

# A Citizen-driven Civic Network as Stimulating Context for Designing On-line Public Services

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## ABSTRACT

One of the major needs of Western countries and economies is to improve the performance and effectiveness public administration. Networking applications are often conceived of as powerful tools toward that end, but to design them to achieve that goal is by no means an easy job. The thesis of this paper is that a citizen-driven civic network represents a stimulating context for designing the on-line services of local government in such a way that they actually encourage the cultural, organizational, and technological innovation that is so needed and so difficult to implement. The paper discusses this claim and argues in favor of it based on the experience gained 'in the context of' the Milan Civic Network, namely, cooperation with the Milan city government and the authorities of the Region of Lombardy.

## Keywords

Civic network, local government, on-line services, citizens, participatory design.

## INTRODUCTION

In the beginning of the eighties an international, essentially European, conference held under the auspices of IFIP was devoted to discussion of «system design for, with and by the users» [4], [16]. The topics, themes, and concerns discussed were almost the same as those that now have the attention of the Participatory Design Conference. It is probably not wrong to see that event as the 'European prerequisite' for the current PD conference.

In fact, the conference title, «System design for, with and by the users» aimed to stress the fact that computer-based systems have to be designed not only *for* the users (which is trivially achieved by any system designer or software developer who wants her/his application to be used by those who need it). Nor is it sufficient to design *with* the users, as promoted by the social and technical design tradition. The stronger claim was that system development, to be successful, requires the direct and *active* involvement of users, i.e., computer-based systems must be designed by

their users too. This claim favors *participatory design*.

At the beginning of the eighties, attention was essentially focused on the design of information and electronic data-processing (EDP) systems. The hope was that the redesign of (working) procedures, which forge organizations, would take into account the needs, perspectives, and knowledge acquired by those who are directly involved, regardless of their position and role within the hierarchy and power structure of the organizations. According to this participatory approach, the ability of computer professionals (system designers in the narrow sense) would be to put their technical competence within reach and in the hands of users, who become system designers too. This approach inspires, for example, the software-development life cycle proposed in [2], although it's important to remember that, in this case, the cycle is motivated by software development productivity rather than by more 'social' aims. Moreover, it is important to stress that users do not necessarily have common views, interests, and goals. The redesign of procedures (we would now say, re-engineering) may therefore give rise to conflict and the redesign process becomes the battlefield: there is no reason why computer professionals should be players or arbiters of that battle. Not assigning computer professionals tasks beyond their roles and skills, but considering them enablers of real social actors, was the specific solution we suggested at that time [10], within a broader participatory-design approach.

The second half of the eighties saw an increasing awareness that procedures capture only the structured part of work, while communication supports less structured activities. Attention is paid to communication and networking technologies. Community-supported cooperative work and groupware arise as new fields. However, the problem of design is still there: even in the age of information and communication technologies (ICT), one envisages the need for network-based applications that are designed not only *for* and *with* the users, but *by* them, too. This is the main concern dealt with in [3].

These traditions and understandings were part of our background when, in 1994, we started the Milan Civic Network (Rete Civica di Milano, «RCM» for short) [5],[6]. In particular, we kept the idea of computer professionals as

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enablers of the social actors who are the ones who play the real game. To stress this concept, we adopted the slogan: «*la rete siete voi*» or «you are the network,» for RCM.

This paper reports our experience in applying this participatory approach to the design and management of RCM. More precisely, it aims to show the positive effects that adopting a participatory approach to the design of the civic network can have in the design and development of on-line services by the local government organizations. We believe and have experimented that a citizen-driven civic network constitutes a stimulating context for introducing networking to local government in such a way that it can produce the cultural, organizational, and technological innovation that is sorely needed yet so difficult to achieve.

In the next section we summarize the development of RCM, its main design features, and the management choices that emphasize active user participation. The third and fourth sections report experience gained in cooperation with the Milan City Administration and with the Lombardy Regional Authority, respectively. The two final sections reflect on and generalize from these experiences, drawing a few conclusions.

#### RCM: DESIGN PRINCIPLES AND EXPERIENCE

The Milan Civic Network is a community network (CN) started in September 1994 as a project of the Civic Networking Laboratory at the Department of Computer and Information Sciences (DSI) of the University of Milan, Italy. RCM was set up with a small investment by the university and thanks to the donations of sponsors primarily from the information-technology industry. Since then, it has survived through several research contracts, mainly with local-government organizations. However, it must be stressed that RCM differs from other similar initiatives in Italy, in that it is not a government system and has never been perceived as such. Because it is hosted by the university, RCM presents itself as independent from the local (municipal, provincial, and regional) and national governments. And this seems an important factor in remaining free and independent. To maintain this feature, while acquiring the prerequisites for its further development, we are now setting up a so-called «participatory foundation,» something in between a foundation and a citizens' association.

RCM's architecture consists of two closely linked servers:

- The local community server, which runs the FirstClass server, by SoftArc Inc., is accessible free of charge on 32 telephone lines. Users who have an Internet account connect to it through the net (reducing the need for ever more telecom entries). Both use the FirstClass client software.
- The associated Web server, which mirrors part of the bulletin-board system (BBS), was set up in 1995 thanks to an original software (basically, a gateway) developed

by the Civic Networking Laboratory. Even now that SoftArc has released its FirstClass Intranet Server (FCIS), which makes it possible to access the FirstClass server using standard Web browsers, we still maintain a separate Web server. That server links both to areas created by FCIS and to areas produced by our gateway, which still has some advantage and is programmable, e.g., using Perl.

According to the terminology adopted by FirstClass, the following expressions are used below:

- *Conference* refers to a newsgroup or forum. A conference is *public* if all registered users can read and send messages to it and *private* if this right is limited to specific groups of users. A conference is *read-only* if generic users can only read messages and there is a conference manager who can write (i.e. send) messages. A conference with one or more *aliases* has multiple references. These may be created by any user in her/his private space or placed inside a related conference by its manager.
- *Moderator* is the user who manages a conference.
- *Administrator* is a person who manages the FirstClass server. Typical jobs are opening new conferences, giving them the right access privileges and so forth.

Logging in to RCM is free to the public at large. Those who register (through a remote procedure aimed at certifying user identification) benefit from the following services: email (both local and Internet, with the ability of upload/download texts, images, sounds, and certain selected software), public discussions, and chats. It is worth noting that this is to assume, following [1], email as the universal service that must be provided to every citizen free of charge. Full access to the Internet is, on the other hand, a service to be acquired by ordinary citizens on the marketplace, while certain groups (such as disadvantaged people, non-profit organizations, etc.) can take advantage of special conditions offered with local-government support.

Through these services, citizens communicate with each other and have access to information they provide themselves or that is furnished by local associations, by public institutions, and, so far, by a dozen private companies.

RCM is strongly inspired by Internet values, such as being free and open. It shares the principles and goals of community networks, as presented in [20] and [21], especially the ones that state: (a) content provided by the members, (b) bidirectional communication, and (c) focus on local issues. These principles are implemented in RCM: (i) through the above slogan «*la rete siete voi*» («you are the network»), to inspire everyone who enters the network to be an active member and promoter, and (ii) by applying the same policy as Internet Newsgroups to the opening of

new discussion areas, a policy less common, however, among Italian community networks. In fact, RCM administrators, in terms of predefined areas of discussion, impose no rigid design. Anyone can propose a thematic forum, and, if the proposal meets with reasonable consensus from the others, the forum is opened, managed by the promoters.

Thanks to this *user-generated design*, RCM now has 6000 active members (1700 have been removed after one year of inactivity and the average increase per month is about 200 members). It includes more than 400 *active and moderated conferences*, managed by about 300 volunteer moderators who act as delegates of the administrators. The staff, which has heretofore consisted of two administrators and the director of the Civic Networking Laboratory, guarantees the coordination, provides the technical support, and maintains public relations with sponsors, government institutions, businesses, and the local media. Moreover, in cooperation with three moderators elected every six months by all registered users, it handles the critical situations and conflicts that arise within the on-line community.

Not surprisingly, the main outcome of the project, which began four years ago at the university, is that Milan (because the public has insisted on it) now has a solid civic network. The net includes an active community of citizens, by now very familiar with it, and on-line services provided by the major government institutions, by non-profit organizations, and by groups of professionals, while services offered by private companies remain at the experimental stage.

As pointed out above, RCM – maybe it would be more precise to say the *freenet* included in RCM – has been *designed by* the citizens: they propose new areas of discussion; they imagine and create services. Examples include the discussion areas where groups of professionals give advice to the other citizens. Another example can be seen in the use of RCM as bridge between students who have to stay out of school for a long time because of accident or illness and their teachers and classmates. But we believe that it is worthwhile to broaden the concept of 'service' useful to a community. In a metropolis like Milan, with the usual problems of interpersonal communication that metropolises produce, a tool for 'discovering' people who share an interest is indeed a very powerful 'service' that can increase the a citizen's quality of life. A further example concerns political discourse: in the context of Italian politics, which cannot be presented here in a few lines, the net has created a chance to break down historical barriers between different groups, barriers that were inherited from Fascism, from the Second World War, and from the seventies. Even a small result in this respect can have a valuable effect on the social, civil, and cultural welfare of the local community.

More than 70 non-profit organizations have their own

conferences in RCM. These include hobbyists (motorcyclists, kite lovers, archers, etc.), volunteers (SOS, Caritas, etc.), interest groups (including the local chapter of every major political party and trade-union locals), and professional associations. These conferences are directly filled with information and independently managed by some member of the organization itself: s/he informs the public of the organization's initiatives, answers questions, and discusses issues with those who are interested. In some cases, the organization or association also has private conferences, a sort of Intranet for its members.

Organizations that so request can make the conferences they develop and manage in RCM available via the Web. Note what a great difference this represents from the many cases in which an organization is «on the Web» through outsourcing. First, the sites are independently managed by organization members: indeed, a major advantage of FirstClass is that this can be done by someone who has the skill to use a standard word processor (no accident: the program was conceived and designed for educational purposes). Second, the organization gets involved in the local community. Instead of having its own Web site waiting for visitors, in the CN, the organization or association is encouraged to discover where it can find interested citizens. As an example, the Milan chapter of the Worldwide Fund for Nature (WWF) has its own conferences. When its members decide to promote an initiative (cleaning part of town, planting trees, or the like), they send the message or messages not only to their own conference, but also to the conference called «Children's Town.» This is because they have realized that kids and their families are among those most likely to be interested in WWF initiatives.

We say that FirstClass is an *enabling technology*, useful for learning the basics of the net: not only for getting information from the net (as happens through the Web), but for adding information to it. However, thanks to our gateway and to the recent FCIS, it is compatible with the *standard technology*, i.e., the Web and its browsers, and thus allows people to become familiar with them, while understanding and criticizing the lack of interactivity. So users become knowledgeable enough to develop their own opinion and evaluation of Web-based developments, such as push technologies, intelligent agents, and groupware facilities (*the advanced technologies*).

As a matter of fact, RCM has grown from the bottom up, without plans imposed from the top. The administrators neither identify in advance nor suggest areas of discussion: they listen to citizens' proposals for opening a new forum, note overlap or similarities with existing conferences, suggest the use of *aliases* to solve them, and juxtapose areas to facilitate navigation. Recently this task has also begun to be carried out by users in cooperation with the staff.

To get a more precise picture of what citizens connected to RCM consider a major advantage of their civic network, we have recently promoted a survey that, among other things, will compare the major civic networks in Italy [17], in cooperation with CENSIS, an Italian national research institute. While awaiting the results of this survey, we believe we can draw the following qualitative picture of our initiative.

RCM can be seen, in the sense of [11], as a *virtual town* interleaved into the real town that helps the community communicate and cooperate, extending it by offering new spaces for debate and enhancing city life through better on-line services, which opens Milan to the future. RCM is a rich repository of living and updated information concerning the real town [9]. It is also a paradigmatic experience of the «community-supported cooperative work» referred to in [19] as an enlargement of the traditional CSCW field from the work environment to the life of everyday citizens. Furthermore, it is a learning environment for *hands-on* training in ICT technologies of people who would otherwise not now have this opportunity. Finally, the approach that has been adopted triggers citizen creativity: starting from their *real* needs, desires, and skills, people are able to achieve new opportunities and envision new services (in a broad sense) on the net. In that respect, the technology adopted does not look like a constraint: users are able to appreciate its user-friendliness, but also to grasp its limitations. Many of them, after a period of experience in RCM, acquire a full Internet connection. However it is interesting to note that the most of them do not disappear into the worldwide network, but remain loyal and fond participants in RCM, i.e., in their local virtual community. In that respect, RCM has cultural relevance as well, because it reinforces the community's sense of identity. And, it preserves that identity in the era of the global information society [18].

#### THE EXPERIENCE OF THE CITY ADMINISTRATION

When RCM was founded in September 1994, EDP service at Milan's City Hall was in shambles. It was famous throughout Italy for its lower-than-average quality of services, sorely inadequate for the needs of a city like Milan, the nation's economic capital. Because of this, while the other major municipalities in Italy and the world over were opening their own Web sites, Milan's local government was not. However, at the same time, it undertook a 'telematics' project desired, sponsored, and driven by the national telephone monopoly.

Outright cooperation was thus difficult to envision, though we proposed that the city administration collaborate. It took about one year to create the conditions for preliminary cooperation. Since then, the relationship has grown through ups and downs.

Meanwhile, a number of officials of the city administration had registered for RCM as private citizens. In parallel with

the development of RCM, and in the spirit of the «you are the network» slogan, they created simple and effective services that they could implement. Despite the vicissitudes of the formal relationship with municipality, the positive attitude of these civil servants and city officials enabled us (i.e., RCM staff) to establish positive experiences of cooperation and jointly develop services with municipal offices that felt the need to learn about the net by direct experience. The first was the secretary of the deputy mayor, then the press office, and the public relations office in charge of providing information to the public. Afterwards, the city schools and the department of education and the public library, and so forth, joined the project.

The result, after three years, is surprising: instead of the usual information, certification, and payment services typically offered over the net by other municipalities, a broad range of 'cheap' services are now offered on-line. Many of these did not exist before, or were very difficult to access. Among these services are the following:

- A member of the public can check which branch of the public library has a certain book. If none has it, the librarian conducts a broader search and the citizen who inquired will get the address of the closest library that has a copy. Note that, in the absence of adequate technology (in terms of personal computers, databases, etc.), this has been achieved using procedures designed by the librarians themselves to take advantage of the net and the few available computers and connections to library databases.
- Citizens can make reservations for a visit to the old City Hall building. Initially designed for schools and tourists, this service is now used by municipal employees as well!
- Students can pre-register for city schools on line.
- There is a daily list of all sorts of events that take place in Milan and nearby (theater and cultural events, in general; politics; sports; happening for children; etc.). A city employee enters the bulk of the data, but citizens who are members of RCM can add events they organize or are aware of (which is why the service is called «Milan informs Milan»). If you are planning a visit to Milan this year, you can use this service by viewing the appropriate ten-day period (see [8] and click «Milano informa Milano»). However, you will need an Italian friend, because unfortunately the information is still only in Italian.
- Lists of lost objects are updated monthly and one can ask the lost-and-found office if, for example, the brown leather portfolio you lost while visiting Milan has been found. Cases in which the answer has been «yes, it is here» do exist.
- There is a series of «direct lines,» i.e., hotline conferences in which citizens can ask questions and get a public answer. These dialogue either with public offices



or with city officials, including Milan's deputy mayor. Note that questions and answers are public, so all citizens can read earlier exchanges, learn from them, and ask something more precise. This is not an old service provided in a new way; rather, it is a radically new service that efficiently exploits the new opportunities offered by the net.

#### **THE EXPERIENCE WITH THE REGIONAL AUTHORITY**

Beside the case of the Milan city administration, other experiences in the context of RCM have produced similar outcomes. One case involves the General Directorate for Cultural Affairs of the Region of Lombardy and our department's current experience in developing its Web presence.

In all these cases, the conferences of the target institution (the municipality, the region, or the department) are initially hosted on the RCM server, although employees and officers of the target institution manage them with the on-line support of the RCM Administrators. However, a major and essential additional step occurs, if and when the institution decides to set up its own FirstClass server, naturally connected to the RCM server. This has been the case with the General Directorate for Cultural Affairs of the Regional of Lombardy (DC-RL).

The main goal of the project, known as the Regional Culture Network, was to run a BBS for professionals in the field of cultural activities. The purpose is to provide the professionals with useful information (the DC-RL provides financial support for many of these activities) and the chance to interact with each other (e.g., among librarians and archivists).

However, the unforeseen result was inside the DC-RL. In about a year's time, almost all the people in the DC-RL, from the political head (i.e., the local minister of culture) and the general director (his operational arm), to managers, officers, employees, and secretaries, experienced the advantages of email for discussing projects, organizing events, preparing documents, changing schedules at the last minute, etc. Now, they are well aware of the difference between placing a recipient in the «To:» list as opposed to the «CC:» list. They use shared databases of partially structured information (though simply doing it without fully realizing), with the appropriate access privileges and so forth.

The Regional Culture Network BBS, originally set up to enhance external communication (as an 'extranet'), is now (mainly) used for groupware functions (as an intranet). This is, of course, made feasible and easy because the software, namely FirstClass, can be seen in both ways. Its user-friendliness makes it easy for anybody who is familiar with a standard word processor to use. This is a key factor for success within the government organizations. Another key element is that the FirstClass server is affordable and easy to manage. It appears to be a good enabling

technology for introducing networking (server side) to government organizations, where strict constraints on computer skills and costs do exist.

The result surpasses all expectations. While awaiting the implementation of the big and expensive project that will connect all the offices of the regional administration, the people in one specific division, namely the DC-RL, with a limited investment, have gained an effective hands-on education. It has enabled a group of librarians to suggest a set of private conferences for improving exchanges among various public libraries and enhancing book-lending service. They have co-designed these with a student. Other civil servants have suggested how to handle the procedures set out by a regional legislative act for funding cultural projects submitted by non-profit organizations.

#### **GENERALIZING THE EXPERIENCE**

We want to reflect on and abstract from these experiences, at two different levels. In the next subsection, we suggest concrete guidelines and steps, abstracted from the experiences, that we are now following in extending the services to an ever-increasing number of municipal offices and other government organizations. Even though we do not conceive of this as a *methodology*, we nevertheless believe it is worth sharing such a positive experience, in the interest of those who are starting now.

In the subsection following that, we compare our experience with cases in which the initiative for developing the civic net and/or on-line services came from government institutions, without a *strong* initiative in favor of the community. This is the distinguishing feature that induces participatory design. The final subsection sketches the advantages of and a framework for integrating the two approaches.

#### **Guidelines for the Design of Public On-line Services According to a CN-Oriented Approach**

The cooperation between RCM administrators and officials of the Milan municipality aims to develop on-line services, provided through the CN and through the Web, while preserving more traditional distribution channels, such as printed materials, the telephone, and so forth. In keeping with the rationale of the whole project, the CN administrators (the designers) play the role of *enablers*, so that officials (users) gain increasing familiarity with the net and become active co-designers of services to be provided to the citizen (the final users).

Let us consider what happens when contacts begin with an office that is not on the net, wants to enter, and has identified a couple of staff members who will «begin the adventure.» We omit, here, the description of the personal contacts, meetings, and seminars that lead up to the decision.

The first step is to register the selected employees as generic citizens. This is by no means a trivial choice.

Very, very often, we have been asked to register «the office» as a whole, instead of the individuals who belong to it. We believe that insisting that each individual be on-line under her/his personal identity has been a *crucial* factor in our success. This does not prevent us from providing suitable ways to enable citizens to ask questions without knowing the identity of the office and officials who answer, which is an argument often used as an excuse to hide behind the collective identity of an office. However, giving a person who is working for a certain municipal office a personal identity as well as a professional capacity encourages citizens to understand, as a matter of course, that s/he provides information and answers questions for the office. Moreover, each individual, to be registered in RCM, must provide a self-portrait, which allows everyone, in a very free style, to say where s/he works, something about her/his family, hints about her/his hobbies, etc. This self-portrait is available on-line within FirstClass, and this simple feature of the software thus turns out to be essential.

Being registered as RCM members, the selected officials learn about the features and the netiquette of the CN. The fact that thousands of citizens have done the same is a stimulating factor.

It does not take long before the selected officials begin to realize what services they might provide. Usually they begin by offering basic information on-line concerning the office's (off-line) activities and services. In most cases, this information is already available in electronic format, collected and organized for some printed booklet, and the effort to update and convert it into a format suitable for the net is the first 'product' they have to release. The result is a kind of on-line information point for the office. The first skills they acquire thus involve organizing some read-only conferences. This means establishing rules for managing the conferences (typically, these rules specify who can post messages, who can modify them, and so on) and learning how to cut long documents into short messages. The preparation of these areas takes some time, during which they remain private, i.e., visible only to the administrators and to the civil servants who will manage them. The teaching process thus continues, mainly through the net.

To preserve the interactive nature of the net, we always suggest supplementing the read-only conferences with a public forum to be managed as a 'direct line' with the office. It requires some effort to convince government offices to do that. They fear receiving too many messages, severe criticisms expressed impolitely, and the like. Citing previous experience, we insist that the sooner they open their direct line, the greater citizen tolerance they will benefit from, because people understand and appreciate the effort being made. On the contrary, the citizens' generally positive attitude gradually withers when read-only information is given exclusively for very long and people have no place for public discussion.

The fundamental role of these direct lines is, of course, to get citizens' comments and suggestions. On the one hand, criticism and compliments for services and information already available make it possible to assess them qualitatively. That assessment complements quantitative parameters, such as number of accesses (to a conference, to a message) or other parameters, such as the number of subscribers to a conference, that are typical of FirstClass but cannot be illustrated here. On the other hand, we have examples in which the idea for a new service actually comes to the official while answering a citizen's request or question. In other words, these direct lines are the basis for active citizen participation in the design of further services.

This third step, i.e., the development of further services, is more demanding, because it usually involves and affects work procedures. It is beyond the scope of this paper to discuss the re-engineering of work procedures. However, we wish to stress that the skills acquired by employees and officials in the above steps enable them to become actors in this process, which usually involves development of an intranet for the public institution. Whether these skills are actually exploited, with the well-known benefits of a participatory approach, is matter of organizational and political choice and by no means a foregone conclusion.

This methodological approach has another important benefit. Officials using the net appreciate the shift that RCM causes from the usual passive role they have been constrained to since the introduction of information technology in the seventies. They enjoy the shift to an active role in approaching the new networking technologies and are thus inclined to 'teach' the same participatory approach to their colleagues, who are later called on to provide on-line services. This training is carried out:

- by grasping the net's ability to enhance services provided to citizens and work procedures (overcoming or bypassing bureaucratic obstacles);
- by showing examples that inspire by analogy; and
- by offering experience already acquired to others who do not have it.

Instead of a cold education from outside teachers, this triggers a living and rich, emulative, learning process that is the basis for the various services described above.

Services developed according to the CN-oriented approach are strongly interactive and indeed empower citizenship. Here is why.

- For each office there is always a «direct line,» where citizens can ask *public* questions and get *public* answers.
- Information is in the form of messages posted by an official or an employee using his/her first and last name. If someone needs further explanation, s/he can write to the sender directly. The date of the most recent updating is always clear. However, we must note that, because of

this, we have received complaints from people used to the web. Unlike common citizens, colleagues at the computer science department, for example, claim that publishing pure information as a message sent by someone adds something redundant and misleading.

- Every conference has a manager who is responsible for the service running smoothly. If something goes wrong, you can ask him/her.
- The large majority of officials feel themselves members of the community. They take part in debate in public conferences. They vote in the election for the moderators' coordinators. They contribute to the opening of new conferences, and so on.

#### **Public On-line Services: a Municipality-Oriented Approach**

Let us compare the path outlined in the previous subsection with the experience and the underlying approach employed in cases where the initiative for developing the civic net and/or on-line services has come from the municipality through its delegated offices.

There are, at least in Italy, two quite different possibilities:

(a) The choice falls to the EDP service: in this case, the net is often conceived of as an extension of the municipality's network, and the home computer is seen as a home terminal of the municipal information system. As a result, citizens are seen as users, or clients, and services offered to them typically include:

- certificates and payment;
- access to data bases, in the broad sense;
- information on the status of an administrative procedure affecting the citizen that is currently being carried out by a public office.

(b) The choice falls to the public-relations office, which is in charge of assisting citizens in their multiple interactions with the city administration. Because local government in Italy suffers from a huge bureaucracy and obscure mechanisms, these public-relations offices, to achieve their aims, must first improve the «transparency» of government activities, i.e., provide outside visibility for what takes place inside the government institutions. Therefore public-relations officers are used to focusing on what citizens usually perceive as «problems,» and their tendency is to reduce and solve them. As a result, they usually see the net as a way of providing access to information deemed useful to the public. Examples of such information include the following:

- the organizational structure of the city administration, in terms of the hierarchy of offices, and their responsibilities, along with the roles and responsibilities of employees and managers; lists and addresses of the members of the city council and executive branch;
- the so-called «chart of services», i.e. the structured

presentation of what services are provided; why and when a citizen must or may have to use them; where and how s/he can go in order to do so;

- the chance for citizens to ask private questions of the appropriate office about information that is unclear or missing and to receive a relevant answer in a reasonable amount of time;
- the ability to obtain the (possibly complete) series of resolutions, the formal acts approved by the city council and its executive. Although, in principle, this is consistent with the general effort toward «transparency,» some people claim that this sort of information is of dubious value to citizens. Moreover, it is difficult to choose whether to publish resolutions as is, in huge, often unreadable, bureaucratic terms, or 'translate' them into intelligible language (but this might be an impetus for change). Finally, resolutions regarding contracts awarded to professionals are seldom made public, even though the visibility of these acts would indeed improve transparency and societal control over the way public institutions spend public money, by limiting insider agreements.

(c) If a decision is made to set up a project team that represents both the public relations office and the EDP service, the result is a more effective integration of the services. But the main advantage is to avoid the limits of a net site designed by the EDP or the public-relations office alone. The first case risks sophisticated procedures that use the most advanced technology, of limited interest and usability for average citizens. The second case risks the opposite, i.e. insufficient support, or the tacit/manifest opposition, from the EDP staff, which makes it very difficult to collect and offer updated information.

Whatever the choice is (a, b, or c), these services are, by nature, more centralized and usually designed from the top down. They consider citizens users or clients, and the communication is basically conceived *from* the Civic Administration *to* the citizens, while, in the opposite direction, members of the public can only ask questions, inquiry databases, and perhaps make *individual* claims and suggestions. So these services rely on the net too, but in a less interactive way.

#### **A Fruitful Integration**

We can see the two above scenarios as different dimensions of the services centered around a town, which would benefit from the integration of the specific features that distinguish them. They are essentially promoted by different actors (on the one hand, the citizens and, on the other the government institutions), are usually developed according to different approaches (respectively, bottom-up and top-down), and exploit the net in different ways.

There are many examples to prove the advantages of integrating the two. Let us mention two real cases.

(1) When a citizen finds out that an office is «closed for vacation» there is no getting around the thought that: «I'm here but they're away.» Things are different when the citizen knows the person who manages the service via the net and reads a public message like the following: «Dear friends, I'm sorry but in the next two weeks I cannot answer your questions because I'll be in California to visit a couple of friends.» Those who are used to the net know that the feeling of a direct, personal, although public, relationship creates a positive mood instead of disappointment.

(2) An obvious advantage of the net is to reduce physical trips to public offices. When a citizen has to change her/his official place of residence, s/he must first go to the offices of the «new» City Hall to get information on the precise documents s/he must provide. Then s/he gathers these documents and goes a second time to present them and make the formal request for the change. One of the first, minimal, yet useful forms of assistance provided on RCM, was to post the list of documents necessary in the various cases, so that citizens can at least save themselves the first visit. However, at the very beginning of the cooperation between RCM and the municipality, the set of required documents changed, while the on-line information did not (for the offices are not yet connected, the basic information being provided by a central office, with obvious delays in the updating). One man read the old information on RCM, went to the offices, and discovered the mistake. He thus had to go a second time. He might have been angry, and perhaps he was. However he had acquired the cooperative spirit of the net, and therefore sent a message to the employees who had supplied the information: «Hi friend, look: the info you put is wrong, the correct info is as follows: [...] Please, update it. Bye :-)).» A potential conflict was turned into cooperation, the information was updated, and the service was improved, all in an attitude that makes it possible to envision service co-design.

Beyond these specific examples, our overall experience shows that great opportunities are created when the two dimensions of public on-line service design are integrated, if the 'spirit of the Internet,' is transferred, through the local community network, to the re-design of public services. Such an integration *might* open new relationships between local government, civil servants, and the citizenry. It also offers concrete evidence of the difference between conceiving of citizens as «subjects» (as it was in the past), as «clients» (as is espoused by those who want to treat public administration as a service enterprise), or as *holders of a sovereignty* and therefore entitled to play an active role [7],[23].

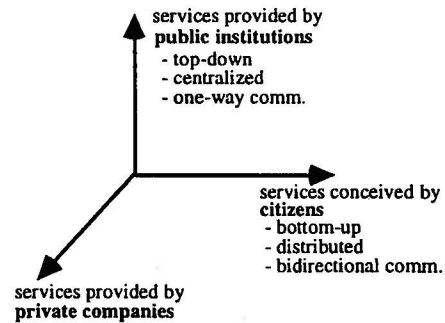


Figure 1. Different dimensions of the services centered around a town.

Indeed, as Figure 1 shows, there is a further dimension that should be considered, that of services provided by the private sector, typically by professionals as individuals or groups, by cooperatives, by small and medium enterprises, rather than by nationwide companies or multinational corporations. Here again, we envision benefits from the influence that the community dimension can play. To discuss them fully is beyond the scope of this paper but we would like to mention that this relates to topics dealt with, for example, in [14] and [22].

We have used Figure 1 to (qualitatively) appraise different «digital cities» (used, following [17], as a generic term). It is, however, important to stress that we do not see them as static points in (virtual) space. Rather, each initiative moves around over time. For instance, RCM, at the outset, lay essentially on the citizens' axis, then moved up to integrate services provided by government institutions and is now moving toward the private-sector axis.

## CONCLUSIONS

It is widely recognized throughout the Western world that radical innovation within the public sector is sorely needed, from Al Gore's «Reinventing Government» [13], to the European Union's «Put People First» green paper [12], to the series of reform acts that are known in Italy by the name of Public Affairs Minister Bassanini [15].

The question is how to make this change possible, and the feeling is that computer networking or, better put, the development of on-line services actually creates an opportunity as it forces government to open itself to the outside.

Academic and government studies point out that, in Italy, one of the major obstacles to undertaking needed innovation in the public sector is that it suffers a lack of competent and motivated officials. Based on our experience, we would rather claim that there are many competent and enthusiastic people ready to dedicate experience, skills, and time to seizing the opportunity offered by 'the net'. Our experience has (at least partially)



made it possible for these resources to come to light and be put to good use, thanks to the participatory approach adopted that has preserved and exploited the basic features and values that characterized the net at its beginning. As the Internet developed from the bottom up, just adding one more node to those already connected, so one more service must be added to those already available. As the Internet has no 'boss,' but survives thanks to the coordination of domain assignment and of security, so the managers of a local civic network must merely assure its technical and operational conditions, a good organization of information and services, and a fair, we could say 'democratic,' resolution of conflicts that arise.

This non-hierarchical context, which encourages communication, stimulates cooperation, and rewards real skill more than formal roles, gave rise to a variety of services designed by public officials, sometimes suggested by citizens themselves. Moreover it produced beneficial side effects in the form of hands-on education for groupware and the participatory re-design of work.

On the contrary, if government interprets 'telematics' to mean publishing materials on the Web (seen as a sort of 'tourist office' on line) or for providing remote services designed by the EDP centers (of which the citizen's personal computer becomes a home terminal) no displays of imagination or beneficial side effects will take place. In that case, despite mountains of words and rivers of ink, despite sums of money spent to announce that telematics will enable us to enhance interactivity and flexibility, to get closer to citizens' needs, and the like, the backlog represented by the organizational and power structure, coupled with the old EDP-based automation, will preserve the previous state of affairs and the net will be used to provide existing services on a different channel.

In any event, this opportunity to promote the cultural, organizational, and technological innovation that is so needed and so difficult to implement can be seized or missed. We have already mentioned cases of opposition from EDP staff. This is quite frequent in the public and private sector. EDP wo/men usually do not like the net. Moreover, there are bureaucrats who fear losing their position of power because being on the net makes it more obvious who actually does the work. In theory, one could also expect some opposition from older officials, but, in our actual experience, age is not a significant factor. Finally, a key element is whether politicians understand the relevance and importance of the change, and defend those who are engaged in it, or leave them alone. We have come across a few who grasp and support the very radical change that the net can induce in the public sector, but the vast majority of politicians do not understand it and/or oppose it (one form of tacit, but effective, opposition being to do nothing).

The mix of all these factors is precisely the reason for the ups and downs mentioned in relations with Milan City Hall,

which do not allow us to take full advantage of the positive result obtained so far or extend as far as would be possible.

The crucial need is therefore to remove these obstacles – in terms both of bureaucratic constraints and of conservative managers and politicians who hinder the innovation.

Seizing this opportunity has an even more important consequence, however. We have seen that the two approaches differ in the way they involve citizens: in one case, citizens are seen as «clients» of a hopefully effective public sector; in the other, citizens are conceived of as owners of sovereignty. Two centuries after the French Revolution affirmed the right of citizenship for all, this right needs to be empowered and 'reinvented' in the perspective of the new frontiers opened by the net. Since the essence of citizenship is the chance to actively contribute to building society and the world, the alternative that the two approaches underline is not between better or worse net sites and local-government services, but between reinventing democracy and dooming future generations to the Orwellian scenario of 1984, whose 'implementation' the recent alliances of huge telecommunication, television, and computer companies may envisaged.

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#### REFERENCES

1. Anderson, R.H., Bikson, T.K., Law, S.A., Mitchell, B.M. *Universal Access to E-mail: Feasibility and Social Implications*, Rand, Santa Monica (CA, USA), 1995.
2. Balzer, R., Cheatham, T.E., Green C. *Software Technology in the 1990's: Using a New Paradigm*. IEEE, Nov. 1983.
3. Blomberg, J., Kensing, F. (eds.), *CSCW, The Journal of Collaborative Computing, Special Issue on Participatory Design*, vol. 7, Nos. 3-4, Kluwer Academic Publishers, 1998.
4. Briefs, U., Ciborra, C., Schneider L. (eds.), *Systems design for, with and by the users*. North-Holland, 1983.
5. Casapulla, G., Chizzoni, A., De Cindio, F. *RCM: an Open Architecture to Build a Community*, in Proc. of 3rd IEEE Intern. Workshop on Community Networking, Antwerpen (B), May, 1996. Available at: <http://wrcm.dsi.unimi.it/articoli.htm>
6. Casapulla, G., De Cindio, F., Gentile, O. *The Milan Civic Network Experience and its Roots in the Town*, in Proc. of 2nd IEEE Intern. Workshop on Community Networking, Princeton (NJ), June, 1995. Available at:

<http://wrcm.dsi.unimi.it/articoli.htm>

7. Cassese, S. *Lo Stato Introvabile, Modernità e Arretratezza delle Istituzioni Italiane*, Donzelli, 1998 (in Italian).
8. Civic Networking Lab, Comp. Science Dept., Univ. of Milano. *Rete Civica di Milano Web Site*. Available from <http://wrcm.dsi.unimi.it> (in Italian).
9. Cowan, D.D., Mayfield, C.I., Tompa, F.W., Gasparini, W. *New Role for Community Networks*, Communications of the ACM, vol. 41, N. 4, Apr. 1998.
10. De Cindio, F., De Michelis, G., Pomello, L., Simone, C. *Conditions and Tools for an Effective Negotiation during the Organization/Information Systems Design Process*, in [4].
11. De Kerckhove, *Business in the Virtual Cities*, Telecomnet 98, IDC Italia, Milano, 1998.
12. European Commission, DG V Employment, Industrial Relations and Social Affairs. *Green Paper Living And Working In The Information Society: People First*. Available from <http://www.ispo.cec.be/infosoc/legreg/docs/peopl1st.html>
13. Gore, A. *Common Sense Government: Works better & Cost Less*, 3rd Report of the National Performance Review, Sept. 1995.
14. Hagel, J., Armstrong, G.A. *Net Gain Expanding the Market through Virtual Communities*, Harvard Business School Press.
15. Italian Parliament. Law 15 March 1997, n. 59. *Delega al Governo per il conferimento di funzioni e compiti alle regioni ed enti locali, per la riforma della Pubblica Amministrazione e per la semplificazione amministrativa*. Gazzetta Ufficiale n. 63, 17 March 1997. Available from <http://www.parlamento.it/parlam/leggi/970591.htm> (in Italian).
16. Nygaard, K. *Participation in System Development. The Task Ahead*, in [4].
17. RUR, Censis, Assinform, *Le Città Digitali in Italia - Rapporto 1998*, to appear (in Italian).
18. Schiavone, A. *Italiani senza Italia, Storia e Identità*, Einaudi, 1998 (in Italian).
19. Schuler, D. *Community Computer Networks An Opportunity for Collaboration Among Democratic Technology Practitioners and Researchers*, in Proceedings of Technology and Democracy - Comparative Perspectives, Oslo, Norway, Jan. 1997.
20. Schuler, D. *COMMUNITY NETWORKS: Building a New Participatory Medium*. Communications of the ACM, vol. 37, N. 1, Jan. 1994.
21. Schuler, D. *New Community Networks - Wired for Change*, Addison-Wesley, 1996.
22. Special Report, *Internet Communities*, BusinessWeek, May 1997.
23. Tremaglia, M. *Opening of the Annual Assembly of the Association of Informatics and Civic Networks*, Milano, April 1998.