Citizens role in participating monitoring of urban areas

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Introduction

Many reasons push to re-examine the citizens role in today life of the big towns and specifically in environmental monitoring. In one hand, the complex and often contradictory nature of the urban problems (e.g. cities enlargement and multiethnic migration and urbanization phenomena) are creating new needs; at the other hand, the change of behaviours are producing a weakening of the social cohesion and of the natural identification of citizens with their historic traditions. In addition, the new achievements of IC tecnologies, have determined the spread out of internet and intranet data networks and of both fixed and mobile terminals with internet navigation capability. Such infrastructures can be used easily to collect data about the status of the towns, possibly by using specific applications and formats accessible on the network. A further element is represented by the administrative constraints and the need to limit the public services costs and improve their efficiency. All these factors motivate a strong action to be undertaken by the Local Authorities with the manifold objective to involve citizens in finding shared solutions to the main problems of the towns and in contributing to the environmental monitoring.

Hereinafter these mentioned problems will be examined especially in relation to the second aspect, the role that citizens can play in the urban monitoring and in quality control of public services. In this respect the services delivery conditions will be analysed from a systemic point of view; the new chances offered by ICTs to make easier town monitoring will be further examined to point out the benefits expected on both techno-economical and social side.

Urban systems, environmental and public services quality

Environmental and Services Quality (ESQ) plays a very important role in the advanced societies, as it deeply influences goods and services production, constitutes an element of

guaranty and safety in social behaviours and market relationships and really defines an important framework qualifying the life conditions of the towns.

ESQ involves the behaviours of distinct actors (Government Institutions, Public Services Enterprises, Local Control Authorities, Citizens and their Associations) in the frame of established rules. Such a system presents a complex frame of interactions (see Fig.1), in which great relevance is taken not only by the quantity of investments and the efficiency of the involved operational structures, but also by the social behaviours (public participation and behaviour, attention given to the citizens, open-minded of the Institutions).

The today management of environmental and Public Services processes can be represented as in Fig.2, where controls on the population and on the environment are exerted under a given set of rules mostly without any intervention of the citizens, which are only authorised to give long term feedback with the choice of the local government.

In the frame of participating towns the role of the citizens is much wider and relevant to a number of directions, as represented in Fig.3. We can distinguish in particular.

- transversal links directed toward the others citizens;
- monitoring actions, which integrate or substitute the ordinaries ways of monitoring;
- a more external feedback, relevant to the identification of the town problems and of the relative solutions.

As to the impact on the services delivery processes, it is wise to distinguish two reference management schemes, respectively based either on pre-established programmed interventions, or on dynamic programs adapted according to the real status of the town. The first scheme is characterised by a limited effort in real time town monitoring and the interventions are mostly made according to a fixed program updated on a mid-long term time scale. The second case is characterised by more focused and efficient interventions, that follow the indications risen by a larger monitoring activity; the last could be done at very marginal costs resorting to the modern IC technologies and to citizen participation.

New Technologies and urban monitoring

The monitoring of the towns can be carried out with different features and timescales. Data collected by the monitoring process can be utilized off-line, to identify new needs of services and re-organise services delivering, or on-line, in the frame of adaptive delivering processes. In both cases, however, monitoring data must be processed to find out statistics, to evaluate demand to satisfy, to verify quality and efficiency of services and, in the case of adaptive delivering, to adequate delivering plans to the services needs. So it

is always necessary to collect data by monitoring and to store data in a city database for further processing. The whole chain can be very expensive to implement and manage, taking into account the territory extension of the big cities. Till some time ago the technologies usable to collect data where very expensive and could not be easily deployed ; however in the recent time, new and encouraging chances have been emerged regarding to the all rings of the process chain, i. e. the collecting networks, the terminal equipments, the storage and processing of data.

As to the network, the Internet network, can cover metropolitan areas at very low cost, being accessible both from all the telephone sets of the fixed network and all the terminals of mobile and wireless nets. Messages (e-mail, fixes images, forms) can be sent via Internet or Intranet at very cheap marginal costs, once the application necessary to access and communicate with the internet collecting sites would be installed in the net servers. Also the development of such applications and the management of the collecting internet site, are not particularly expensive, being the costs of the data collection due essentially to the costs of the operators involved in monitoring. This cost item can be easily put down, or highly reduced, resorting to citizens' participation.

Also as to the data-entry (putting data in the database), that traditionally has constituted a big barrier to the realisation of efficient monitoring systems, the technological developments have now radically changed the situation. In this regard it is necessary to consider that the most of the events of the towns to be monitored have attributes that can be defined a priori and included in dynamic forms, accessible at the internet data collection site, that can be filled in by the citizens during the sent of their messages. With this technology forms are directed back to the sites and stored in the database without intervention of operators. All these applications are weakly service-sensitive, so it is possible to think to a unique collecting structure for several services or to a dedicated structure for each service, simply developed one from the other.

In conclusion today technological evolution makes possible easily:

- to realize effective Urban Sensorial Systems (SSU), union of the telecommunication nets and of human collectors (citizens/operators) sending their proposals or complaints through fix and mobile terminals

- to realize urban integrated systems, by which to control the Environment and Services Quality, that are constituted by the union of SSU and the site applications needed to collect the information about the towns via Internet (CitySensor Systems-CSS).

- to let citizens actively participate to the monitoring on their towns .

Citizen participation to town monitoring

The channels today open to the citizen's participation are represented in Fig.4.

Mostly citizens send complaints to Local Authorities, Associations, Newspapers and Services Companies by letters, fax or e-mail. These means are often affected by some limitations:

- data collection is rather occasional and incomplete;
- citizen messages are stored in archives not open to citizens, operators or social researchers;
- proposals and complaints have not the proper format to be automatically processed as a whole so to lead to a global vision of town problems;
- citizens do not perceive the global process of data collection and processing, and can not monitor the exit or the responses to the citizens messages that are given by Local Authorities or Services Companies;
- it is impossible to produce classified information useful to realize Quality Control Observatories.

Instead according to a more advanced and democratic view citizens should responsibly:

- to contribute directly to the information base required for the decision process and the management of the towns;
- to know the contributions sent by all the others citizens;
- to participate to the decision process.

CSS are an adequate response to the needs of town monitoring and to the citizen's right to participate in city government.

The main functionalities to be met in developing such systems are the following:

- citizen messages (e-mail/forms/images) are collected via Internet;
- citizen database is fully accessible to citizens and to other actors;
- messages are automatically classified and processed to produce statistical analysis and a global visioning of city problems;
- information given by citizens could be used in public services delivering.

Using CSS citizens can send their complaints or suggestions (Infocity) by selecting a particular object or urban service (Streets, Bicycle ways, Parks, Street lightening, City cleaning, Waste collection, Gardens, Environment, Pollution, Traffic, Transports, Post

Offices, Health, Schools, ect...) ,and filling the relevant forms given by the CSS and so describe drawbacks in the town or inefficiencies of Public Services.

Differently to e-mail, fax, letters and telephone calls, Infocities can be automatically processed. Trough Infocity it is possible:

- to locate geographically and temporally the event citizens intend to send messages (eventually with the help of maps and street directories);
- to describe the event by typology and by features using CSS.

CSS can also send the Infocities to the Institutions, to the Authority on the Services Quality, to the relevant Public Services Companies, and allow citizens to monitor the taken interventions, the time employed and the quality of the response.

Although the realization of CSS don't requests relevant investments, the participation of the citizens is a prerequisite to be assured and so proper promotion initiatives are required to stimulate and accustom citizens to use it.

The benefits of CSS and of participating monitoring

There are both techno-economic and social benefits by the use of CSS and by participating urban monitoring.

The techno- economic benefits are connected to the possibility to realize systems allowing:

- extended diffusion over the territory;
- high scalability with respect to addition of new services;
- low systems and management set-up costs;
- automatic data-entry.

There are also manifold social benefits.

They are related to the Institutions, the Services Companies, the Citizens and the Associations. They are listed below.

Benefits for the Institutions

- to have citizens more closed to the city and the institutions;
- to have efficient and democratic governance tools, based on the active participation of the citizens;
- to find out shared visions for the city problems;
- to have maps and up-dated statistics of the drawbacks in the town and so improve the quality of the interventions planned for the city.

Benefits for the Public Services Companies

- to improve the image of the Public Services Companies in front of the citizens;

- to cut costs of the call centres and the man power involved in town monitoring;
- to make focused monitoring and produce lists of priority for the realizations of the interventions.

Benefits for the Citizens

- to use tools designed for sending claims and proposals to the Institutions and to the Public Services Companies and monitoring the results of their suggestions;
- to be a community where the reclaims and communications are positively attended;
- to feel the city where they live more cohesive and with a higher public behaviour;
- to be conscious actors of a powerful tool of democratic participation.

Benefits for the Associations

– to have access to an extended database regarding the events and the problems of the town, based on the opinions of the Citizens;
– the growth the level of their initiatives in their representative functions;
– to profit of a new environment open to democratic participation and involvement of citizens.

Conclusion

The technological evolution makes possible to realize CitySensor systems (CSS) usable for town monitoring purposes. By CSS several objectives of great social relevance can be pursue: reorganization of the public services oriented to the end users, democratic formulation of shared proposals for the towns governance, development of better public behaviours among Citizens and Administrators. CSS can become an essential tool to support the decisions of Institutions and local Authorities in the field of Environmental Control and Public Services Quality.

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About the authors

- *Dr. Giovanna Anselmi* *graduated in Political and Social Sciences at the Catholic University of Milan in 1970. Until 1983 she conducted research into Economic Planning and Social Politics at ISPE (Italian Economic Planning Studies Agency). Since 1983 she has been a senior Researcher at UDA/Advisor Unit at ENEA (Italian Agency for Energy, Environment and New Technologies), where she has been responsible for several research activities and evaluation in national and international projects. Her professional interests concern the Impacts and Changes in Economic, Social and Cultural Scenarios of IC Technologies, Technology Assessment and Sustainable Growth Studies.*

- *Dr. Ugo Mocci* *graduated in electronic engineering at the Rome University La Sapienza in 1966, where until 1969 he conducted research on system identification and automatic control. In 1970 he joined Fondazione Bordoni where he led and managed research groups on design and planning of telecommunication networks, network management and performance analysis, high speed Internet networks with quality control, wide-band networks for interactive services. He has participated in many European projects promoted by ESA, RACE and COST organizations and until 1999 was secretary for many years of the annual European Network Planning Workshop. He has presented about one hundred contributions in international congresses and was co-editor of the volume Broadband Network Teletraffic, Lecture Notes in Computer Science N. 1155, 1996, Springer- Verlag. His present interest concerns the applications of IC technologies to promoting citizens' participation in the local government of urban areas.*

The Urban Quality System

Monitoring

Public Services Companies

Investments

Efficiency

Social Cohesion

Citizens / Customers

Environment and Public Services Quality

Public behaviour

Comunication/processing

• Participation /Sending messages
• Town problem knoledge
• Focused Interventions (sh-med-lg term)

Local Government

Control Authority

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Fig. 1. The Environmental and Public Services Quality Systems

To day Town Management

Rules

Environment

Local Governm.

Services Managem.

Citizens

Town Problems

Controls

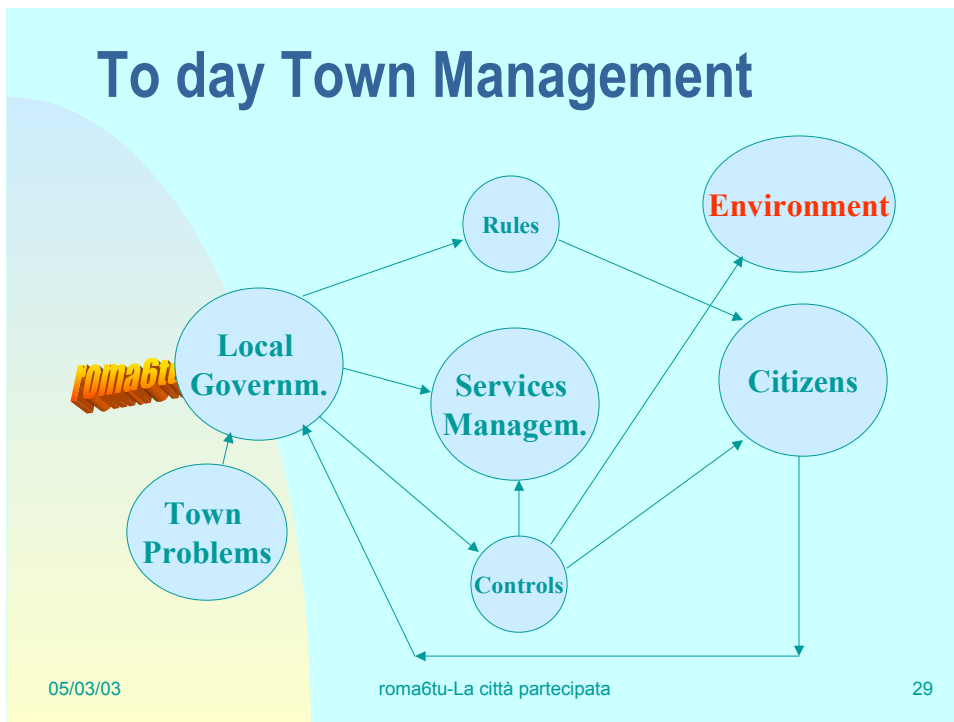05/03/03

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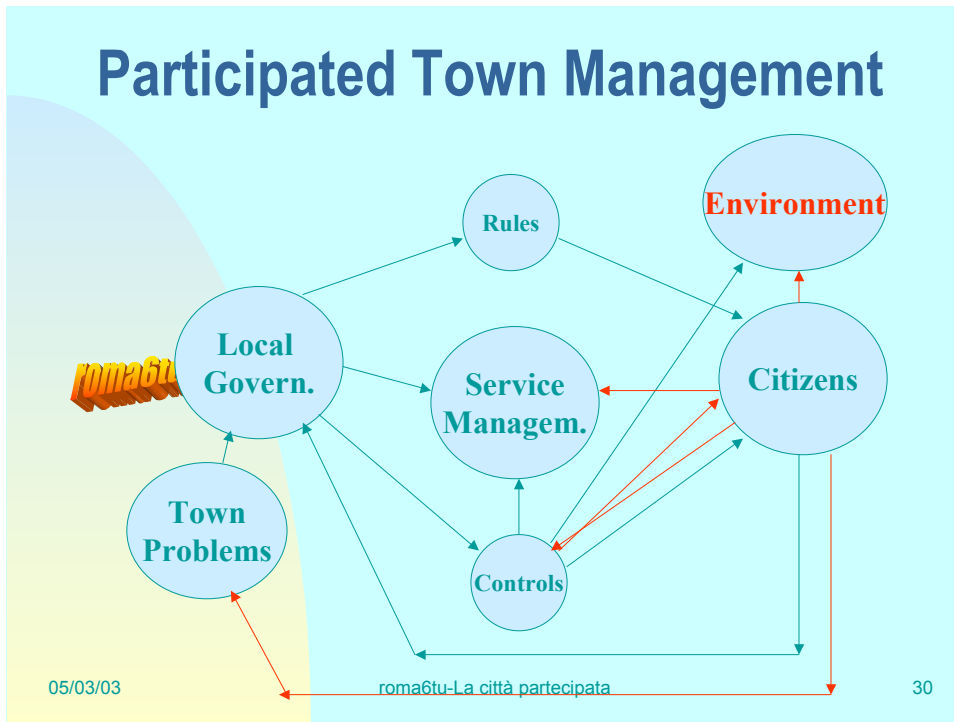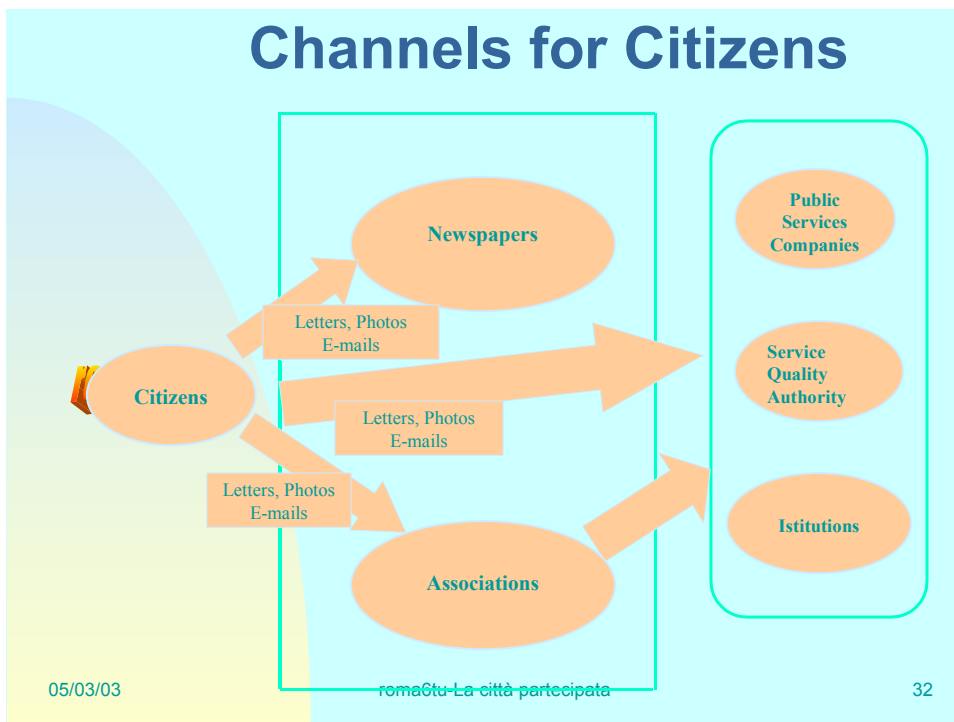
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Fig. 2. To day Town Management

Fig. 3. Participated Town Management

Fig. 4. Channels for Citizens