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# **POTENTIALITIES AND USAGE OF INTERNET COMMUNICATIONS: A QUALITATIVE AND QUANTITATIVE OVERVIEW**

by

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## **Abstract**

Technological innovation is the main responsible of the phenomenon called Internet. This innovative use of the medium accomplishes those concepts and dreams of science fiction's authors. Nevertheless, the new potentialities supplied by this new medium have only partially been analyzed until today. Our purpose is to define a qualitative schema to investigate the main usage of Internet potentialities, joined with a quantitative analysis in the main geographic areas paying a special attention to the national and EEC data.

The first goal is pursued identifying the better usage of the medium done by some representatives of the main socio-economic categories. These representative could be chosen in any geographic area and their performances will be investigated, compared and used to define an analyzing schema.

The second objective is obtained using the best so-called "search engines", since the main characteristic of a site is represented by its accessibility. Moreover, some cross-section data will be provided to enhance some more meaningful insights.

## **Keywords**

Telecommunications

Internet

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## **1. Introduction**

Internet actually represents the most incredible “accident” due to the technological innovation. In a strictly technological sense, it started at the beginning of computer’s development with the former examples of connections between different machines. During last 20 years, that is a very long period in terms of computer market’s dynamics, the communications between computers was largely developed, even within environments strongly constrained.

The constraint was due to the different technologies adopted by the computer suppliers, that is each computers factory used a different “technique” for communications since few years ago.

The period of maximum diffusion for the computers technology induced a sort of “specialization” of the suppliers, so some suppliers devoted themselves to the administrative market share, someone other to technical support and so on. This specialization of producers caused the contemporary presence of different machines inside some companies, introducing the “communication” problem between different technologies.

This communication problem involved the larger companies in a former period, then medium and small companies subsequently, enlarging continuously the demand for adequate solutions and increasing also the budget availability for their development. The first kind of answer to such demand was represented by the development of “translation protocols” between different technologies. This solution, produced by the medium/small sized computer’s factories, was forced by the unavailability of some suppliers in exiting from the boundaries of their environment.

Nevertheless, both the speediness of demand’s growth and the subsequent increase in proceeds of sales drove to the definition of a standard technique in computers’ communication that involved all suppliers.

Therefore, the achieved standard in communication’s technique represents only the first, even if the most important, “brick” for the Internet phenomenon. There were two other necessary components to obtain a functionality as that we know by now. The first component is represented by the total revolution of the “network service supply” introduced by the CERN, while the second is the increase of the traffic flow’s amount.

The HTML (Hyper Text Markup Language) introduced by CERN enabled the information suppliers to release their computers from the main of the two jobs necessary to answer a question. This happens because the HTML is a real programming language that enable the inquiring computer, via an adequate interpreter of such a language called “browser”, to recompute and rebuild the information required both as contents and as appearance. The result is that the supplier’s machine only have to transmit the required files.

Moreover, the transmission job was reduced by the second supporting component, that is the increase of the traffic flow’s amount. It was obtained by means of the increase of productivity of the special component devoted to computers’ communications (modems), the new infrastructural media available (optical fibbers, etc.) and the increase of compression ratio for those files that are structurally huge, such as images, sounds and movies.

The final result of the above innovations is that the existing network appears as an indefinite information source where is impossible to evaluate the number of active suppliers. There are several estimates about this number, but the incredible dynamic of such context make those not reliable.

Internet by now appears as a huge fair where anyone, being or not the owner of a node of the network, can “expose” some informations. The informations actually supplied cover the wider range that someone could ever imagine.

The “entrance” to the Internet environment seems like the entrance to a very huge fair. The difference between Internet and a fair is that a fair is usually thematic, that is the visitor of an exposition usually knows what he’ll find inside, while an Internet “cruiser” can only hope to be able to find what he’s looking for.

## **2. Supplying informations in Internet**

The main obstacle for an adequate approach to the Internet environment is usually represented by the lack of confidence with the “technological medium”. This lack of confidence was a well-known phenomenon during the former diffusion’s period of computer technologies.

The lack of confidence with respect to the new technologies, and more in general to the innovations, attenuate frequently the more deep-rooted personal abilities so

transforming excellent managers or entrepreneurs in people acting as undecided beginners. The result is a large amount of trivial errors in approaching the potentialities of the new technology.

The representation of the network environment as a huge fair is a specific choice due to the immediate potentiality of linkage between a well-known concept in Economy and the reality of Internet. This means that all the economic concepts and rules are still valid in Internet.

In particular, all those concepts and rules connected with commercial activities should be well considered approaching the network environment (competitiveness, logistic, quality, appearance, client-satisfaction and so on).

The information provided via Internet could be divided in three main categories: the cultural, the public and/or social, and the commercial information. In the first category we can include all the “scientific information” supplied by universities and research centers, which represents one of the main components until now, and the informations published by all cultural subjects, such as museums, galleries, archaeological areas and so on. In the second group we can consider all the informations supplied by public or social entities, such as governmental, regional or municipality structures.

Both the first and the second group could be defined as “no profit” information suppliers, even if they frequently add some commercial informations too for sake of completeness. Moreover, these groups behave independently with respect to the concepts of competitiveness and logistic, because their information is surely “original”. Viceversa, aspects as quality, appearance and client-satisfaction for the information provided should be always considered.

As an example of cultural information provider we could present the Louvre museum in Paris. This organization presents informations obviously unique, even if some “touristical” information is provided to grant the completeness. An example for public suppliers could be the CIA (Central Intelligence Agency) of U.S.A. They publish informations that could be found only on their pages, even if some concurrent organizations could be able to supply a wider part of those too.

The category of commercial information suppliers is surely the most varied and heterogeneous. This category contains a sort of natural subdivision between those entities defined as a support to traditionally developed activities and those entities which totally identify themselves with the final object of the activities they represent.

In the first group of commercial activities that are present on Internet we can consider all those sites connected with largely consolidated economic activities, such as industry, commerce and services. Those activities use the network as another medium to distribute their sign and their activities. The sites of car producers for industry, of correspondence selling for commerce and banks for services could be cited as examples.

Moreover, a series of new kind of economic activities started in Internet. These activities operate only inside the virtual environment, using the network as operating medium, but identifying inside the network their whole market. The particular characterization of these activities is probably the main reason for the special care they show in preparing and organizing the services. The “search engines” could represent a very good example of those activities generated by the new reality. These services enable a free access to special automated procedures to search addresses and/or references inside the network.

### **3. Services Characteristics**

The management of an Internet activity is a problem basically similar to the management of a traditional activity. The real operating differences are poor both as quantity and as importance. The localization and the commercialization problems could be good examples of those differences.

#### **3.1 Localization**

The criteria of accessibility for a network activity are practically different, but conceptually similar, from those related to a physical localization. The key idea is represented by the simple access to the operating site of the activity. The access is related to the way and the time necessary to reach the activity pages in a network environment.

This problem grows up to a complexity dimension equal to the magnitude degree of the number of sites contemporary present inside the network. Even if such dimension cannot be exactly estimated, it can be estimated as magnitude degree. The access to an internet site can be compared to reaching a stand in a fair where some million of expositors are present.

From a logistic point of view the access problem for an internet site become immediately unsolvable at least if there are no adequate methodologies and tools

available. Fortunately, the information technology that generated the internet phenomenon, joined with all its operating troubles, enable the usage of really effective techniques and tools to solve the logistic problem. As the matter of fact, a network cruise can be guided by the “search engines” in the same way as a person can use a map and a catalog to go walking inside a fair.

The search engine is a tool offering all the advantages of the information technology applied to the finding problem of a specific address. For example, these advantages are well known to all that people used to make a bibliographic search using such support. The information technology enable to identify and localize exactly the source inside a library. Using the search engines is possible to organize a selecting operation both using generic keywords (free relational approach) and a hierarchic sequence of specifying details (structured approach).

Both the search approaches are available in internet and simple to be found and to be used. This kind of service represents a prototype of economic enterprise of the network, as formerly outlined. The enterprises supplying such a service was started and developed following the best criteria of organization and management for economic activities.

Alta Vista and Yahoo are two trademarks universally known to the internet people and represents a couple of economic realities completely developed. These companies are enterprises that reached a remarkable operating solidity in a very reduced amount of time. Moreover, they entered also the international financial market, overcoming the virtual boundaries in this way. As the matter of fact, these two enterprises was born as concurrent and subsequently joined themselves obtaining meaningful advantages, both from the financial and from the operational point of view.

The competitiveness idea is also modified inside the virtual ambit even if it remains structurally unchanged. The main differences with the traditional competitiveness criteria are determined by the number and the distance from the potential competitors. Concurrency inside the network includes all potential suppliers that are present in the world. Moreover, these suppliers are located at a very reduced distance.

This competitiveness definition of a virtual site probably represents the main responsible of doubts and hesitations about the real advantage in entering such environment. The unique rational answer to this uncertainty could be represented by the confidence with the concept of fair. The competitiveness in the virtual environment is

totally similar to that one experimented during a fair. As the matter of fact, a fair usually hosts the larger part of competitors placed at very reduced distance.

The analogy between the competitiveness existing both in the fair and in the virtual environments is useful also to introduce the presenting way of a site in internet. The activation of an internet site is more effective if it is virtually linked with all the sites both of potential competitors and of possible complementary activities, that is acting in the same way as deciding to attend a fair.

This operating style perfectly reproduces the fair organization, so generating an attraction potentiality largely greater than the simple sum of individual abilities. The final result is represented by the remark that the total number of potential clients that will be attracted to a single site is greater than the number of acquired clients that will leave the site following the hypertextual links.

### 3.2 Commercialization

The optimal usage of the enhanced communication potentialities that the virtual environment offer are linked to the usual components of the commercialization of a service, that is quality, appearance, client satisfaction, etc. Also in this case the differences between experiences of the real and the virtual environment are due to small details instead of conceptual key points. The principal component of the offer management inside the virtual context is the incredible amount of comparison and alternatives that are available. This availability implies that all competitive factors have to be managed in a very optimal way.

The most specific anomaly of the network environment is the total reliability and completeness of the information supplied. This characteristic is due to the origin particularly constrained of the network communication since few years ago. This component is slowly lighting by now, even if the larger part of users absolutely continue to adequate their sites to this kind of behaviour. This is the reason why reliability and completeness represent until now a couple of key elements to enter the virtual environment avoiding a failure's high level risk.

The way of distributing services represents another characterizing component of the virtual environment, where the added value is represented by the continuous service update instead of the service itself. This is the reason why the user is continuously invited to verify free of charges the current level of services, asking him to pay eventually a subscription fee that enable the access to the updated service.



The operating way is sometimes economically independent, as for the search engines cited former. These services always enable the usage free of charges, because their income is granted by the sponsors. The growth of these incomes is directly proportional to the daily amount of users connected to the specific site. Moreover, the updating costs are really poor for the search engines, while the update of information sources is realized by the user themselves. As the matter of fact, the users notify the new sites that are waiting to be included in the database, leaving to the operators the only task to improve continuously the operating tools.

#### **4. Sites evaluation**

The virtual environment of internet represents a strong innovative phenomenon until now, so the management of it's starting period shows the absence of standardization for methodologies and operation techniques. This lack of absolute references is due to the evolving dynamics of the environment where the specifics are redefined and refined following a continuous evolution process.

The choice of elements to be used as references and comparison can only be totally arbitrary and used in an extremely short period. Nevertheless, some considerations can have an objective practical meaning and could be helpful in such a former phase. The selection of references pertaining to both the set of enterprises born and developed exclusively inside the specific environment and the set of the most prestigious enterprises of the traditional socio-economic environment, will offer enough warranties of choosing effective examples.

The case of activities that operate exclusively inside the virtual environment should have a previous statement: the great percentage of these particular enterprises is characterized by the offer of services dedicated for "adults only". These activities surely are the most updated from the technical and operating point of view, even if they don't seem to be the best choice for an example.

Therefore, the referring elements were chosen inside the set of "unlimited" activities operating into the virtual environment. In particular, the services chose was those that enable and simplify the users' network cruise.

##### **4.1 Evaluation schema**

The qualitative evaluation schema chosen for internet sites was defined following those concepts and criteria former presented in their virtual meaning. So logistic, competitiveness, quality and appearance will be evaluated considering the specific characterizations that each component assume in the virtual environment.

The logistic evaluation will be connected with two key factors: the accessibility of the network address where the service is located and the answering time necessary to obtain the linkage with the searched pages. The first element depends on the presence of hypertextual references available in different locations of the network that enable the direct access to the desired service. This hypertextual references are particularly useful if present in search engines and inside the pages of concurrent/complementary suppliers. This kind of evaluation is simple until now, because the hypertextual references are usually reciprocal.

Viceversa, the answering tie necessary to access a site is an element that can vary depending from a large amount of factors, as the operating speed both of the user and of the supplier, the general traffic conditions of the network, etc. To avoid the unpredictable variation of larger amount of the main influencing factors, the accesses to the different sites where tried during the sunday morning, when seems more reliable the idea that the traffic flows both on European and North-American sub-nets (where it was late in the night) was particularly reduced. Moreover, these accessing tries were executed from a work-station directly connected to the network, so the limit to cruising performances was represented by an ethernet cable, whose speediness is certainly grater than the speediness of the last wage of very fast modem actually available.

Subsequently, also the commercializing components that characterize each site was evaluated in terms of virtual definition, such as the organizing quality of the pages and the appearance they supply to the client. Four main factors was identified as essential elements to characterize and evaluate this component, that are: the availability of multi-linguistic version of the pages (essential for non-English sites); the completeness of the information provided; quality, quantity and dimension (in terms of bytes) of the graphic options presented; the degree of personalized e-mail contacts for further communications. These elements strongly contributes in generating an appearance serious, professional and homogeneous to the neighbouring environment when contemporarily present. This presence seriously enhance the availability of the potential client.

Therefore, the six factors described was considered for each site and evaluated with six qualitative parameters (bad, poor, sufficient, good, optimal, excellent) that are easy

to transform in numerical values enabling a concise overall evaluation for each site. In particular, the accessibility to network addresses was evaluated as: excellent if a site is referenced with advertises in the network, present on search engines and on the logically linked sites (concurrent and complementary pages); optimal if has not advertises; good if not referenced on concurrent pages; sufficient if also not linked to complementary pages; poor if present only on search engines; bad if it's access was only due to informative sources external to the virtual environment.

To evaluate the answering time of the sites, we considered the usual canons of “real-time” answers, that is a time scale varying from 30” (excellent) up to “over 3’ “ (poor), leaving the “bad” value to those sites that generated failures for the access try, while the availability of multi-lingual informations was evaluated as excellent for those sites with five different versions with at least one oriental language (usually Japanese), optimal if four different versions are present, good for three languages, sufficient for both English-based and English-translated sites, poor those sites developed only using national non-English language.

The completeness of the information supplied and the quality/quantity of graphical elements that are present in the pages developed to realize the site are absolutely subjective evaluating elements. Nevertheless, in this case also the are objective referring elements able to supply meaningful evaluation criteria. The completeness of information can be compared with the informations that can be obtained from different communication sources (newspapers, radio, television), while the presence of graphical elements can be evaluated in terms of readability (contrast level between background and text) and in terms of loading ratio of pages (k-byte dimension and amount of elements).

Last but not least, the personalization of the e-mail references to enable more communication channels for specific deepest requirements. This characteristic is evaluated in terms of the quantity of different informative elements supplied. As an example, inside the site of a very large supplier could be interesting to find a different e-mail for each type of service and/or company sector.

#### 4.2 Comparing examples

The evaluation criteria can be better described with some operating examples developed for well known network sites. The results of these evaluations are depicted in Tab. 1.

The first evaluation exercise, due to evident practical reasons, was on the two most famous network search engines that are Alta Vista and Yahoo. Both these services appear excellent from logistic point of view (accessibility and answering time), even if the answering time is strongly influenced by the peaks of traffic flows especially during the most critical time belt, that is the working time in U.S.A. The appearance care is excellent for completeness, optimal from the graphic point of view (sometimes reduces the answering speed), while they appear only sufficient for both availability to direct contacts with any field and for languages adopted. Only for Yahoo an excellent value is reported in Tab. 1 because it has some “national” version of the service. These version are not as complete as the original one, but they are developed using the local language.

The site developed for Central Intelligence Agency (C.I.A.) has a very effective accessibility (good and excellent the collected values), while the appearance seems less developed due to the usage of English language only. The completeness was evaluated as optimal, even if this parameter was limited only to those “distributable” informations for obvious reasons. Viceversa, the European Community developed a really remarkable network service. There exists versions for all the languages of the involved countries (11 different linguistic versions) and is characterized by an optimal accessibility and an excellent evaluation for completeness, graphical components and direct contact with any field availability.

The example of cultural information supplier presented in the second section is the Louvre museum. It’s pages are accessible at a sufficient level, even if the answering time is close to the worst values. Viceversa, the overall appearance is excellent with a unique exception due to a poor developed direct communication.

<b>SITE</b>	<b>ACCESS</b>	<b>ANSWER</b>	<b>LANGUAG.</b>	<b>COMPLET.</b>	<b>GRAPHICS</b>	<b>CONTACTS</b>	<b>MEAN</b>
Alta Vista	excellent	excellent	sufficient	excellent	optimal	sufficient	optimal
Yahoo	excellent	excellent	excellent*	excellent	optimal	sufficient	optimal
C.I.A.	good	excellent	sufficient	optimal	excellent	good	good
E. E. C.	optimal	optimal	excellent	excellent	excellent	excellent	excellent
Louvre	sufficient	sufficient	excellent	excellent	excellent	poor	good
ABN Amro	sufficient	excellent	poor	???	excellent	???	sufficient
ABN Intl.	poor	excellent	sufficient	good	optimal	poor	sufficient
4shoppers	sufficient	good	sufficient	sufficient	excellent	sufficient	good
1 world pl.	sufficient	optimal	sufficient	sufficient	optimal	sufficient	good

**Tab. 1:** Synthetic evaluations of some internet sites cited as examples

As example for information supplier connected with traditional economic activities we chose a prestigious European banking group: the ABN Amro of Netherlands. Two internet sites of the various generated by this group are reported in Tab. 1. In particular, the official main site was developed only in Dutch, so it was impossible to evaluate both the completeness of the information supplied (it seems to be massive with respect to the hypertextual references to inner pages) and the availability to direct contacts with any field via e-mail. Viceversa, an English site for international ABN Amro was developed, but it is poorly accessible because it is not referenced both from search engines and some of the remaining sites of the group. This international site is able to re-address the user to all the other sites of the group.

In tab. 1 is reported also a couple of examples for correspondence commercial activities. Both cases are characterized for a good accessibility and a sufficient care for appearance paying special attention to the pure aesthetic component.

## **5. The obtained results**

### **5.1 The general context**

In this section some empirical elements are presented enabling a global context analysis of the studied phenomenon. In particular, referring at the number of linked sites in Yahoo as source, a presence indicator for sites with sufficient access level with respect to 1,000 inhabitants in the more developed economic areas.

The presentation of the obtained results have to be preceded by a special remark about the used resource. The referenced cardinality is that available on a search engine, so the considered sites are only those referred by the engine and not all the site of a geographical area. The values presented in Tab. 2 and 3 supply a first indication of the internet phenomenon. The differences depicted in Tab. 2 reports a rate for U.S.A. the is double with respect to European Community and one magnitude degree grater the the Japanese. These rates demonstrate mainly a different perception of the virtual functionality than a different territorial distribution in Europe. Viceversa, both the differences (usage and functionality) seems to be present for the Japanese case.

The results presented in Tab. 3 can drive to similar considerations, while the positive differences (Ireland, Denmark, Luxembourg, and Netherlands) seems to show

both the greater diffusion of the internet phenomenon joined with a correct perception of its functionality. Viceversa, the more meaningful negative differences (France, Germany, Portugal and United Kingdom) seems to collect the most populous countries where the better usage of the medium is not totally perceived.

	Sites in Yahoo	Sites/Population (*1.000)
U.S.A.	48.385	0.19
E.E.C.	38.501	0.10
Japan	3.421	0.03

**Tab. 2:** Sites sufficiently accessible per 1.000 inhabitants in areas with strong economic environment.

	Sites in Yahoo	Sites/Population (*1.000)
Austria	853	0.11
Belgium	1.344	0.13
Denmark	1.802	0.35
Finland	797	0.16
France	3.424	0.06
Germany	4.880	0.06
Greece	1.106	0.11
Ireland	4.823	1.35
Italy	5.554	0.10
Luxembourg	135	0.33
Netherlands	3.180	0.21
Portugal	732	0.07
United Kingdom	3.708	0.06
Spain	3.593	0.09
Sweden	2.570	0.30

**Tab. 3:** Sites sufficiently accessible per 1.000 inhabitants in the countries of European Community.

## 5.2 Italian sites

The presence of Italian sites correctly joined to the virtual environment, that is referred by the search engines, is exactly aligned with the E.C. mean value. This first parameter seems to describe a reality in which the approach to the virtual medium is continuously and correctly developed. The objective of quantitative analysis is to verify the possibility to reinforce the obtained result with an empiric result obtained from a different point of view.

To obtain this result 54 different sites were examined. The sample was divided for economic and no-profit activities differently characterized by components related to dimension, objectives, targets, etc.

SITE	ACCESS	ANSWER	LANGUAG.	COMPLET.	GRAPHICS	CONTACTS	MEAN
<b>INDUSTRY</b>							
Alfa Romeo	good	optimal	excellent	optimal	optimal	poor	good
Fiat	good	optimal	excellent	optimal	optimal	poor	good
Lancia	good	optimal	excellent	optimal	optimal	poor	good
Finmeccanica	good	optimal	sufficient	good	excellent	poor	good
Olivetti	good	optimal	sufficient	optimal	excellent	sufficient	good
Lavazza	poor	optimal	sufficient	optimal	optimal	good	good
Kimbo	poor	optimal	poor	good	excellent	good	good
<b>SERVICES</b>							
CartaSi	sufficient	good	sufficient	optimal	optimal	sufficient	good
B.N.L.	sufficient	optimal	poor	excellent	optimal	poor	good
Credit	sufficient	optimal	poor	optimal	excellent	sufficient	good
BancaRoma	good	good	sufficient	optimal	optimal	sufficient	good
MontePaschi	sufficient	optimal	sufficient	optimal	good	sufficient	good
B.N.A.	good	optimal	sufficient	good	good	sufficient	good
Autostrade	good	excellent	sufficient	optimal	excellent	sufficient	good
F.S.	good	excellent	optimal	optimal	excellent	sufficient	optimal
Alitalia	good	excellent	sufficient	excellent	excellent	optimal	optimal
<b>COMMUNICATIONS</b>							
Telecom	sufficient	excellent	poor	excellent	optimal	poor	good
T.I.M.	good	excellent	poor	optimal	good	good	good
Omnitel	good	excellent	sufficient	excellent	good	poor	good
RAI	good	excellent	poor	sufficient	optimal	sufficient	good
Canale 5	good	excellent	poor	good	optimal	good	good
Italia 1	good	optimal	poor	sufficient	good	poor	sufficient
Rete 4	good	excellent	poor	optimal	optimal	sufficient	good
Corsera	good	excellent	poor	optimal	excellent	poor	good
Repubblica	good	excellent	poor	optimal	excellent	good	good
Stampa	good	excellent	poor	good	excellent	sufficient	good

Sole24ore	good	excellent	poor	excellent	excellent	sufficient	good
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**Tab. 4:** Synthetic evaluations of some enterprise Italian sites in internet

In particular, 27 sites related to economic entities were considered, 7 of those was large and medium-sized factories (Cars, Aircrafts and Defense, Electronic, Foods and Beverages), 9 of those was related to services (finance and Banking, Transports) and 11 for communications (Telecommunications and Mass-media).

The obtained values, showed in Tab. 4, seems extremely heterogeneous, even if they can be represented by mean values absolutely satisfactory. A characteristic that is common to all sites appears immediately: the management of references. The accessibility is always possible via national and/or international search engines, nevertheless the exchange of cross-references between different sites and the usage of advertises actually appear to be absolutely embryonic.

SITE	ACCESS	ANSWER	LANGUAG.	COMPLET.	GRAPHICS	CONTACTS	MEAN
<b>STATE</b>							
Parlamento	good	excellent	poor	good	optimal	poor	good
Pres. Consiglio	good	optimal	poor	optimal	excellent	sufficient	good
Min. Finanze	good	excellent	poor	excellent	optimal	sufficient	good
Min. Interno	sufficient	optimal	poor	good	good	poor	sufficient
Min. Comunic.	good	excellent	sufficient	good	excellent	poor	good
<b>REGIONS</b>							
Lombardia	good	excellent	sufficient	excellent	good	sufficient	good
Piemonte	good	optimal	optimal	excellent	excellent	excellent	optimal
Veneto	good	excellent	poor	optimal	optimal	excellent	optimal
Emilia-Rom.	good	good	poor	optimal	optimal	poor	good
Marche	good	sufficient	poor	good	good	poor	sufficient
Lazio	good	optimal	poor	poor	good	poor	sufficient
Campania	good	excellent	poor	poor	poor	sufficient	sufficient
Basilicata	good	optimal	poor	optimal	optimal	sufficient	good
Sicilia	good	good	poor	excellent	optimal	poor	good
<b>PROVINCES</b>							
Torino	good	excellent	poor	excellent	optimal	good	good
Milano	good	excellent	poor	sufficient	sufficient	poor	sufficient
Venezia	good	sufficient	poor	excellent	good	good	good
Bologna	good	optimal	poor	optimal	good	sufficient	good
Napoli	good	good	poor	sufficient	sufficient	sufficient	sufficient
<b>MUNICIP.</b>							
Torino	poor	excellent	poor	optimal	good	poor	sufficient
Milano	poor	optimal	poor	good	sufficient	poor	sufficient
Venezia	poor	optimal	poor	optimal	good	poor	sufficient
Bologna	poor	excellent	poor	excellent	optimal	sufficient	good
Ancona	poor	excellent	poor	excellent	excellent	sufficient	good
Roma	poor	optimal	poor	excellent	excellent	excellent	good



Potenza	poor	optimal	poor	excellent	excellent	optimal	good
Palermo	poor	excellent	poor	good	good	poor	sufficient

**Tab. 5:** Synthetic evaluations of some public Italian sites in internet

The usage of different linguistic editions of the available pages represents another anomalous character. The industrial sites only gave the right importance to one of basic qualitative components, even if some nice exceptions are present also for services and communications. This character is also common with the no-profit sites, see Tab. 5, which was all selected in the institutional ambit.

The choice of institutional sites (National, Regional, Provincial and Municipal) to represent the no-profit category is due to the particular sensibility of Italian citizens to the opportunity of improving the communications with the public institutions, while it appears largely inefficient by now.

The former comments dedicated to economic sites are still valid also for the no-profit sites. Moreover, the poor usage of the medium to offer a direct communication between suppliers and users is a further character of no-profit pages. The public sites that offer such a service are not much, so reducing the opportunity of improve greatly the perception and the interaction between citizens and public institutions.

## 6. Conclusions

The high speed of updating dynamics of the virtual environment will probably show as obsolete the data collected at the end of June 1998 and presented in this paper. As the matter of fact, a large number of the sites analyzed here was observed more times during last days, to ensure the consistency of the result presented at least during the last printing of the paper itself.

A lot of the described sites were totally modified during last months, so the mean values obtained from the qualitative analysis reached a totally satisfactory level, while during the first embryonic period of this paper the mean value of the Italian sites appeared with a not absolutely adequate level.

The continuous updating process of internet services offers a possibility to comment the opportunity of some temporary pages presented inside internet. The virtual environment is characterized by an high level of sophisticated operating solutions, so the presence of solutions based on an inadequate quality level seem to be inopportune. These solutions will generate immediately an vertical fall of the proposing subject

appearance. The choice of a simple page communicating the "works in progress" appears more useful and honourable than a partial and inefficient service.

This paper represents only an embryonic approach to that "oceanic" (this is the reason why is used to say "to cruise" Internet) phenomenon of the virtual environment, so here is no ambition of completeness nor of exhausting the subject. The main objective is to activate a rationalizing process about this topic to supply a starting point for those studies that will necessarily be activated on this argument, due to the incredible growing rate of the phenomenon.

In particular, future objectives can be represented by the activation of specific field studies that can be conducted at different territorial scales. These studies can analyze operating analogies and differences, as such as territorial diffusion, distribution and impact of this highly innovative environment.

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