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CITIZENS AND INSTITUTIONS BETWEEN COMPUTERS AND INTERNET: EMPIRICAL EVIDENCE FROM THE ITALIAN CASE

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ABSTRACT

The diffusion of ICT technologies that generated the Internet phenomenon is responsible of the world-wide incredible expectation level related to its high potential contribution to problem solution in many socio-economic sectors. In facts, the contribution of ICT in some sectors, as organizations management (public or private, profit or no-profit), was undoubtedly highly effective.

The interaction between citizens and institutions is also considered extremely interesting, as the specific funds appropriation since the end of 90es of European Union on these topics can demonstrate. This wide interest caused the expectation of a remarkable services improvement, but the obtained results don't seem as much satisfactory.

This international and European scenario had a meaningful reflex also in Italian case, because the lack of information flows between Institutions and citizens in our country is always strongly perceived as critical point. In a former study of 1998 (Tesauro, Campisi), some institutional web sites was included in a wider study sample about the usage of internet communications, reaching unflattering results.

Nevertheless, some recent "accidents" in citizen-institution relationships, widely reported by mass media and strictly related to computer technologies, suggest remarkable doubts about the usage of these technologies. This happens in spite of the creation of a specific Ministry in Italy and five years later the cited study, an incredible amount of time in terms of evolutionary dynamic of virtual environment).

So, the main objective of this contribution is to show a scenario of citizen-institution relation via Internet in Italy at different scales (national, regional and local), identifying strength or weak points not only from users viewpoint and trying to underline the difficulties inherited from a poor usage of actual computer knowledge.

Key words

Knowledge, Technology, Innovation, Infrastructures

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1. INTRODUCTION

The adoption of highly innovative technologies for communication systems was evident during last years and modified substantially the idea of communication from both quantitative and qualitative point of view. The ICT (Information and Communication Technologies) introduced meaningful technical advantages, enabling the transfer of a huge amount of information in continuously reducing time. Moreover, ICT induced also some economic advantages, reducing costs for satisfactory services day-by-day.

These new technical and economic conditions generated also remarkable effects in the socio-economic environment contributing to the globalization development through the quality of information diffused.

Moreover, the growth of communication phenomenon gave a new impulse to a wider diffusion of computer science, due to the strong linkage existing between these environments. This renewed attention paid to computer science developed also the diffusion of skills in managing tools of information retrieval. The definition of an official certificate (the European Computer Driving License) as required qualification for public employees in EU countries demonstrates the attention paid to this topic at least in Europe.

The actual scenario behaves as a sort of cycling process: the huge amount of information available needs increased effectiveness of devoted tools. These tools have to be upgraded continuously and develop the retrieval skills of users. This ability strongly affects the threshold of expected quality for the information supplied starting from the quantity matter. The process continuously enhances differences with those subjects who stand aside from this phenomenon.

Initially, the economic environment got the earlier advantages supplied by the new communication technologies. Probably this was due to a special confidence in using those computer technologies that represents the core of technological evolution of communications. A further reason could be identified as the higher propensity to invest in sectors that are not immediately productive but seem to offer interesting potentialities both for income growth and/or cost reduction.

Viceversa, the preliminary conditions seem completely different for the organizations that are not interested to the main component of the economic environment: the profit. The absence of a specific aim as the profit, that can easily be evaluated or verified, always represented the main source of troubles for the no-profit organizations, while the investment costs represent only a strong constraint for the activity.

In fact, the absence of an economic return makes extremely difficult to evaluate the advantages reachable, as those devoted to information and communication technologies, even if in services sector (including public services) the idea of “client satisfaction” widely increased.

Last but not least, the contemporary level of information diffusion generates a particular configuration in which the producer/supplier of information is also the main user of the same service type. Nevertheless, the skill gained as “users” of internal or external information services is rarely *recycled* in a meaningful improvement of supplied services.

2. THE OFFER OF VIRTUAL SERVICES: ACTUAL STATE

Although client satisfaction was always considered more important by enterprises than Public Administrations, the qualitative improvement of supplied services reachable applying upgraded communication tools still remain poor.

This loss of improvement is partly due to a lack of “confidence” between potential service suppliers and the methodologies required to operate effectively while using innovative technologies. Safety and secrecy of information, including related problems, could be cited as examples in this case.

2.1 The technical component

The distribution of information and services via Internet is generally obtained following a sort of *broadcast* approach until today that is the traditional media approach characterized by a reduced number of sources with respect to a huge amount of users. This functional schema retains the use of only one advantage between those offered by the new technology with

respect to traditional: the increased number of available sources enabled by negligible startup and development costs.

Viceversa, a new communication paradigm should be more connected to the data transfer in both directions allowed by network systems. Any subject involved in a similar schema will become contemporarily supplier and user of the available information, so balancing the overall communication flows.

Only few examples of *peer-to-peer* communications are actually available inside the virtual environment. The main percentage of these examples is due to less honest activities as the unlicensed exchange of copyrighted music or movies.

Avoiding the idea to choose a similar phenomenon as an example (or a case study) of network potentialities, nevertheless these activities use some of the most powerful tools available on Internet. In facts, the transactions are based on a multi-source concurrent interaction. This approach offers very effective results, especially if compared with those obtained by the traditional schema based on multiple alternative sources (*mirroring*).

The “distribution” of both computing power and data sources does not represent a novelty for computer scientists, but it represents a bright example of those well known techniques largely neglected in the virtual environment. The advantages of these techniques are also largely shared (Guarracino 2000) both in scientific and in business environment. Moreover, these advantages involve one of the most sensible sides of the virtual environment: the reduction of answering time.

2.2 The methodological aspect

A new way of planning functions is required to use the innovative tools at best and to reach a full ability in supplying highly efficient services. Nevertheless, this approach reduces the potentialities requiring efforts highly expansive.

From this point of view a comparison with the development in computer science could be helpful. In fact, the earlier stage in the development of computer science looks like a “fashion” matter characterized by poor productivity, while in a second phase computers was

used to manage traditional “handcraft” procedures. The final ripening step is represented by the re-definition of the whole approach, involving from methodology to organization, to get the best exploitation of this tool.

The described development of computer science gave rise to remarkable advantages in business management and organizations. An opportunity to repeat a similar success probably starts from a new evaluation of traditional outlines. The objective of this activity is to single out all the potential advantages reachable using the innovative tool at best. Nevertheless, a similar approach always requires specific skilled resources in project groups involving heterogeneous competences.

The former statements can describe very well the multimedia and interactive environment if we do not consider any reference to computer science there. The actual growing stage can be easily recognized, though a forecast on the maturity of the phenomenon and the related scenarios really appears as a difficult exercise.

Actually the definition of *information society* is widely used, but the interaction between it and the socio-economic environment reminds the early stage of computer diffusion: a different tool to manage traditional activities. As in former case, this approach supplies only few advantages with respect to those reachable through a full usage of the new medium.

The advantages generated by the new technology will be real when the techniques for distributed computation or filing will integrate concurrent functions. This will enable a full exploitation of multimedia communication managed by a population of subjects that are contemporarily users and suppliers of information.

Nevertheless, a new plan of the operating modes is required to obtain the best effectiveness from this innovation, as well as occurred for computer science. It follows that a greater number of experts have to be involved, selected from both different areas of computer sciences and multimedia communication.

3. THE SERVICE DEMAND: INTEGRATED SOLUTIONS

The scenario depicted is generally common for all those subjects who supply information and services in Internet, without any difference between people or organizations, public or private, business or no-profit.

Any information supplier on Internet is at the same time also a user of services provided, as formerly outlined. The role of supplier, in facts, includes several characteristics, starting from the cultural level up to the technological endowment. These characteristics surely contribute to transform the same subject in a massive user of network services. Thus, the most surprising aspect is that the supplier/user has higher expectations when playing as customer with respect to the quality produced when acting as supplier.

Moreover, also the common user inside the Internet environment becomes more and harder to please. This is mainly due to his increasing skill in interacting with the technical endowment, but also to his greater practice with highly satisfactory services.

The qualitative evolution of services added a new component to those parameters still identified (Tesauro, Campisi 1998), such as accessibility, answering time, multilingual presentation, direct communication availability, completeness, and graphical design. This new element is the *integration of functions*, a component strongly required from users.

The early receptors of the potentialities offered by this innovative component were the value-added service suppliers that are those subjects who use the network environment only for business. The main result of this innovative approach is the *portal*, a new service to make easier the “cruise” start. Differently from first generation sites, the portal offers an immediate access to multiple basic services, so becoming the first simplification scheme for cruisers based on integration. The portal quickly became a *standard* for any information supplier on Internet.

Nevertheless, the portal approach offers only a rough version of the idea of integration, because it only put in a unique page several references to service and/or information sources.

The real advantage offered by data or sources integration is not only their banal proximity in a

virtual page, but a more logic *completion* that become a functional connection. This statement reminds the difference in computer science between data base and information system. The data base is a tool to organize and to manage data and actually the technical endowment to implement an information system. The information system is the management of information flows usually based on methodologies coming from other disciplines.

An approach to integration as formerly described can be considered trivial for computer scientists, due to the presence of a strong unifying factor: the organization that have to be served. Viceversa, the integration process on internet have to involve several sources that are usually mutually heterogeneous.

Information sources can be largely heterogeneous due to several components, including graphical appraisal, embedded functions, and detail level and/or presentation style of supplied information. The user that must interact with a so variegated environment will face discouraging troubles.

Nevertheless, the lack of integration today is still tolerated in innovative value added services. This is probably due to its large expectation and to the small advantages supplied at any rate. Some better results could be achieved from more integrated sources as those that could be developed from large enterprises including also information produced and supplied by their business partners.

4. PUBLIC INSTITUTIONS AND INTERNET

The communication with public institutions seems a really hard task for the citizen today. In facts, even if few of those institutions developed satisfactory tools, in the majority of cases there are delays and inefficiencies made worse by the absence of a unifying integrated approach.

In Italy such a heterogeneous scenario was so heavy perceived that drove to the creation of a specific “Ministry for Innovation and Technology”. Its specific objective is (source: Internet pages of Ministry for Innovation and Technology):

[...] in this context is realized a function of course, coordination and incentive, focused to central administrations. This function should define specific projects, action plans and programs based on information technologies to offer improved services to citizens and enterprises both in terms of efficacy and effectiveness.

and

[...] the basic preliminary remark is the full cooperation, still existing, with all Central and Local Administrations, but also with other environments such as socio-economic or research.

Between the main goals of the Ministry there are:

- co-ordination of Public Administrations activities;
- definition and accomplishment of a consistent strategy for Information Society development and related sector related policies.

Users of Governmental sites in USA			
Sex		Instruction level	
Male	53%	Secondary school	52%
Female	47%	High school or +	48%
Age		Year income	
18-29	21%	\$0-30,000	15%
30-49	49%	\$30,000-50,000	22%
50-64	21%	\$50,000-75,000	19%
65+	6%	\$75,000+	30%
Others/Deny	3%	Others/Deny	14%

Tab. 1: Main characters of users of Governmental Internet pages in USA

Source: Citizens Embracing E-Government (Greenspan 2003b)

4.1 International scenario

An article published in Internet (Greenspan 2003a) reports a variety of interesting data about the management of relationships between citizens and institutions in the world: the sample involves 196 countries and 2.288 sites. Only few of those sites (6%) declare the their way to

manage “privacy” matter, whereas the 3% use any communication “security” technique and a modest 2% embed some simplified procedures for disable people.

The percentage is small also for sites that enable a complete usage of the on-line service (8%). Viceversa, the percentage increases for sites that supply links to specific databases (41%), reaching the 72% for those which use an English version of pages, including the 42% using two or more languages.

Tab. 1 shows some characterization of USA citizens using Internet institutional services. Some remarkable results are the high percentage of young individuals (70% ages less than 49) and equal values in terms of sex and cultural level of users.

USA citizens who accessed governmental sites in Internet in the year 2000 where more than 40 millions and their approaches where heterogeneous:

- 42 millions used governmental pages to search information about public policies;
- 23 millions used the network to send notes about political choices to public officers;
- 14 millions accessed governmental web sites to collect useful information to decide about their votes;
- 13 millions was involved in lobbying activities during online campaigns.

4.2 Italian scenario

The national ambit

The poor availability of Italian information sources about the demand of Internet services was described in earlier papers. An analogous search done involving commercial information suppliers also leads to useless results.

A different attempt to estimate the distribution of network services in Italy, using equivalent data of other countries, is not allowed because the Italian behaviour in technological diffusion and distribution was still evaluated as different in the past. These constraints allow only a description of the supply side for Italy.

The Italian Ministry for Innovation and Technology started activating a devoted Internet site *Italia.gov.it* to support the accessing process of National Public Institutions in the virtual

environment. This specific site supply also a first example of “reorganization” of institutional domain (addresses) management introducing the suffix *gov.it* similar to that used for Governmental sites in USA.

Italia.gov.it supply several information about this developing “virtualising” process of institutional activities. Moreover, it presents up to 136 linkages to institutional pages, including: Presidency of the Republic; Premier Office; Parliament (Chamber of Deputies and Senate); all Ministry; all Armed Forces; Citizen Security (from Police to Fire Brigade); Authorities; Public Agencies, Institutions and Organizations including the so called “Intelligence Services”.

Italia.gov.it can be considered as the “portal” of Italian State because it enables the access to all institutional Internet sources. It is also a first example of “national portal” developed until today.

The amount of information diffused by institutional sites in Italy grew so much with respect to that sampled in a former study (Tesauro, 1998). The actual level of information diffused is surely satisfactory. National institutions largely *communicate* with Italian citizens.

Viceversa, the functional approach seems unchanged with respect to former scenario. The use of network remains in a *broadcast* way with an information that flows only in one direction. This scheme proposes again the concept of “lack of dialogue” between citizens and institutions as unchanged. The citizen cannot communicate enough with institutions.

The local ambit

Information and services provided by Local Authorities in Italy are largely heterogeneous. This difference is mainly due to the initiative of each Administration, but often also related to the skill available inside the staff of each Authority.

Both local and governmental web pages were formerly analyzed (Tesauro, Campisi 1998) and also in this case the generic evaluation of services is not really changed. As anyone could expect five years later from previous review, all the Italian Local Authorities developed both quality and quantity of their web pages.

Nevertheless, the actual level of quality generally expected by users seems still far from the results actually achieved in services supplying. A detailed analysis confirms the overall evaluations of the previous study, with negligible difference in some specific case. This result indicates that the improvement obtained did not reduce the pre-existing differences between the provided and expected quality.

4.3 Functionality and integration

Nevertheless, the absence of bi-directional communication and the difficulties experienced by users when interacting with heterogeneous sources still represent really hard troubles. Similar troubles in each web site cannot be neglected even considering their large diffusion in Internet as extenuating circumstance.

A solution for these communication limits could be based on a single unifying project. This project can be developed using an approach similar to those adopted for information systems.

The implementation of a good solution should start from the definition of a “mean quality level”. This definition has to involve the amount of information and services joined with the way of their diffusion. Moreover, in the same definition other important elements cannot be neglected, such as the idea that the citizen could be someone using a different mother-language from the national one, so keeping in the right account the idea of UE Citizen.

In the Italian case a first approach to integration of information sources is available. In facts this approach is the one chosen by Ministry as stepping development strategy and final target identification (e-government). Viceversa, the second component, that is the communication exchange with citizens, seems undervalued again.

The presence of specific functions in the national portal, such as “On Line Practices” or “Queue-less” services seem extremely attractive to Italian citizens. Viceversa, a more detailed verification shows some limits. First of all, the function for “On Line Practices” is allowed only for few activities involving National Authorities. The organizations were able to override the pre-existing lack of integration and supply some on-line “access”.

Moreover, the “Queue-less” area is used only to supply some pre-edited “modules for

procedure activation”. These modules were normally distributed by the involved offices (usually accessible via a queue). Obviously this is a pleasant solution for the final user, but represents a very poor sense of the definition.

Last (but really not least) existing obstacle to services integration is a former virtualization attempt. This early step involved several Institutions, each one with different partners. These partners were often private enterprises characterized by a large territorial diffusion. This situation leads to totally different procedures to complete citizen-institution interactions, such as tax payment. An innovative integrated approach to these functions will damage these activities and related enterprises, so transforming them in strong stakeholders able to slow-down the plan.

5. EVOLUTION AND PERSPECTIVES

The relations between citizens and Institutions remarkably grew during last five years using the virtual ambit, even if a first partial observation returns less important results about this evolution.

The main component of existing difference between real development and quality perceived is probably related to the raising of minimum threshold required by a generic Internet user. This user in facts discovered and used more effective solutions presented by several suppliers of information and/or services operating in the virtual ambit.

The first attempt of integrated approach proposed by the Italian devoted Ministry seems a promising solution. This proposal modifies the natural evolutionary process to develop a real “Information System” obtained standardizing all the basic components.

This approach can strongly improve the quality perceived by users, normally identified with the quality of the worst component. A further reduction of negative effects generated by heterogeneous products the result can be achieved.

Nevertheless, the actual demand of virtual services generates problems different from those solved by Institutions today. These problems require qualitative solutions far from the actual level.

An example could be the availability of real “online” procedures to interact with Public Institutions. The availability of forms in “electronic” version actually distributed via network only offers to users the pleased opportunity to save some time.

Viceversa, the development of full operating online procedures to manage citizen-institution communications introduces several new heterogeneous and difficult problems, including *privacy* and *security* of data managed, competition with earlier services formerly outsourced to private enterprises or clash between different suppliers.

Privacy and security still have solutions largely reliable. These solutions are commonly used by several organizations. Viceversa, any intervention to reorganize services actually available will be allowed by the official institutional level (Ministry) involved. Nevertheless, this operation will require remarkable efforts and long negotiations.

6. CONCLUSIONS

The developing process of the so call *e-government* can be planned on the mean duration, even taking account of the good result obtained in Italy during the earlier stage.

This further time slice will also have to consider the increased level of quality required to satisfy the demand with respect to the actual scenario. This evolution will be necessary to meet future user requirements that will be influenced by the evolution of *culture* about the virtual environment.

The final result is largely predictable: the upgrade of future services will be undisputed. Nevertheless, the quality perceived by users will not obtain the same acknowledgement due to the practice with advanced services.

Only a renewed methodological approach to projects could generate the *acceleration* of service development needed to reduce the actual existing difference between offer and demand. The new approach should include the most performing components of the medium, such as interactivity and distributed solutions, to reduce the actual gap.

A study focused on the scenarios in UE Countries could enhance further elements to identify potential developments of services. This enlarged approach seems more interesting today, when the enlargement of UE up to 25 Countries still started.

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