the justice of the peace, a decision support system for judges and the establishment of the Court Technology Laboratory. This Laboratory, the first in Europe of this kind, will allow judges, public prosecutors, and administrative personnel to test ICT technology specifically developed for the administration of justice. In addition, the Lab will be used as a training tool on advanced technologies for judicial personnel. The Lab should be open in Bologna in October 2006 by the Italian Ministry of Justice.

Currently, the Institute is also carrying out the two-year international research "Information and Communication Technology for Public Prosecutor's Offices".

CNR-INAF

Today the CNR and INAF (National Institute of Astrophysics) campus in Bologna, where about 600 researchers and technicians are working, is a primary node of the Garr/Internet network, with a high speed connection that hosts the web sites of the campus¹³ and of the different institutes. Wireless connections are available in the library and the meeting rooms of the campus.

Moreover some Institutes of CNR and INAF have access to Lepida, the regional network for E-government. A link via satellite connects the ISAC Institute with the research station on Monte

¹² For more details about the equipment and the scientific research projects, check the web site www.bo.ieiit.cnr.it

Cimone to monitor the meteorological conditions and the state of pollution at high quota regions. Starting from 2006, 40 km optical fibres link the Radiotelescopes of Medicina with the node in Bologna of GARR/GEANT, the European scientific network. The Medicina Radiotelescope is one of the six instruments in Europe that can make real time observations.

The CNR Bologna Research Area Library is the central library which fulfils scientific information needs for the 7 Institutes and the 8 territorial sections of Institutes located in Bologna and Emilia Romagna. The Library also acts as a *digital library* for 13 more remote territorial Institutes sections outside Emilia Romagna, providing them access to all the online resources (6000 resources available for 1.200 CNR researchers, scholars and Ph.D. students).

The Library is actively involved in ICT projects at a national and regional level and has been involved in the development of several pioneering software for the automation of library services and the developments of digital libraries¹⁴.

The Library employs 3 CNR full-time employees, 12 full/part-time young collaborators.

ISMAR - CNR (Institute for Marine Geology)

ISMAR carries out geological and oceanographic research projects in the Mediterranean Sea (with particular emphasis on the Italian seas) and in other areas of the world (Antarctica, Atlantic Ocean, Red Sea, Indian Ocean), and it is strongly committed in ITC activities to provide both the scientific community and the local administrations with updated instruments for the environment monitoring and for the decision-making processes.

ISMAR is also involved and coordinates several projects aimed to collect data and information, daily updated from national and international marine research centres.

Among them, it is worth mentioning the CROP Project, a joint cooperation between CNR, ENI-AGIP and ENEL, aimed at the study of the Italian lithosphere; EURODELTA, an EU-funded project designed to improve the understanding of the depositional processes affecting Mediterranean prodeltas; the S1 website - Po Delta CTD/METEO Buoy, an automated station that measures METEO and physico-chemical data (i.e. CTD, Oxygen, pH) in the Po Delta; ADRICOSM, a pilot project in collaboration with France, Slovenia and Croatia, which aims at the implementation of an integrated coastal zone management system and of the prediction of coastal current variability in

¹³ www.bo.cnr.it

¹⁴ Relevant ICT projects carried out presently by the Library:
NILDE (Network Inter-Library Document Exchange nilde.bo.cnr.it), is a system for electronic Document Delivery, used by more than 500 Italian universities, public research institutes and local administrations libraries.

SCIENCE-LINK (www.sciencelink.it), a project initially funded by the SPINNER regional programme for technology transfer, is a system that provides Science and Technology indicators for the Emilia Romagna region and Italy. SUMMIT (Servizi Ubiquitari MultiMediali per l'Innovazione tecnologica e Telematica summit.aster.it), is a project funded by the Emilia Romagna Regional programme for Communication and Information Science.

DigitAlexandria (www.bdaweb.net), a project initially funded by SPINNER, is a peer-to-peer digital library for research communities.

Near Real Time (NRT) in the Adriatic Sea and the EMMA project, aimed at improving the environmental quality of the coastal areas of the Northern Adriatic Sea.

Finally, ISMAR has developed a database of oceanographic metadata¹⁵ collected during several oceanographic cruises within the PNRA (National Program of Antarctic Research) programmes.

Guglielmo Marconi Foundation

The Guglielmo Marconi Foundation¹⁶ is a non-profit institution, set up in 1938, located in the province of Bologna, in the historical Villa Griffone, where the great scientist conducted the first wireless telegraphy experiments between 1894 and 1895.

The Foundation's statute aims "to promote and encourage studies and research on radio communications, and to promote projects designed to keep the memory and the fame of the great scientist alive". To this purpose the Foundation develops programmes that are divided into three different areas: history and museum, advanced research, cultural and social activities.

The Marconi Museum, dedicated to the origins and development of radio communication retraces the fundamental stages in the history of electricity and radio, from Galvani's experiments on animal electricity to the first industrial production of the Marconi's Wireless Telegraph Company. The working replicas of Marconi's early apparatus, whose originals have almost all been lost, made with materials and technology from the same period, are the tangible result of accurate historical research and are almost exact copies of the originals. In the so called "silkworm room," near the window from which the first radiotelegraphic signal was launched, there is the reconstruction of the young Marconi's laboratory as it was in 1895. Next to it, a multimedia and interactive area offers visitors the possibility to use the apparatus exactly as Marconi did.

Villa Griffoni also hosts a library, with many precious volumes on the history of Radio and a documentation centre, which offers the possibility of access via the Internet the volumes, documents and apparatus.

Besides the Museum, Villa Griffone is famous for its intense advanced scientific research and excellent levels of training, due also to the presence of the Department of Electronics, Computer Science and Systems of the University of Bologna and the Ugo Bordoni Foundation from Rome.

It is significant that almost a century on from the invention of the Radio, Villa Griffone is still a central point in the development of mobile communications; a sector whose importance on an economic level is continuously growing. It is here that the first congresses of specialists in this field were held.

At present, the Foundation's activities are focussed on all aspects of radio technology, from the evolution of the various generations of mobile telephones to the different wireless systems and to the new application of digital television.

¹⁵ www.sp.ismar.cnr.it/sito/homemooring.html

¹⁶ www.fgm.it/site/index.php

The Marconi Foundation is also exploring the social and collective importance of these new technologies and their possible application, a sector which has not yet been sufficiently explored in the scene of international research. It is to fill this gap that the Guglielmo Marconi Foundation, together with the Laboratori Guglielmo Marconi Ltd and Wireless Future Srl, two spin-off companies, created the Marconi Wireless Consortium. The goal of this consortium is to create a Centre of Innovation which will be part of the network of the Emilia Romagna Region for the application of wireless technologies of social and collective relevance in sectors such as health, civil protection, security and public transport, in order to intercept or anticipate communication needs which are partly unfilled, and to encourage the creation, the development and the experimentation of new applications.

The Foundation also collaborates with the Consortium Elettra 2000, an international observatory on health problems connected to electromagnetic fields.

There are several advanced research programmes carried out here, as the ones of the ALMA Consortium, the Graduate School of Information, Technology, Management and Communication of the University of Bologna, which offers a wide range of training programmes through Masters and E-learning methodologies.

Every year at Villa Griffone the Foundation organises a series of workshops on the themes related to its activities. Experts in the fields of research and industry take part in them, and many businesses send their employees to attend these workshops, which have already become a national focus point.

CUP2000

CUP 2000 Ltd¹⁷ is an e-health company operating in Italy and Europe. It is the exclusive developer and provider of Metropolitan and Web CUP (Unified Booking System for Health Services) and of the electronic archiving systems for clinical records in hospitals. The Company also runs the largest Call Center of the public Italian Health system.

The Company, with approximately 500 employees, is owned by the Emilia-Romagna Regional government and by local administrations (Municipality and Province of Bologna), health care public providers (Sant'Orsola-Malpighi Hospital, the Rizzoli Orthopaedics Institute), Local Health Care Authorities of Bologna and Imola.

CUP 2000 is connected to medical research activities through the Sant'Orsola-Malpighi Hospital, which provides intense coordination with professionals in the Faculty of Medicine of the University of Bologna to institute practical training activities to guarantee the relevance of university courses in relation to the work environment, and through the Rizzoli Orthopaedics Institute, which is a Scientific Institute for Research, Hospitalisation and Health Care (IRCCS).

¹⁷ www.cup2000.it

CUP 2000 has participated in numerous European and international projects promoting the innovation of health services geared towards individuals by means of advanced applications of ICT.

The Portal of the Company represents the first example in Italy in the use of telecommunication to reserve health services provided within a wide urban territory.

Having been certified according to the European standards, the Company was motivated to hold its course, measuring itself by continually higher standards. In addition, it is the first Italian company to propose a certification according to the standard "Servizio CUP" (Quality CUP).

The range of services offered by CUP 2000 S.p.A. includes:

- on-line Metropolitan CUP and CUP Web: more than 20 million healthcare services were booked in the last year and about 11.000 between outpatient's departments, labs and hospital departments were connected by the CUP network;
- e-Care networks, particularly for home care assistance for senior citizens in different territories with the most advanced information and communication technology, for the integration of CUP services, Telemedicine and Tele-consulting systems, and home care;
- the e-Hospital: information systems for hospitals, archiving systems of hospital clinical files, administration of the access to the hospital infrastructure, acceptance and access to scheduled hospital admission;
- e-Government solutions on multi-channelled networks for Regional Administrations and Local Authority Administrations: integrated hospital-regional networks that allow GPs and specialists to be available on-line;
- planning and management of e-Procurement service centres and systems geared for health care public providers;
- advanced CRM and telephone interface solutions for citizens through the application of the most sophisticated technology available in the field of Call and Contact Centers.

Through ICT instruments, CUP 2000 proposes to create a health care network¹⁸ that allows direct communication between first and second level health care structures, general practitioners, pharmacies, unified booking centres and consumers, thereby:

- Supporting organised access to health care services by citizens;
- Directing clients to the appropriate health care centre;
- Improving the quality standard;
- Limiting the costs of running health care and social assistance systems.

CUP 2000 runs Call Centres and Contact Centres for the local administrations and health care companies of many cities. In 2002, the corporation's operators have handled more than 1.6

¹⁸ www.cup2000.it/e-care/index.htm

million calls. The main services offered are the booking of outpatient services and information on the community and health care services.

INFN/CNAF

The INFN – Italy’s National Institute of Nuclear Physics – is an organisation dedicated to the study of the fundamental constituents of matter and conducts theoretical and experimental research in the fields of subnuclear, nuclear, and astroparticle physics. Fundamental research in these areas requires the use of cutting-edge computing technologies, which INFN develops both in its own centres, and through large European and International collaborations. These activities are conducted in close cooperation with the academic world.

CNAF (National Centre for Telematics and Informatics), located within Bologna University Physics Department, is the national INFN’s reference centre for advanced computing and innovative software technologies for experiments and theoretical groups.

Currently, CNAF makes available a computing capacity of 1600 KspecINT2000s, equal to some 1000 bi-processor nodes, and has approved and financed an upgrade plan to expand to 2400 KspecINT2000s by 2006 and up to 20000 by 2010. The available mass memory is now of about 430 TeraBytes of disk space, which will increase, as foreseen by the same plan, to 830 TeraBytes by 2006 and up to 7 PetaBytes by 2010. Data can also be stored and accessed by magnetic tape through an automatic tape library with various reading-writing units, which can now host some 5000 cassettes with a total capability of about 1000 TeraBytes, which will be expanded to about 15 PetaBytes in 2010 .

The modern computing model of the High Energy Physics experiments is based on the recently developed grid technology and relies on several layers of computing facilities. CERN – the European Centre for Nuclear Research located near Geneva – is the place where, in the coming years, massive amounts of crucial data from physics experiments will be produced by the new Large Hadron Collider which will start operations in 2008. The data will be transferred, to be stored and analyzed, to roughly 10 first level centres, called Tier-1, geographically distributed throughout the world. The Italian Tier-1 is located at CNAF in Bologna.

The Tier-1 centres, as INFN CNAF, guarantee high-level skills, great mass memory capacity and enough CPUs to satisfy the complex computing needs of about 6000 physicists from all over the World. The Tier1s are the main nodes of the computing infrastructure of the World-wide LHC Computing Grid (WLCG) which include more than 200 computing centres from 34 European countries, the USA and Asia, and which currently provide seamless access to over 30000 CPUs and many PetaBytes of memory.

The WLCG project is in full cooperation and synergy with the largest international grid computing projects aiming at developing the grid technologies and leading hedge grid infrastructures for all Sciences, such as the European EGEE (Enabling Grids for E-science), the US OSG (Open Science

Grid,)), the APGrid in Asia Pacific and the national ones, such as INFN Grid¹⁹ and the connected production grid (Grid.it²⁰) in Italy or NAREGI (NAtional REsearch Grid Initiative) in Japan or D-Grid in Germany.

CNAF hosts the Regional Operation Centre (ROC) of the EGEE project which operates the very large general purpose European grid infrastructures financed by the European Commission and the Grid Operation Centre (GOC) of the Italian grid infrastructure Grid.it

The TIER-1 centre at CNAF is currently the Italian benchmark in high-level computing for thousands of physicists and other scientific researchers, in fields such as biomedicine, bioengineering, astrophysics and many other domains. All the computing resources at CNAF are connected to the Internet and to the European Research Network Geant through GARR – the Italian network for Academy and Research – by two 10 Gigabit per second links.

The INFN CNAF holds an increasingly central role in the context of many international scientific grid computing projects, as the recently approved, with 37 MEuro financing, EGEE II, aiming at expanding and enhancing the current grid middleware services and consolidating the operation of the European grid infrastructures and OMII Europe aiming at providing an Open Source software release of the European middleware to be used also by industries and the rest of the society.

The INFN CNAF is the reference centre for other European projects, such as EU-MedGrid, EU-ChinaGrid and EU-IndiaGrid, coordinated by INFN, and EELA, all aiming at extending the European grid infrastructure toward other parts of the world such as the Mediterranean area, China, India and Latin American countries or to other communities as BIO-INFOGrid for the biomedical sector and CYCLOPS for the Civil Protection.

In future INFN CNAF will continue its commitment in terms of dedicated human resources in pursuing an ever stronger and more reliable grid middleware capable of ensuring secure collaborative activities for the scientific communities at the international level and will increase the efforts to transfer this powerful enabling technology to industries and other sectors of the society (grid-it.cnaf.infn.it/gtp/comega/).

ENEA Bologna

ENEA (National Agency for New Technologies, Energy and the Environment) operates in the fields of energy, environment and new technologies to support competitiveness and sustainable development.

¹⁹ grid.infn.it/

²⁰ grid-it.cnaf.infn.it/

In all its 12 centers, located in several Italian regions, ENEA has a grid infrastructure which enables its 3300 researchers/employees to perform scientific computations. They are based on software resources, 3D and post-processing resources, parallel and serial multiplatform systems. ENEA is involved in promoting and carrying out basic and applied research and innovation technology activities, also through prototypes and product industrialization; in disseminating and transferring technologies, encouraging their use in productive and social sectors and in providing high-tech services, studies, tests and evaluations to both public and private bodies and enterprises.

ENEA's Research Centre of Bologna was created in the 1960s and it was originally focused on the development of fast neutron reactors for the European nuclear industry and on specific scientific computing applications.

Nowadays it is a multidisciplinary company that conducts research in the following sectors: innovative nuclear systems, non-destructive diagnostic methodologies, development of eco-engineering methodologies, models and tools, prevention of natural risks and mitigation of their effects, water resource management, protection from ionizing radiation, computing and modelling and support to innovation in the production system. In all the above cited fields the activity is mainly represented by computer modelling and simulation of physical phenomena requesting specific ICT skills.

The research projects are performed in collaboration with the European Commission, the Italian Ministries of Productive Activities and of Education, Universities and Research, and with other local and national bodies.

In addition, the Centre operates in the field of informatics and provides support to the National Research Programme in Antarctica. It has some 300 employees and hosts a large number of students, grantees, visiting researchers and trainees. There are also three multi-disciplinary laboratories dedicated to air pollution modelling, to the inter-operability issues within enterprises in industrial districts and to the application of reverse engineering and rapid prototyping in the manufacturing companies.

3. BOLOGNA, EUROPE AND EUROCITIES

3.1 Bologna's activities within EUROCITIES

The City of Bologna became member of Eurocities in 1991. Since its admission, it has been extremely active in promoting common activities and setting up, together with the other member cities, projects and strategies targeted to European policies.

From 1993 to 1999 Bologna has been member of Eurocities Executive Committee. Bologna was President of the network in 1995 and 1996.

The City of Bologna is at present particularly active, also through the direct involvement of its municipal Departments, in the Social Affairs, Culture, Environment and Knowledge Society Forums.

Furthermore, in 1996, the City of Bologna was President of Eurocities East-West Committee.

Concerning Enlargement, in 2001 Bologna was also chair of the Balkans Working Group, within which several projects were carried out in cooperation with other EU member cities and that received funding from the European Commission, the European Parliament and the Office of the Stability Pact Coordinator.

In 2005, during the first EUROCITIES Cooperation Platform, hosted by the Polish City of Gdansk, Bologna organised a workshop on the cooperation with cities from the accession and candidate countries and the Balkans.

Bologna is also member of the Working Group on European Neighbourhood Policy (ENP), chaired by the city of Warsaw. In its first year of activity the WG produced a policy paper that was able to influence the report now finalised by the European Commission regarding the Financial Instrument for ENP (ENPI).

At the end of 2005, Bologna proposed to create a new EUROCITIES Working Group on EU Enlargement, in order to promote and support the cooperation with acceding and candidate countries, as well as those involved in the Stabilisation and Association Process and to tackle those issues that are not currently addressed by the existing EUROCITIES Forums (i.e. institution building, confidence building measures, democracy building), funded by specific Programmes conceived for accession countries and the Western Balkans.

The WG proposal was submitted to EUROCITIES Executive Committee and it was decided a first meeting on Enlargement will be organised by Bologna to coincide with a European Neighbourhood Policy WG meeting. After this meeting the ExCom will assess the relevance of continued work on this matter.

Furthermore Bologna is member of the recently created EUROCITIES Internal Audit Committee, aimed at monitoring the management of financial aspects of the network to be reported to the wider membership.

Bologna is also participating in the recently created EUROCITIES Task Force on Intercultural Dialogue that has the objective of elaborating a common proposal for a wide project to be funded by the European Commission on the occasion of 2008 European Year of Intercultural Dialogue.

3.2 Bologna and Telecities/Knowledge Society Forum

Bologna joined Telecities in 1994, one year after its creation. The City has always been very active in this EUROCITIES subnetwork at first and it still is in the present Knowledge Society Forum. Bologna realised many different IT projects during these years, creating also very fruitful bilateral relations with some of the Forum's members.

In 2001, Bologna chaired the Working Group on Tele-Democracy, which has involved 30 members of 13 different European countries. The main goal of this WG was to improve the exchange of expertise, innovative strategies and best practices among its members and to lobby the European Union in the definition of policies concerning eDemocracy.

The eDemocracy WG produced a very important survey, developed in cooperation with the University of Edimburgh, concerning the use of ICT in the European Cities, particularly targeted on citizens' participation in the local decision-making processes.

"eCitizenship for All" Award 2004

In 2004 the Iperbole Civic Network project received EUROCITIES "eCitizenship for All" Award, promoted in cooperation with Deloitte.

Particularly, Bologna ranked first in the eDemocracy category.

The award consisted in 10 consultancy days offered by Deloitte on eGovernment initiatives.

The Municipality of Bologna has thus developed an original kit of evaluation tools that can provide quality indicators for the effectiveness of its eGovernment projects.

The developed kit was conceived to be easy to use and transferable - particularly to the other Eurocities partners - to be able to serve as public and private marketing instrument and to be used as a self-analysis method. Its main features, flexibility and adaptability, are due to the fact that it provides for the most common values and objectives shared at the European level in the field of eGovernment.

Bologna is at present Chair of the eCare Working Group.

The main objectives are:

contribute to the development of inclusive citizen-centred safe and secure (health)care services and empowerment of citizens, using modern ICT and involving all stakeholders in the delivery chain;

contribute to challenges cities that are facing from a growing ageing population, as a rising demand of healthcare and social services of improved quality, the trend toward one-person households and the costs involved;

identify and address technical, social and political challenges related to the use of ICT that contribute to the delivery of citizen-centred eCare and the empowerment of citizens.

3.3 Bologna's participation in European ICT Projects

The Municipality of Bologna has a wide experience both in the promotion and participation in European projects and it currently co-ordinates or is among the partners in many successful European projects designed to support and encourage the access to new eGovernment services through the use of mobile communications and Internet technologies and regarding eDemocracy applications.

Currently, the City of Bologna leads the eTen HANDS project.

HANDS is an online communication service offered by Public Bodies to their users and citizens. This service is based on advanced Natural Language Processing (NLP) techniques which allow Public Bodies to reduce barriers to online communication. With the NLP-based applications, citizens and other users can ask questions in their own language on the organisation's website, obtain relevant answers and relevant documentation, if available, and an indication of the offices responsible for answering their questions. The goal of the project is to market-validate the HANDS on-line communication service, that means investigating its administrative and economic viability and identifying the conditions for its future deployment on a European scale.

Very recently (the project has been successfully concluded in March 2006), the Municipality of Bologna has worked on an EU research and development project (IST - VIFP) designed to support and encourage the access to new eGovernment services through the use of mobile communications and Internet technologies. The project, named USE-ME.GOV, has brought to the development of a Next-Generation Open Service Platform for mobile users that can be shared by networked authorities and institutions (e.g. on a regional scale) in terms of technical infrastructure, information (content) as well as a framework for commercial exploitation.

Moreover, Bologna participates to the E-citizens project (Interreg IIIC), for the promotion of electronic government in the cities, eProDat (Interreg IIIC), for data protection, Brise (Interreg IIIC), for the promotion of Information technologies in European Regions, Certiserv (eTEN) on

certified and secure eGov services²¹, and eGovGuide for senior Citizens (Socrates-Grundtvig) for the institution of training courses dedicated to elderly people to make them able to use internet tools, and the implementation of eGovernment services suitable for them. Furthermore, Bologna is involved in other projects that use ICT technologies to improve PA's tools and services, as Liber Imms - the introduction of the radio frequency identification system (RFID) in civic libraries to improve their services; Light, which promotes the cultural local heritage and the improvement of accessibility of cultural resources for citizens and operators by using ICT tools; Optipark (Interreg IIIC), that foresees the introduction of a new software, web based, that allows a more efficient and functional administration of car parks; Telemedicine (Interreg IIIC) that develops a remote health assistance system to patients through ICT tools and Webpol (Leonardo da Vinci), a virtual vocational training project dedicated to local polices.

Furthermore, the OLDES Project (Older People's services at Home) has very recently been approved for funding under the IST Programme (Call 6 of the IST priority, 2.6.2. Ambient Assisted Living (AAL) for the Ageing Society). Even though the Municipality of Bologna is not the project coordinator, it is responsible for the definition of the objectives and of the project's guidelines. The OLDES project will offer new technological solutions to improve the quality of life of older people. It aims at developing a very low cost and easy to use entertainment and healthcare platform designed to ease the life of older people in their homes. In order to achieve this, new concepts developed in Information Technologies will be integrated and adapted. The platform will be based on a PC corresponding to *Negroponte's paradigm* of a € 100 device, giving the guarantee of an affordable system. OLDES will provide: user entertainment services, through easy-to-access thematic channels and special interest forums supported by animators; and healthcare facilities based on established Internet and tele-care communication standards. The system will include wireless ambient and medical sensors linked via a contact centre to social services and health care providers. OLDES will also cover the definition, implementation and evaluation of a Knowledge Management (KM) program, an advanced user-profiling system that will enhance the communication between all the stakeholders of the system. The system will be tested at two different locations: Italy over a group of 100 elderly (including 10 suffering with cardio disease) and Czech Republic over a group of 10 diabetic patients. OLDES puts older people at the centre and makes their needs the main priority in all developments. This will be achieved through the use of modelling and animation tools to create scenarios designed to elicit responses from older people, their carers, and service providers. Animation and simulation will help to ensure that developments are, at all stages, grounded in the realities of social and health care, the cultures and economies of the specific pilot contexts, and as wide a range as possible of other European public service contexts. To maximise the flexibility and exploitability of its products, technical outputs will be packaged appropriately into highly configurable service components.

²¹ The Certiserv project was named "project of the month" of the eTen Programme in May 2006.

4. SOME STRATEGIC POINTS ON INFORMATION SOCIETY

Here follows our contribution to the reflection on the future KSF-T agenda. These are some points that according to us are certainly worth exploring within the Forum future work. However they are not exhaustive when considering the whole range of possible themes of interest.

4.1. eDemocracy and eRights

Starting from the principles of the Telecities Charter, the main aim of the activities in the field of eDemocracy and eRights will be the promotion of a "plural" and networked information and knowledge society – with the focus on the local level - which will be able to support all the cultural, educational and economic challenges of the third millennium. So promoting a "connected community" as a platform to develop creativity and social know-how is a basic issue. The involvement of Local Public Bodies, and their networks, in e-Participation processes is crucial to facilitate close co-operation and sharing visions with citizens, thus creating more favourable conditions for a real "continuous democracy" based on the widening and deepening of the "public sphere", using also digital communications media. Digital communications media could be "key factors" for wider participative policy making processes, since:

- they make it easier - in terms of time, spaces, places, settings, etc...- for people to participate and produce contents at grassroots level
- they widen the range of possibilities of participation taking benefit from multi-channel interactions, applications and platforms
- they encourage new targets entering the processes and taking part in public debates
- they are complementary and synergic to the "physical" processes and they strengthen "traditional" democracy activities

New methodologies and rules have to be experimented to actively involve citizens in order to make participation - both "traditional" and electronic - a constant practice in Cities' Administrations to promote more e-governance (e-democracy) dynamics rather than merely e-government best practices (e-services). The work will be focused on the following:

- definition of the most suitable proximity levels, community environment and themes/topics for policies and processes
- skills and functions of new professional mediators/moderators
- guidelines, criteria and formats for documents (multimedia) related to the debated topics/themes
- new communication and production models for ICT applications in collaboration with – for example - the women associations (language, models and gender issues)

- policies and actions in favour of " telematic and e-citizenship inclusion" of the new citizens (migrants) and their communities
- security and privacy related to the "sensitive" field
- free wireless/mobile access and connections as enabling environment
- open source and open contents/formats approach

It is also crucial to reach and involve all citizens with more targeted actions of telematic literacy in a broad sense. The most relevant "open issues" that will be shared and tackled to are:

- lack of involvement to e-Participation on the political side
- commitment by administrators at every level of government, offices and facilities
- sustainability models for e-governance and e-democracy services and platforms
- new skills and profiles within the administration
- efforts to simplify languages and specific and professional "jargons"
- definition and validation of an e-Participation methodology that could be reused and adapted to other contexts
- citizen-oriented communication methods and formats based on community needs and proximity perspective
- open source applications could be reused/adapted to different contexts
- inter-institutional and multi-level cooperation in order to achieve resource effectiveness, generate synergies and standardise approaches and languages
- eCitizenship best practices exchange at all levels: services, information, interactive communication, participative processes, etc.

Quite connected to some of the issues stated above are the CzRM (Citizen Relationship Management) platforms and methodologies. The spreading of new technologies and multi-channel eGovernment and e-Governance services is increasing in fact the interaction between citizens and City Administrations. The development of a full-fledged "citizen-centric" CzRM (Citizen Relationship Management) platform is indeed a strategic issue on the agenda for the Administrations.

Furthermore, a multi-channel integrated approach will allow both of increasing self-service practices by citizens, though reducing costs and improving the level of services, and fostering the e-democracy and e-participation processes, making the relations between communities and local public authorities less complex and hierarchical.

Taking into account all these goals, it is envisaged to arrive at an agreement among the cities involved which defines the rights of all citizens in terms of possibility of using the different services at home with proper quality: that is a *minimum level of communication* which must be assured to everybody, related mainly to the services and their quality and not to a general

capacity merely in technical terms of bit/s which can be, in many cases, source of confusion or incomprehension because of the differences in the used technologies in the territories.

4.2 Open Source and Open Formats

Local institutions have to face the more and more pervasive impact of information and knowledge on civil society. It becomes necessary to create new forms of horizontal, multi-lateral and polycentric interaction among citizens, between citizens and public administrations and between public administrations and groups of interests. As a collaborative method and approach to software development, open source (OS) is demonstrating to be a vital and dynamic force able to motivate the growth of many new projects realized by communities of users and developers. The members of these communities promote open sharing of source code (software's "genetic code"), suggesting improvements and changes that are progressively put together into a creative project, thus attaining a sort of "collective intelligence" and virtual common laboratory. 'Programming' is not a neutral activity, it rather reflects a peculiar way of organizing thoughts and interacting with technologies and communication tools, therefore, to prefer a software (and its philosophic background) rather than another does not only reflect a 'technical' choice. Restrictions on patents and licenses represent a sort of "privatisation of thought and ideas", whereas open source licenses have a kind of "public soul". The same philosophy applies to those activities regarding open formats and contents, i.e. multi-media productions that are not based on patents and copyrights, being instead offered to potential users as 'gifts' for sharing and exchange, in this scene, new, growing economic forms about open source products are progressively catching on. The same spirit feeding the open source and "creative commons" culture can be successfully applied to civic networks and to e-government and e-governance activities/processes put into action by public administrations. Rights to access are progressively changing into rights to participation and production, creating the conditions for building a common and plural virtual space. The spread of OS software is also contiguous, and in a certain way complementary, to the spread of electronic democracy and e-participation (in its extensive meaning of 'creative' participation). New models of dialogue, exchange and interaction can be experimented and tried out by local/territorial authorities, drawing inspiration from models designed' by OS communities.

Local Authorities should:

- Promote networking activities to strengthen - through ICT potentialities - the active and proactive citizenship towards the achievement of social, cultural, economic goals. Renew and reinforce the role of public authorities as 'guarantors' for citizens' rights in the new virtual spaces and as dialogue and exchange facilitator
- Promote research activities with the main goal of recognizing the conditions (from a social, cultural, and organizational point of view) that ensure the sustainability of "open formats" economy on long term. In a parallel way, stress the strategic role of local governments

regarding new fields of research in the ICT and “public domain” area.

- Find out common paths among local public administrations - and their networks at the national and international level - to make the transition to the use of open source software easy
- Make agreements on policies and lobbying activities both at a national and European level to reach a common legal background (the vote of EU Parliament against the directive on software obligatory patents has been a clear indicator of current wills and visions)
- Upload open source applications on the civic networks and portals take out by local developers too (citizens, non-profit associations or other public administrations),
- Foster “re-use” practices and the exchange between public administrations and a “business model” in this field (open source, free software, creative commons, shared intellectual capital, etc.)
- Experiment “Open source lab model” involving local developer communities to design software for the civic network, portal and community
- Guidelines to set up “creative commons” spaces in local administrations portals and civic networks as public domain areas for copyleft contents
- Develop projects - through local, regional, national and international partnerships - fostering the spread of open programs and applications both in public administrations’ back offices and among citizens

4.3 Wireless, Broadband and seamless communications

From 2004 onwards community wireless networks, especially in the United States, have had an increasingly widespread development, a development which has apparently renewed the pioneering enthusiasm engendered by Internet access during the early 1990s. Local public administrations (San Francisco, Philadelphia, New York, Cleveland, Portland, Boston, etc., but also those of smaller centres) are today undertaking strategies and projects which increasingly place promotion of access to the “broadband wireless” network at the centre of public policies. The “pact” associating citizens, communities and local governments (the first free nets and civic networks were the outcomes of the same alliances) has been renewed to guarantee citizens the right of access to broadband as a “universal right”, as a fundamental and qualifying condition to encourage innovation, competition and widespread entrepreneurship and, at the same time, to defeat the digital/social divide. In America as in Europe, fast Internet connection is swiftly establishing itself as a basic public service like water, gas and electricity. But many citizens find themselves on the “wrong side” of the digital divide, without the possibility to be connected on account of the high commercial costs. According to the “transatlantic model” the solution could be that of “community Internet” and municipal broadband wireless. There is actually more than one model but the basic philosophy is shared by the various solutions on offer: free or at low cost

compensated by business models (in truth not yet established or mature) depending on publicity, value added services, diversified performance for particular needs, covered zones, etc. Very soon, in Europe as in the United States, thanks to convergence and digital multi-channels, all media – TV, telephone, radio web will also be distributed via the Internet through broadband connections. Wireless and cable technologies already allow local governments, partnerships, schools, communities, and groups with special interests to produce and make available less costly and more reliable Internet services. The aim of our activities will mainly focus on the setting up of possible models of civic network and public telematic services based on new kinds of public-private partnerships for the development of the wireless infrastructure and of specific contents (GIS, VoIP, multimedia, podcast, etc).

The aspects which we will analyse in order to point out concrete projects are:

- starting conditions/points for the provision of high-speed indoor and outdoor connection to Internet Wireless
- organisational, managerial, legal and regulatory aspects related to this kind of services
- the functionalities offered by the system and the quality of the products offered
- the performance and reliability – also in terms of security and privacy protection - of different solutions
- the knowledge and efficiency of the providers of the different technological infrastructures and the access points in the planning and development of Wi-Fi networks and products
- the simplicity and rapidity of installation of the solutions offered
- The provision of wireless solutions with high capacity, reliability and low cost, based on the requirements of the user/client.
- The performance and utilisation of VoIP apparatuses within covered areas
- the types of contents/services to be delivered to different possible targets through different types of mobile devices
- The “sustainability models” (business models) which – taking as their starting point users’ actions, needs and habits – focus on technological solutions, on specific contents developed ad hoc, on possible partnerships, co-financing channels, sponsors, etc.

We will also investigate how to “mix up”, connect and integrate wireless and cable broadband infrastructure (public and private ones) at the metropolitan level (MAN) in order to create a kind of continuous technological environment that allows community/ies to take advantage of seamless/mobile communications and services both indoor (ambient intelligent) and outdoor.

Other wireless technologies as bluetooth, rfid, smart dust, zigbee, etc.) could also be part of this perspective as stimulating possible solutions in terms of new services and contents to be delivered by local authorities, also in partnership with other public and private organisations. One issue to

be considered attentively in this context is privacy protection and the right balance to service to be given and let's say "citizens' surveillance".

In the cities there is now a constant growing of installation for wireless services (cellular systems, Internet access, Digital TV etc.). The administrations are confronted with common problems related to the acceptability of the installations by the citizens, but also to the problem of preserving the landscape or the urban environment. Moreover, since the technology is rapidly advancing, the administrative decisions have to be made in a limited time. It is envisaged to share the experiences of the cities in order to find best practices to be suggested for minimizing the inconvenience to the citizens and to take economic advantage where possible.

4.4 New Internet technologies (i.e. Internet2, Web 2.0).

Internet2 is the foremost advanced networking non-profit consortium in the U.S., led by the research and education community since 1996, to promote next-generation Internet technologies, based on a reliable cutting-edge network infrastructure.

A high-performance network infrastructure (e.g. using IPv6 and IP multicasting) and extensive worldwide partnerships is being carried on to support and enhance this educational and research missions. Beyond just providing network capacity, Internet2 aims at developing important new technologies, including middleware, security, network research and performance measurement capabilities, which are critical to the progress of the Internet.

Through community involvement, Internet2 members are using advanced technologies to enable collaboration among people and interactive access to information and resources in ways not possible on today's Internet.

This community of collaboration traverses disciplinary and institutional boundaries to advance the frontiers of high-performance networking in service of research and education.

The test bed could be represented by the aforementioned broadband infrastructure, in cooperation with Universities, private and non-profit Bodies and other Public Bodies.

Thus, the objective is to manage an Internet 2 networking infrastructure, in order to provide an experimental platform to support research, development and testing of a new cluster of services and applications.

Also the Web 2.0 – even if some are quite sceptical about it and consider it as being only a "marketing brand" – could be an important issue for the network to investigate in terms of opportunities and models to a kind of "second-generation" of Internet-based services and applications that allow people to collaborate and share information online in new ways – such as social networking sites, wikis, communication tools, and folksonomies.

This approach is less centralistic than before ("classical" web) and much more open to decentralized solutions and contributions (software, applications, contents, etc.). This model of "participatory web", emphasizes tools and platforms that enable the user to tag, blog, comment,

modify, augment, select from, rank, and generally talk back to the contributions of other users and the general world community. It seems to be a promising environment for our network to create new transnational forms of sharing and cooperation among members and also to set up together projects to be concretely applied and tested in the cities' websites.

4.5 New media and Digital TV

Thanks to the digital convergence processes and the availability of wireless infrastructures we are witnessing the rapid development and spread of new channels of communications that are delivering contents and services both in a broadcasting and networking way, and also mixing the two of them, using an increasingly wide range of tools and devices such as PC, pda, smart phones, TV set, etc. The intention is to explore the potential of these media in order to make easier and more "natural" dialogue and exchange between citizens, Administrations and politicians with a multi-channel approach (not web only). In particular it seems to be interesting to analyse and compare the different national frameworks in relation to:

- legal and regulatory aspects
- frequencies allocations systems
- environment impact and protection policies
- partnerships and relationships with producers, new services providers and broadcasters

And also:

- Which medium (a) in/for which context(s)
- What editorial/back office/sustainability model(s) and contents and with what impact(s) on the organisations
- What new skills and competencies within the local public administration in order to use and exploit the new media opportunities
- Which new formats and languages, specific or not for public purposes

4.6 eCare

Rising demand for health and social services due to an ageing population and the trend to one-person households, as well as the demand for a higher quality in healthcare and social services call for a joint work of all actors involved in the services delivery chain.

The use of New Information and Communication Technologies can play a crucial role in ensuring good quality living standards, for instance through ambient assisted living for the weakest population groups, and can also improve the number, the quality and cost-efficiency of services in general.

The trends to independent living are not only a matter of implementation of new technologies but are at the same time an important contribution to the fight against rising demand and declining resources in the public health sector.

A new concept of eCare Services should:

- Foresee inclusive citizen-centred services that can get into common use in people's every day life
- Involve all stakeholders in the delivery chain, including volunteers association and the individual citizen as an important and active player
- Identify innovative solutions that use advanced technology either low cost or involving depreciable costs.
- Create new models of public-private partnerships for investments in supporting local eCare service centres
- Introduce new collaborative working environments involving professionals from hospitals, practising doctors, elderly care service, health education and training institutions and researchers/developers from universities and private companies – all working on the implementation of citizen-centred solutions based on new combinations of a wider range of products and services
- Develop software paradigms able to map the whole network of social relations involved in the process
- Widen the scope of telemedicine, including social services, thus developing a communication network based on market standards on which innovative applications can be inserted.

Bologna is currently Chair of the eCare WG within the Knowledge Society Forum – Telecities.

4.7 Advanced GIS

With the advanced enterprise GIS (Geographical Information System), many cities have carried out a digital photogrammetric cartography and a high resolution ortophoto system that allow them to obtain a complete topography and building elevation measures²² for their whole territory.

Cities have then acquired a model which is Internet navigable; it is also possible to provide it with a flight simulator that supplies a highly realistic vision of their territories. Furthermore, the browsing system on the web can be completed with detailed reports on any object, external links and comprehensive information about the main monuments, public services and places of interest.

The implementation of the GIS system should allow cities to:

- improve tourist information and services;
- better evaluate the city evolution and growth, and the impact of new urban projects;

²² The DEM (*Digital Elevation Model*) and the 3D models for all the buildings and the relative ortophotos which "dress" their shapes are obtained through dedicated devices;

- control the sound pollution and the distribution of air pollution;
- carry on pilot projects and simulations about the impact on environment of EM fields propagation;
- provide a unique geo-referencing system for other enterprise applications.

Moreover, with the forthcoming integration of wall textures and 3D game rendering engine, it will be possible to make a virtual 3D visit to towns on the ground, to promote educational programmes, such as a virtual safe driving campaign and to foster citizens' participation to the Urban Planning projects.

Most Governments are facing an inevitable e-direction: using mobile technologies, applications and services in enhancing eGovernment efforts. Out of these efforts, mobile-Government emerges and constitutes the next wave of eGovernment evolution.

But more than just making public information and government services available "anytime, anywhere", it's worth providing actual citizen-oriented services, as well.

Integrating geo-referencing GIS applications on mobile devices is indeed the key to enrich mGovernment assets, in order to give the possibility of customising information according to the actual user's position.

When supported by a full-fledged CzRM (Citizen Relationship Management) system, it leads towards a "geo-marketing" attitude in providing services, as the one solution to offer easy access to mGovernment information in alternative forms, according to the actual user's needs of a specific geographic area.

It would therefore be very interesting to set up pilots, building a path between "logic" links and GIS applications on mobile devices, using geo-location (geographic information) as the means for analysing peculiarities of a specific geographic area in the city.

4.8 City safety

Making Cities a safer place to live, work and visit is one of the local administrations' most important objectives.

Monitoring the territory is indeed the first means of applying the concept of 'early intervention', supporting residents, business and associations in their approach to city safety.

A wide installation of video cameras, aimed to be supported by an automatic analysis of moving images, is one of the possible means to face anti-social behaviour and unintentional injury, allowing already existing measures to prevent and respond to safety issues.

Cities have then to set up common strategies that allow them to identify crime and safety issues of concern to their communities and to provide a comprehensive plan to address and develop these issues in the near future.

5. THE TEAM

Should Bologna be granted the Presidency of the Knowledge Society Forum, a **Local Steering Committee** has been created for the development of the network-related activities and research projects. It is composed of representatives of the Municipality and the University of Bologna, which share the common interest in developing, at the European level, their ICT agenda.

The Local Steering Committee is made up by:

- for the the **Municipality of Bologna**

Giuseppe Paruolo, Deputy Mayor for Health and Communication (Chair)

Anna Rita Iannucci, Director, Communication Area and Relations with Citizens

Osvaldo Panaro, Director, ICT Department

Giovanni Farneti, ICT Department

Leda Guidi, Head of Iperbole Civic Network and Services for Communication with citizens

Michela Fantini, Responsible, Healthy Cities Network, Health Department

Marco Farina, Environmental Monitoring Unit, Environment Department

Francesca Martinese, Responsible for International Relations, Mayor's Cabinet

Sveva Ruggiero, International Relations, Cooperation and Project Office

- for the **University of Bologna**

Roberto Grandi, Pro Rector for International Relations and Professor at the Communication Sciences Department

Claudio Bonivento, Director of the Department of Electronics, Computer Sciences and Systems - DEIS

Andrea Asperti, Director of the Computer Science Department

Gabriele Falciasecca, Professor of Telecommunications, Department of Electronics, Computer Sciences and Systems - DEIS

Renzo Davoli, Professor, Computer Science Department

Guido Avanzolini, Professor of Biomedical Engineering, Department of Electronics, Computer Sciences and Systems- DEIS

The **Steering Committee** will also schedule wider meetings, involving the local public or participated ICT agencies mentioned in this document.

CINECA is represented by Marco Lanzarini, Director

CNR Research Area is represented by Giancarlo Seconi, Head of CNR-ISOF

CNIT-CNR is represented by Oreste Andrisano, Responsible for the IEIIT-CNR/CNIT Research Unit in Bologna.

IRSIG - CNR is represented by Giuseppe Di Federico, Head of CNR-IRSIG

Guglielmo Marconi Foundation is represented by Gabriele Falciasecca, President

CUP2000 is represented by Mauro Moruzzi, Director

ENEA Bologna is represented by Mafalda Valentini, Director of the Bologna Research Centre

The International Relations, Cooperation and Projects Office of the Municipality of Bologna will handle all the organisational aspects, as well as the communication with the Forum member cities and EUROCITIES Secretariat. It will also monitor and provide information on the most important initiatives in the field of Information Society, as well as relevant policies and available funding at the European level.

The Office is part of the Mayor's Cabinet and provides a specialised advisory service to all Departments of the administration that covers both bilateral and multilateral international relations. The European Projects Area of the Office offers specialised support to all the departments of Bologna Municipality, dealing in particular with funding applications as well as the planning and management of international co-operation projects. Furthermore, it deals with the collection and dissemination of information on funding opportunities and works on the internal and external visibility for projects run by the Municipality.

Through periodical meetings of the Local Steering Committee, the IT and the Communication Departments of the Municipality, together with the representatives of the University of Bologna will bring their know-how and provide innovative strategic input for the activities that could be developed within Eurocities Knowledge Society Forum – Telecities. Furthermore the other Public and participated agencies mentioned above will be involved in the reflection on some specific issues, in order to implicate the whole relevant "city system", as a bridge towards the real market of this sector.

Bologna, September 4th 2006