INTERNET DIFFUSION IN THE NON PROFIT SECTOR IN ITALY

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ABSTRACT
This paper analyzes Internet diffusion among organizations, based on daily observation of the registration of second level domain names under the ‘.it’ ccTLD. In particular, we analyzed domains registered in the non-profit sector. The penetration rate in the relevant population of potential users is computed at highly separated geographical levels (regions). A concentration analysis was carried out in order to determine whether the geographical distribution of Internet use is less concentrated than population and income distribution, suggesting a diffusive effect. Regression analysis was performed using demographic, social, economic and infrastructure indicators. Finally, we briefly describe further developments in our research. At present we have built a database containing domains registered by foundations, associations, committees and other organizations. The idea was to verify whether a “social digital divide” exists both in terms of geographical distribution (i.e., in macro-areas – Northern, Central, and Southern Italy - and at the regional level) and in terms of legal status of the organizations.

KEYWORDS
Domain names, Digital Divide, Internet Diffusion

1. INTRODUCTION

Today the Internet network plays a central role in our social and economic system. It is expanding more and more rapidly, spreading from developed to developing countries and involving an ever-widening set of human activities. According to the Network Users Association (NUA), at the end of 2002 the number of Internet users worldwide was about 605 million, with users from USA accounting for a decreasing percentage of the total. In the same year, European Community Internet users were estimated to be around 190 million, compared to 47 million in 1999. Such a massive and manifold phenomenon clearly needs to be measured and analyzed. In fact, the main difficulty in measuring the Internet is its distributed nature: it has no central authority in control and no user directory exists. It is not possible to give an unambiguous definition of an Internet user. Nevertheless, several indicators are available; of these, the most frequently used are Internet hosts and domain names. The widespread utilization of Internet hosts is probably due to ease in obtaining data. However, in general this metric underestimates Internet diffusion due to the presence of firewalls, the use of dynamic IP addresses and resource sharing. Among endogenous metrics, second-level domain names represent a valid alternative to Internet hosts. Even this metric underestimates Internet diffusion, since not all users register a domain. Nevertheless, domains identify a lower boundary in diffusion mainly by “capturing” the interactive use of the network.

The Institute for Informatics and Telematics (IIT-CNR), which manages the “it” ccTLD Registry is carrying on a study to analyze the diffusion of Internet use in Italy). Data are extracted from the databases of the registrations managed by the IIT-CNR, using automatic and semi-automatic procedures. Around 550,000 domain names have been analyzed and grouped into several categories (individuals, firms, universities, associations, public bodies and other registrants). Particular attention has been focused on organizations such as associations, foundations, committees, and other corporations, to analyze the adoption and diffusion of Internet technology in the non-profit sector. Our study shows that Internet diffusion in the non-profit area is growing very quickly, and cannot be considered a marginal phenomenon. The analysis shows that of the
INTERNET DIFFUSION IN THE NON PROFIT SECTOR IN ITALY

different legal categories of non-profit organizations, associations are the ones which register domain names most frequently. This is mainly due to the fact that associations are the most common in Italy (91.3% according to the 2001 ISTAT survey).

Therefore, our ultimate goal was to verify whether a social digital divide exists both in terms of geographical distribution (in macro areas – Northern, Central and Southern Italy - and the regional level) and in terms of legal status (associations, foundations, committees, other). The study showed that although it is steadily decreasing, a digital divide currently exists both between the different geographic areas and the legal categories of non-profit organizations. This especially occurs at the geographic level, in Central Italy.

2. METHODS

Our study shows that the diffusion of the Internet throughout the non-profit sector is growing very quickly, and cannot be considered a marginal phenomenon. Domain names were split into various categories. A preliminary classification was based on the registrations made by individuals, companies, public administrations, universities, associations, and so on. To determine the legal category of organizations in the non-profit sector, a check was carried out for each corporation in order to obtain its corresponding status, by using the registered domain addresses, and then accessing the related Internet sites. The search for non-profit corporations was anything but simple, since in Italy there is neither a unique definition nor a law that explains clearly and specifically the necessary requirements allowing a person or a group to be considered “non-profit”. Not all of the institutions publish their statute on the related Internet site, so we were obliged to contact them directly by e-mail, asking them to provide us with their legal category. Some institutions kindly provided a prompt response to our e-mail, while others never replied at all. The search found four categories belonging to the non-profit sector, i.e. Associations, including both recognized and unrecognized associations, Committees, Foundations, and Other Corporations (for instance, institutions supporting the clergy, State-recognized ecclesiastical institutions, private schools, and moral corporations). Until September 7, 2001 the Register database contained 16,833 non-profit organizations. After an accurate classification, the following information was found: 15,556 domain names were registered by associations, 193 by committees, 637 by foundations, and 416 by other corporations. However, this information does not take into account the changes made in the registration rules on December 15, 1999. If we delete the cases of multiple domain names relating to the same organization, it turns out that the number of domains registered by non-profit organizations was 14,749 instead of 16,833 as shown above.

Table 1. Number of domains of non-profit organizations until September 7, 2001, not counting multiple domains

<table>
<thead>
<tr>
<th>Categories</th>
<th>Table “Associations”</th>
<th>Table “other corporations”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associations</td>
<td>15,424</td>
<td>163</td>
<td>15,556</td>
</tr>
<tr>
<td>Committees</td>
<td>170</td>
<td>23</td>
<td>193</td>
</tr>
<tr>
<td>Foundations</td>
<td>541</td>
<td>96</td>
<td>637</td>
</tr>
<tr>
<td>Other corporations</td>
<td>0</td>
<td>416</td>
<td>416</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,135</strong></td>
<td><strong>698</strong></td>
<td><strong>16,833</strong></td>
</tr>
</tbody>
</table>

1 In order to simplify the analysis, the classification adopted by Istat was used.
2 The analysis was carried out using the data available up to this period.
3 On December 15, 1999 the country code Top Level Domain “.it” was liberalized. This allowed each organization to be able to register an unlimited number of domains. Before liberalization, the .it domains could only be used by Italian entities (or those having a branch in Italy), which had a VAT number, or if they were associations, they had to have a statute and a constitutive act registered at the Registry Office, and a fiscal code. The principle “one domain for each entity” was in force. On December 15, 1999, when the new version of the Naming rules came into force, the “.it” ccTLD became partially open: domains can now be registered by associations belonging to one of the EU countries and can request an unlimited number of domain names, and by individuals who can request a single domain name.
In this paper we will only consider one domain name for each organization: in other words, if an organization registered multiple domain names, for analytical purposes only the first domain registered will be considered.

3. RESULTS

According to our research, the number of domains registered by non-profit corporations up until September 7, 2001 was 14,749, 13,682 of which were registered by associations, 175 by committees, 366 by “Other corporations”, and 512 by foundations. Fourteen domains were not classified, either because it was not possible to determine the area to which the corporation belonged, or because they were registered by corporations whose legal headquarters were abroad. Since we wanted to make a temporal analysis of the use of the Net by non-profit corporations, the entire period $p$ (from 1990 until September 7, 2001) was divided into two sub-periods:

- From 1990 to 1999 ($p_1$);
- From 2000 to 2001 ($p_2$).

As shown in Table 1 and Figure 1, during the period $p$ 92.85% of the domains registered by non-profit corporations is represented by associations (13,682 of 14,735); foundations attained a percentage of 3.48%, the category “Other Corporations” a percentage of 2.48%, and finally committees showed a percentage of 1.19% (175 domain names registered, of the total 14,735).

![Figure 1. Percentage of Domains Registered by Non-Profit Corporations](image)

The greater diffusion of associations on the Net may be due to the fact that in Italy associations are more common than other categories. In fact, according to the Istat survey held on August 8, 2001, which is compared to 1999, associations represent 91.3% of the entire non-profit sector, 1.4% belongs to foundations, 5.7% to “Other corporations”, and 1.7% to committees.

![Figure 2. Number of Domains Registered in the Non-Profit Sector](image)

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4 This period was taken into account since during this time an increase in non-profit corporations occurred in Italy. In fact, according to the Istat survey held on August 8, 2001, associations numbered 221,412 in 1999, from about 54,000 in 1991 (Barbetta, 1996). Therefore, we would like to verify whether this increase occurred along with the rise in the domain name registrations.

5 During this period there was an increase in domain names registered by non-profit corporations.
The above mentioned percentages are illustrated in Figure 2. Associations reach distribution values which are much higher than those attained by all of the various other non-profit corporations. During both the sub-periods and during the entire period under observation, committees attain percentage values which are less than 2%.

In order to study the temporal behaviour of the domain names in the non-profit sector, a diffusion curve analysis of the various corporations in the entire observation period was carried out. As illustrated in Figure 3, the domain names of institutions belonging to the non-profit sector recorded periods with very low increasing rates and periods with relevant increasing rates. In fact, the first domain name of a corporation was registered in 1994; from 1995 to 1999, registered Internet domains increased notably, but the real explosion occurred between the end of 1999 and the year 2000. On the contrary, between January 1 and September 7, 2001, both foundation and association domain names record a considerable decrease. After peaking in 2000, characterized by very high increasing rates, a saturation phase was eventually reached, resulting in decreasing growth rates.

If we analyze the data in greater detail, we will note that foundations are more inclined to follow innovation and adopt the new technology than are the other categories, and thus reach saturation level earlier. Figure 3 shows that foundations exploited the advantages provided by the Net earlier than did the other associations, probably because in Italy, unlike associations, they tend to be more stable structures. For instance, consider bank foundations, which can execute transactions or provide their customers with on-line support, or foundations dedicated to managing a museum or theatre, which use the Web to take advantage both indirectly, i.e., by improving their image or enlarging their customer base by promoting various activities such as concerts), and directly, such as by selling theatre show tickets or offering tours to their customers.

On the other hand, “Associations” was the category which last exploited the advantages provided by the Internet. However, they reached a saturation phase earlier than the others (as we will see below by analyzing the penetration rates). This may be due to the fact that in the past most associations were very small, especially the unrecognized ones. In fact, most were mainly based on volunteers, and had very few economic resources, which usually came from donations. Many of them developed specific skills and professionalism in response to the increase in service requests, and the creation of new needs due to changes occurring in the real world. For instance, a higher percentage of working women implies an increase in service requests, such as care of the elderly, or nursery school openings, or the increase in wages and cultural level, which implied a greater sensitivity to satisfying social and cultural needs.

Public financial aid also contributed to the enormous expansion in size of these organizations, which in turn also provided an answer to problems related to the stability and financial prospects of those wishing to develop many different activities in the various sectors to which the organizations belong. This allowed many

* In constructing the graph, a value of 100 was assigned to all the domains registered by the different categories, in order to allow for the comparison, due to the big difference in the number of domains registered by associations (13,682) compared to the other legal categories.
associations to be more competitive on the market, by offering on-line services and support to their customers, i.e. by using more efficient means of communication than the traditional ones\(^6\), since they can reach more customers at the same time, in order to improve their image, disseminate useful information concerning their activities, and provide their associates with the possibility of performing financial operations easily from home, on-line.

The aforementioned phenomena can be illustrated by analyzing penetration rates. In fact, foundations register a greater penetration rate than the other categories (1,702.13 every 10,000 foundations), the associations’ rate is 677.13 every 10,000 associations, committees’ average rate is 456.56 every 10,000 committees, and the rate for other corporations is 465.59 every 10,000 corporations.

In order to analyze Internet distribution in the non-profit sector at the geographic level, Italy was subdivided into 20 regions. Of these 20, Lombardy and Lazio registered greater penetration rates than the other regions. At a macro-area level, the related penetration rates of each legal category presents higher values in Central Italy than in the North and South. In Central Italy, the average penetration rate recorded by associations for the entire observation period is 935.09, which is greater than both the rate in the North (699.41) and that recorded in the South (440.70). In the “Foundation” category, the average penetration rate recorded is much greater than that in the other categories. In fact, it is 2246.07 in the Central Italy, 1698.33 in the North, and 1048.95 in the South. On the contrary, the average penetration rate recorded for committees in the North is 456.56 every 10,000 committees, whereas it is equal to 797.02 in Central Italy and to 359.20 in the South. Finally, the “Other Corporation” category reaches an average penetration rate recorded as 697 in Central Italy, whereas it reaches values of 431.27 in the North and 337.57 in the South.

These data confirm that in the various legal categories as well as at a regional and macro-area level (North, Center, South) a digital divide does indeed exist.

4. CONCLUSIONS

Analysis of the Internet presence in various social activities and economic and political areas indicates a serious problem: the existence of a digital divide between those who possess the material and cultural conditions to exploit the new technologies, and those who do not have them, or do not have the ability to adapt to rapid continual change, which is needed to use the Internet. As previously shown, the digital divide is also present in the social area; in fact, foundations and associations are more inclined to use the new technology than are the other non-profit organizations. Also, according to our analysis, the digital divide exists not only between the different legal categories, but the geographic areas as well. In fact, the average penetration rates relating to the Northern and Central Italian institutions are much greater than those in the South.

As stated by Norris in 2001 and Roger in 1995, sooner or later this gap will shrink. Those who are more inclined to use the new technology today, whether they are individuals or companies, and despite their geographic area, in the future will reach the first level of saturation, and the network will also spread among those who are disadvantaged in terms of accessibility and costs. This will occur in the future when connection costs decrease and quality improves, due to expanding competition in personal computer production and a greater number of network users.

In Italy the digital divide between non-profit organizations and the geographical area will also close. In fact, the variation in the average penetration rates related to Central Italian institutions are lower than those related to the South. As reflected in the literature, this shows that the registrations are now increasing in the areas where before fewer domains were registered, resulting in the spread of Internet content production throughout Italy.

Analysis of the variation in penetration rates between the different legal categories (see Fig. 4) is also very interesting. Committees register a greater percentage variation than do the other categories, indicating that a category which was formerly less inclined to use the network is now beginning to realize the value and potential of this new technology.

\(^6\) Traditional support means can be represented by either a call center or a call for a sale. Both means are labor-intensive and require great use of resources to guarantee prompt and accessible support. Conversely, on-line methods are more flexible, as some allow customers to solve problems by themselves. This guarantees that resources can be accessed 24 hours a day.
INTERNET DIFFUSION IN THE NON PROFIT SECTOR IN ITALY

Figure 4. Penetration Rate Variation in the Various Legal Categories During the Period 1990-2001

<table>
<thead>
<tr>
<th>Legal Category</th>
<th>North</th>
<th>Center</th>
<th>South</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Found. Penetr. Rate Var.</td>
<td>93.41%</td>
<td>-16.83%</td>
<td>133.33%</td>
<td>43.81%</td>
</tr>
<tr>
<td>Other Corp. Penetr. Rate Var.</td>
<td>177.27%</td>
<td>-1.52%</td>
<td>292.86%</td>
<td>95.16%</td>
</tr>
<tr>
<td>Committ. Penetr. Rate Var.</td>
<td>330.77%</td>
<td>168.18%</td>
<td>300.00%</td>
<td>237.50%</td>
</tr>
<tr>
<td>Assoc. Penetr. Rate Var.</td>
<td>268.87%</td>
<td>121.87%</td>
<td>458.71%</td>
<td>228.23%</td>
</tr>
</tbody>
</table>

REFERENCES

Borzaga C., 1996, Non profit e sistemi di welfare, La Nuova italiana scientifica, Rome, Italy.