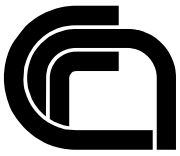

Consiglio Nazionale delle Ricerche

Analysis of Internet Diffusion in Italy by means of domain names among firms, associations and individuals

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Abstract

This paper analyzes Internet diffusion among a number of organizations and individuals, based on daily observation of second-level domain names registrations under the ".it" ccTLD. In particular, we analyzed domain names registered by associations, firms and individuals. The penetration rate, calculated according to the population, was computed for various widely separated geographic levels (provinces and regions). Results show that a "digital divide" exists in terms of geographical distribution (i.e., in macro-areas – Northern, Central, and Southern Italy - at a regional level and at a provincial level) and that such geographical distribution is more concentrated compared to Italian population and total income, suggesting a diffusive effect.

KEYWORDS

Domain names, Digital Divide, Internet Diffusion.

1. Introduction

Internet growth has captured the imagination of users, policymakers, entrepreneurs, corporate managers, military strategists, social commentators, scholars and journalists (Guillèn & Suarèz, 2004). The Internet is seen by some researchers as a new technological means that will lead to a "smaller, more open world" (Tapscott & Caston, 1993). According to some researchers the Internet symbolizes "the triumph over time and space" the rise of the "netizen", and the crowing of the "customer as sovereign" (Gilder, 2000).

According to Coffman, Odlyzko (2001) the Internet is a means of communication that is expanding very rapidly. This phenomenon is also reflected in the data regarding the number of hosts connected to the network and the number of Internet domains, published by the Internet System Consortium[1]. By July 2002 more than 162 million computers were connected to the Internet; in January 1991, there had only been approximately 100,000. Other studies have been conducted at the national level to show how the Internet has become the protagonist of our times. Studies carried out by the Network User Association (NUA Ltd)[2] estimated the worldwide on-line population in 1999 and in 2002. According to this society, in Europe the number of individuals on-line came to 190.91 million in 2002, compared to 47.15 million in 1999. Companies as well as individuals also turn to the Internet to exploit its communication potential. It is crucial for a company to have a website, since it

[1] http://www.isc.org

[2] A leading American society for Internet surveys

allows its own clients, and network users in general, to communicate with each other, obtain information regarding the company and its products and services, and compare prices in real time. Today, in order to ensure greater customer loyalty, a company now seeks to approach the consumer as a distinct individual rather than an anonymous consumer. This last statement agrees with the economics literature (Novak e Hoffman, 1996) that affirms that the web is becoming a dynamic and personal means of communication. According to other authors (Bassi, 2002) the spread of the Internet and the functions of electronic commerce will permit individual clients to choose from a wide array of products and reduce costs, selecting and buying goods directly from the source and allowing companies to sell while by passing traditional channels. Scandinavia, at 8.6%, leads the region with the highest percentage of on-line sales, usually computers and related products, travel, video and music, and books.

This situation could prove to be quite worrisome for traditional businesses, as emerges from a survey carried out by the Syndicate Agents Union and representatives of the Italian Commerce in November 2000.

However, companies must adopt entirely new forms of commercial activity so that online sales will be successful.

The advantages for businesses provided by the Internet are not only linked to the sale of products and services (direct advantages) but can also be indirect (Hansons, 2000). For example, among the most important of these are reduced costs, image consolidation, greater customer loyalty, and a wider diffusion of products offered by the company. They are referred to as “indirect” since they do not lead directly to sales and do not generate immediate profits; however, they are important since they will probably be the greatest benefits offered to businesses by the Internet.

The gradual confirmation of the Internet as a means of communication also permits companies access data and a variety of other information; for example, it is possible to rapidly obtain information about the market in which one operates by visiting websites specialized in economic information or areas that furnish updates on laws, price changes, the appearance of any new operators in the field, fairs, competitive bidding, and other news of interest to operators. One can also identify the competition and analyze them by means of information published on company websites, etc.

Our study analyzes the spread of the Internet among Italian organizations and among Italian individuals utilizing as metrics the number of domain names registered under the ccTLD “.it”.

We took into consideration domain names, names that are associated to IP addresses in the net, because we believe it to be really important for an organization to have a domain name, as through this name an Italian firm can exploit the above mentioned direct and/or indirect advantages.

Moreover, it is helpful for an organization to register a domain name not only to have its own web site, but also to benefit from the advantages related to on-line means of communications (for example e-mails, FTP and so on). As a matter of fact, on-line means of communications unlike traditional ones (for example call-centre services or telemarketing) are more effective as they allow firms to reach, for example, several customers at the same time, and more flexible, as some of them allow customers to solve problems on their own (for example with the FAQs). In this way, a twenty-four hours a day access to resources is granted. On the contrary, traditional customer care methods require intensive work and a considerable engagement of resources to ensure prompt and accessible assistance.

1. Methodology

Before analyzing the results it is worth mentioning the aims and the methodology utilized by the statistics project of the IIT, whose main purpose is the exhaustive analysis of Internet diffusion in Italy through the endogenous metrics of the domain names stored within the ccTLD ".it" Registry database, managed by IIT.

The choice of utilizing the metrics of domain names is suggested by a wide range of reasons: first of all, among the metrics that can be used to analyze Internet diffusion, the endogenous[3] ones have the incontrovertible advantage of exactness, being based on automated data gathering and mining procedures; in addition they allow a good geographical characterization of the phenomenon, being based on data that allow users differentiation at a national, regional and provincial level.

Among the endogenous metrics, the hostcount[4] has been the most utilized one so far, (see studies published by Internet Software Consortium or by RIPE-NCC) as it allows easy data retrieval. Still, the use of this metrics shows a number of disadvantages mainly due to the problems of overestimating or underestimating Internet diffusion: firewalls, IP dynamic addresses and the use of cell phones, set top box, and so on to access the Internet, are only some of the examples that highlight underestimate, while the association of several IP addresses to the same machine overestimates Internet diffusion. In spite of the mentioned disadvantages, almost all of the researches concerning Internet use analysis and diffusion are based, at an international level, on hostcount.

[3] That is to say: generated by the same technology.
[4] It counts the number of hosts connected to the net

The domain names metrics is a valid alternative to the hostcount in order to measure Internet diffusion, as endogenous and objective[5] (Naldi, 1997; Zook, 1999; Bauer, Berneand and Maitland, 2002). Even such metrics shows advantages and disadvantages (Zook, 1999, 2000, 2001).

Among the disadvantages there are:

- The phenomenon proves to be underestimated when Internet users register a domain name under a gTLD (such as .com, .biz, and so forth) or another ccTLD (such as .uk, .de, .fr, and so forth);
- The phenomenon proves to be overestimated when several domain names are registered by the same registrant.
- Among the disadvantages there are:
- The determination of the registrant characteristics (age and gender in case of natural person, legal form in case of legal person);
- The characterization of the phenomenon at a geographical level (national, macro-area, regional and provincial).

Since such metrics underestimates Internet diffusion, it cannot be utilized to give a full extent of the phenomenon, but rather to measure the *relative* positions of provinces.
The number of domain names is therefore a degree of the lower limit of Internet diffusion.

2. Goals

The goals we tried to achieve can be summarized as follows:

- The analysis of the Internet diffusion extent in our country. This allows a comparison between the Italian situation and the position of Italy in the Internet use international ranking;
- Territorial features analysis. By grouping data on a regional and provincial basis it is possible to compare the penetration levels in the different geographic areas and to verify the existence of the digital divide at a geographical level;
- Analysis of the registrant general features. The research analyzed Internet diffusion among natural persons and legal persons (firms, associations) both Italian or foreign.

[5] That is to say: based on real and incontestable data

3. Results

Approximately a million of domain names registered between January 1990 and the 31st of December 2004 were analyzed. The data bank allows us to reconstruct the Internet diffusion development from its birth, with an accuracy that had never been achieved before.

In particular, from January 2000 the IIT Registry regulations gave permission even to natural persons of age to register a domain name. In December 2004 the registrations by natural persons stored in the database were 147,615 of which 144,557 registered by Italians, 2,982 domain names registered by foreign people and 81 unclassified, as we could not identify the province or the region they belonged to. The research shows that firms, both partnerships or Joint-Stock Companies, are the moving forces of the spread of the Internet: the number of registered domains proves to be almost three times superior to the number of domains registered by individuals, 411,339 domain names against about 148,000.

The "ICT marginal sector" is represented by associations: the number of domain names they registered is equal only to 30,086.

The following data are the result of the analysis of domain names registered by natural persons, firms and associations (legally recognized or not) both Italian and foreign. Later studies will analyze domain names in the field of public bodies, professionals and other users that constitute the non-profit world, in particular foundations and committees.

3.1 Internet general distribution at a regional level

To estimate the actual Internet diffusion among firms, associations and individuals we calculated the number of domain names registered every 100 inhabitants. Such proportion, that constitutes the penetration rate (from now on indicated as PR), highlighted some unexpected results. Trentino Alto Adige occupies the first place with a PR equal to 197.27. Tuscany follows with 169.46, Lombardy with 169.19 and Latium with 155.04 (see table 1 and graph 1). There are not any southern regions among the first ten places.

3.2 Internet general distribution at a provincial level (firms, associations and individuals)

Pisa, with a PR equal to 251.92 gets ahead Milan (in the third place with a PR equal to 229.89) and, compared to the previous analysis concerning the 1990-2001 period, becomes the first Italian province. Bolzano follows (with a PR equal to 235.72) together with Milan, Florence (201.08) and Rome (181.43). Even in this case none of the southern provinces appear in the first positions (see

table 2). The first province of the South is Pescara (in the 44th place with a PR of 115.30), followed by Teramo (46th place with a PR of 111.08). Among the bigger southern cities Naples occupies only the 67th place (86.64), while Palermo with a PR equal to 68.88 occupies the 79th place.

3.3 Natural persons at a regional level

To estimate the actual Internet diffusion among firms, associations and individuals, natural persons sector and consequently the proportion between the number of domain names registered by natural persons and residing population of age, we calculated the penetration rates at a provincial level. The results were somehow unexpected. Latium, in spite of its tertiary propensity, occupies the first place with a penetration rate every 10,000 inhabitants equal to 50.22 followed by Tuscany (42.69), Trentino Alto Adige (41.61), Lombardy (35.13) and Valle d'Aosta (33.17) (see table 3 and graph 2).

3.4 Natural persons at a provincial level

Pisa is at the top of the national ranking with a penetration rate (from now on indicated as PR) equal to 74.25, followed by Rome with 59.26, Rimini and Florence respectively with 50.53 and 50.29 (see table 4). Among the bigger provinces Genoa and Turin are placed only around the 22nd and 26th positions while Naples and Bari are placed only at the 51st and 88th positions respectively. The ranking reflects and amplifies the differences already existing at a level of economic development.
Only one province of the South out of 32 appears among the first 20 (17th); almost all the lower part of the ranking is occupied by southern provinces, with few exceptions (Mantova 78th, Vercelli 79th, Rovigo 91st).

3.5 Firms at a regional level

Trentino Alto Adige occupies the first place (14.35), followed by Lombardy (12.93), Tuscany (11.38) Latium (11.29), Friuli Venezia Giulia and Veneto (10.28) (see table 5 and graph 3). Campania is the only southern region that stands out as it occupies the 12th place and it has a PR equal to 7.67. The poor performance of Valle d'Aosta (23rd with a PR of 7.61) must be underlined compared to the 5th place occupied by natural persons in the registration of penetration rates.

3.6 Firms at a provincial level

Pisa again, is at the top of the national ranking with a penetration rate equal to 17.33 every 100 firms. Followed by Bolzano (16.37), Milan (16.25), Rome (12.67), Florence (12.56) and Siena (12.45) (see table 6). Other disappointing results are the ones concerning Turin, from 2001[6] to 2004 changes its position from the 4th to the 11th (11.36), Genoa (that moves down from the 19th to the 31st place with a penetration rate equal to 9.86) and Asti (that moves down from the 7th to the 25th place with a penetration rate equal to 10.34). Among the Tuscan provinces the only negative performance is registered by Leghorn that moves down from the 14th place to the 30th and has a penetration rate equal to 9.87. The first province of the south is Naples that occupies the 41st place and has a penetration rate equal to 8.73. Southern regions occupy all the last 23 places in the ranking. Enna, that is the last province in the ranking, has a penetration rate equal only to 3.62, much below national average equal to 9.92. Even big provinces such us Palermo (62nd with a PR of 7.46), Bari (73rd with a PR of 6.61) and Messina (80th with a PR of 6.37) are not much inclined to use the new Internet technology.

3.7 Associations at a regional level

About associations, the three regions that register higher penetration rates are, respectively, Latium, Lombardy and Tuscany. Trentino Alto Adige occupies in this case only the 16th place (PR equal to 9.23 against 26.76 of Latium, to make an example), while Campania, with its 7th place and a PR equal to 12.57 stands out among central-northern regions with higher penetration rates (see table 7 and graph 4). At a macro-area level, the Centre register the highest penetration rate (18.32) compared to North (13.90) and South (10.14). One of the reasons of this trend could be looked for in the presence of big associations located in the Centre of Italy.

3.8 Associations at a provincial level

Unlike what emerged from the analysis of Internet diffusion among natural persons and firms, we deducted that in bigger provinces associations have the possibility of better exploiting the advantages of technology. At the top of the ranking we have Rome (PR equal to 33.37 every 100 associations), followed by Milan (31.16), Pisa (22.18), Florence (20.75) and Bologna (18.47) (see table 8). Even Naples and Palermo occupy prominent positions in the ranking (10th and 13th place with a PR equal to 16.19 and 14.91, respectively), while Asti, Aosta and Bolzano occupy only the 78th, 80th and 90th places. Research has showed that associationism cannot be considered as a

[6] According to results of the previous research conducted during 1990-2001

secondary phenomenon of the ICT sector. As a matter of fact, as a shown in graph 5 (that compares Internet diffusion between for profit organizations and non-profit bodies) the penetration rates of the three macro-areas (North, Centre, South) registered by associations prove to be higher than those registered by firms. The national average is equal to 13.78, if compared to firms PR (9.92) at a national level it shows that associations have a strong inclination to use the Internet.

3.9 Foreign people

In line with the statistics that at an international level sees Germany at the first place among the more populous ccTLD (more than 11 millions of domain names according to the last Verisign report), Germans prove to be at the top of the list among those that register the higher number of domain names under the ccTLD ".it" (more than the 35% of the total amount of domain names registered by foreigners), followed by Great Britain (31.21%) (see graph 6 and table 9) . For the rest of the nations the percentages prove to be little significant.

4. Discussion and conclusion

The most important data of the research conducted by the Institute of Informatics and Telematics of the CNR of Pisa within the project " Analysis of Internet diffusion in Italy by means of domain names use" is the position held by Pisa in the national ranking. If we compare it to the 2001 research we find that Pisa regains 13 places, it gets ahead Milan and becomes the first Italian province in Internet use.

This is a surprising result that is currently being studied in order to identify the factors that originates it: apparently they could be looked for in the strong University presence, in the high number of associations and cultural activities of this area and beyond all doubt, in the presence of the ccTLD ".it" Registry that is established in Pisa.

Moreover in our research a problem that has emerged and that deserves attention is the existence of digital divide among Italian regions. As a matter of fact, the Internet phenomenon appears to be more concentrated than population distribution per province and than income distribution per province. The first 20 provinces of the ranking hold the 47.11% of domain names registered by firms, associations and individuals, compared to a population equal to the 31.49% and compared to an income equal to the 36.89% of national income. This can be shown by observing the higher value of the *Gini*[7](Gini, 1960) index on domain names compared to the index on population and on

[7] The Gini index indicates the concentration and inequality in the distribution of a number of observations and it can assume values of 0 and 1, where 0 indicates the maximum concentration and 1 indicates equidistribution. In this case the Gini index calculated according to the number of registered domains is equal to 0.53 while the index calculated according to population is equal to 0.45 while the index calculated according to income al proves to be equal to a 0.47.

income. This to mean that, far from being a phenomenon capable of narrowing or closing the socio-economic gaps among territories, the Internet recreates or even intensifies the differences. It is not true that the Internet on its own can overcome the development unevenness. This data was confirmed by the performed processing and, according to us, strongly reassesses the myth of the immaterial net economy: therefore it is to be demonstrated that those areas that have more infrastructural difficulties with "material" net could reduce their disadvantage by staking everything on the Internet. The less economically developed areas lose further positions, mainly because low economical development is often associated to a lesser interest towards the new technologies and a lesser inclination to use them.

Internet geography in conclusion shows some confirmations and some surprises. Medium size provinces register, at a general level, very high penetration rates (Pisa, Bolzano, Rimini, Siena, Prato e Trento are among the first 10 provinces), while bigger provinces such as Turin, Genoa and Naples are all past the 20th position.

References

Bauer, Johannes M., Michel Berne, and Carleen F. Maitland. (2002). "Internet Access in the European Union and in the United States. " Telematics and Informatics 19:117-137

Bassi, M.C. (2002) "La Catalogazione delle Risorse Informative in Internet", Prefazione di Riccardo Ridi 2002.

Coffman K.G. and Odlyzko A.M. (2001). Internet growth. AT&T Labs report.

Diez-Picazo G.F. (1999). An Analysis of International Internet Diffusion. Ph.D. Thesis, MIT.

Gilder, George. (2000). Telecosm: How Infinite Bandwidth will Revolutionize the World. New York: Free Press.

Gini, C. (1960), Statistics, Edizioni Metron, Roma.

Guillèn, Mauro F., and Sandra L. Suaréz. (2004). "Explaining the global digital divide: Economic, Political, and Sociological drivers of cross-national Internet use". The Wharton School, University Of Pennsylvania, Philadelphia.

Hansons W. (2000). "Internet marketing" ed. Tecniche Nuove, Milano.

Hoffman, D. & Novak, T. (1999). Building contrust online. Communications of the ACM, 42 (april),80-85.

Naldi M. (1997). Size estimation and growth forecast of the Internet. Centro Volterra, Tor Vergata

NUA, Network Users Association. (2002). How Many Online? Accessed on September, 2002, http://www.nua.com/surveys/how_many_online/index.html,.

RIPE-NCC, RIPE Network Coordination Centre, http://www.ripe.net.

Tapscott, Don, and Art Caston. (1993). Paradigm Shift: The New Promise of Information Technology. New York: McGraw-Hill.

Zook M.A. (1999). The Web of Consumption: Spatial Organisation of the Internet Industry in the United States. American Behavioural Scientist (forthcoming).

Zook, M.A. (2000) Internet metrics: using host and domain counts to map the Internet Telecommunications Policy 24.6-7.

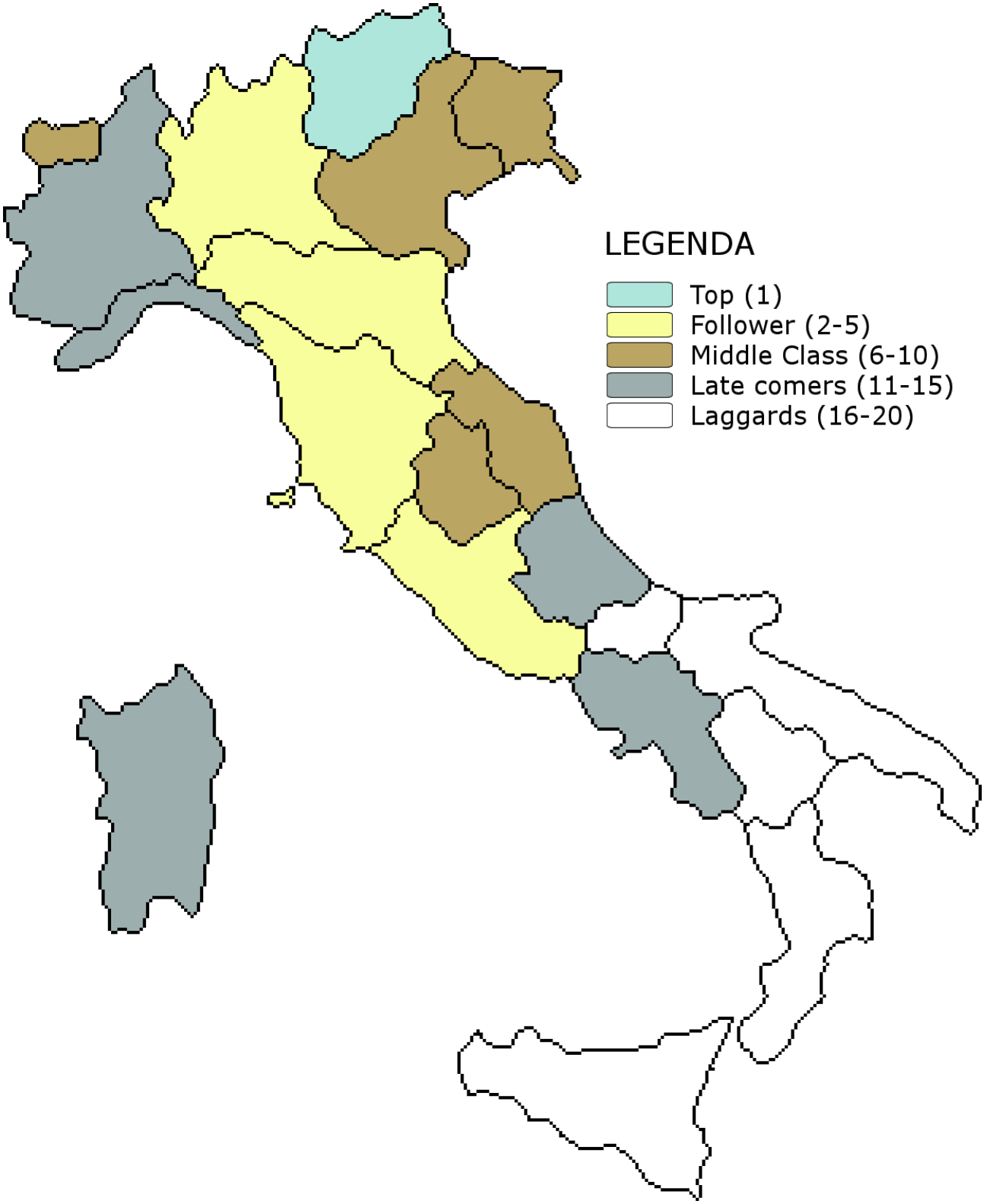
Zook M. A. (2001). Old hierarchies or new network of Centrality?- The Global Geography of the Internet Content Market. American Behavioural Scientists, 44 (Special Issue: Mapping the global Web).

Internet diffusion at a general level (firms, associations, individuals): the first 10 regions

Ranking position based on registered penetration rate	Regions	Registered domains Number	General PR every 10,000 inhabitants	Registered domains percentage compared to the national total
1	Trentino Alto Adige	15,165	197.27	2.62%
2	Tuscany	51,117	169.46	8.82%
3	Lombardy	129,610	169.19	22.36%
4	Latium	66,422	155.04	11.46%
5	Emilia Romagna	50,532	145.98	8.72%
6	Veneto	52,057	135.78	8.98%
7	Friuli Venezia Giulia	13,428	130.87	2.32%
8	(the)Marches	16,053	128.25	2.77%
9	Umbria	8,845	124.69	1.53%
10	Valle d'Aosta	1,272	124.46	0.22%
Total		**404,501**		**69.80%**

Table 1

GRAPH 1. REGIONAL PENETRATION RATES GENERAL



PR every 10,000 inhabitants

Internet diffusion at a general level (firms, associations, individuals): the first 20 Italian provinces

Ranking position based on registered penetration rate	Province	Domains number	General PR (firms, associations and individuals) every 10,000 inhabitants	Registered domains percentage compared to the national total
1	Pisa	8,346	251.92	1.44%
2	Bolzano	8,778	235.72	1.51%
3	Milano	72,461	229.89	12.50%
4	Firenze	16,146	201.08	2.79%
5	Roma	56,444	181.43	9.74%
6	Rimini	4,224	181.04	0.73%
7	Bologna	14,213	177.01	2.45%
8	Siena	3,819	174.02	0.66%
9	Prato	3,390	173.89	0.58%
10	Trento	6,387	161.14	1.10%
11	Padova	11,114	154.51	1.92%
12	Modena	8,382	154.04	1.45%
13	Brescia	13,973	149.56	2.41%
14	Reggio-Emilia	5,707	146.85	0.98%
15	Vicenza	9,701	146.20	1.67%
16	Lucca	4,664	145.62	0.80%
17	Parma	4,954	144.89	0.85%
18	Arezzo	4,022	144.88	0.69%
19	Udine	6,492	144.72	1.12%
20	Verona	9,976	143.09	1.72%
Total		**273,193**		**47.11%**

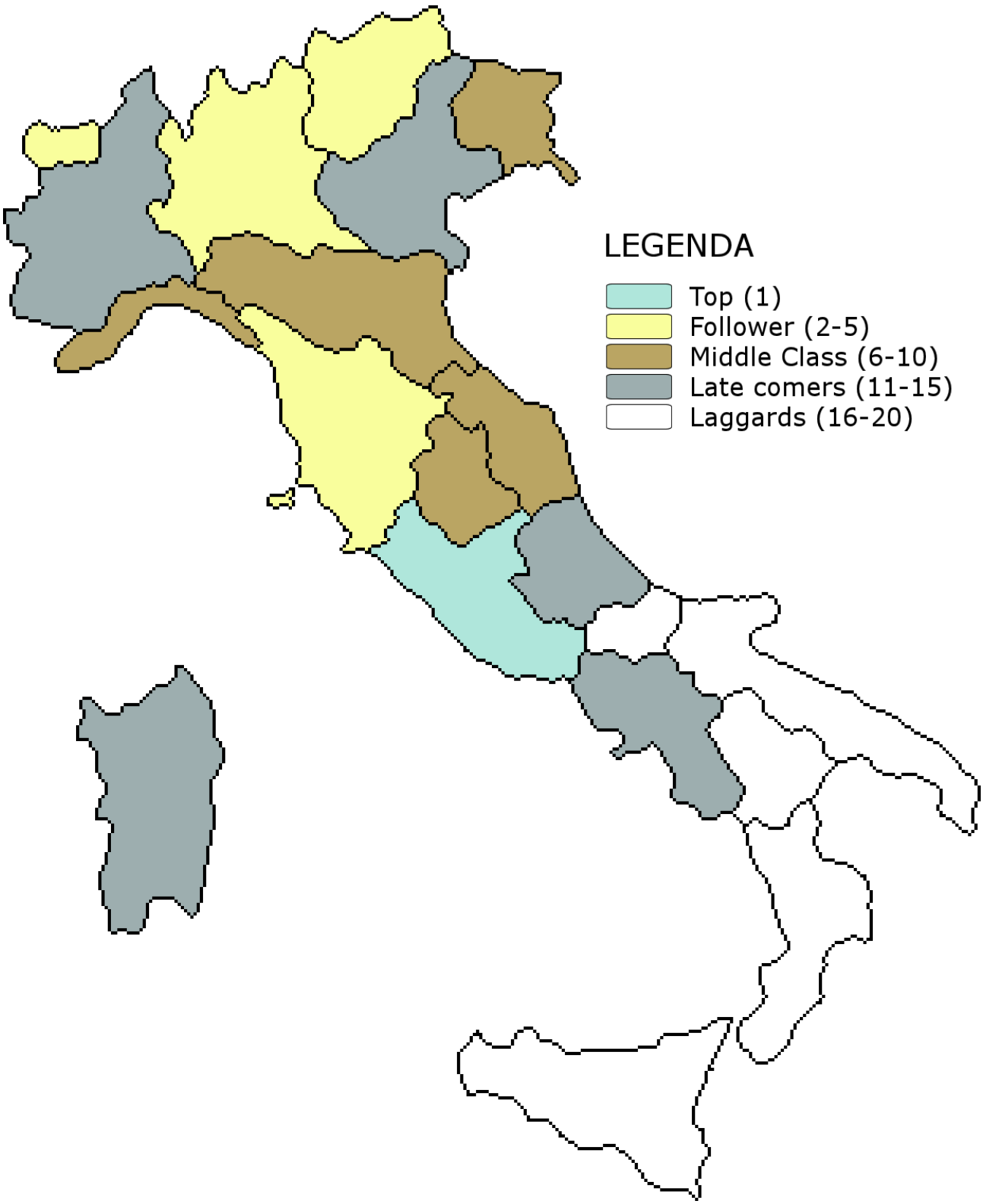
Table 2

Internet diffusion among natural persons at a regional level: the first 10 regions

Ranking position based on registered penetration rate	Regions	Registered domains number	Natural persons PR every 10,000 inhabitants	Registered domains percentage compared to the national total
1	Latium	21,517	50.22	14.88%
2	Tuscany	12,877	42.69	8.91%
3	Trentino Alto Adige	3,214	41.81	2.22%
4	Lombardy	26,909	35.13	18.61%
5	Valle d'Aosta	339	33.17	0.23%
6	Emilia-Romagna	11,239	32.47	7.77%
7	Umbria	2,287	32.24	1.58%
8	Liguria	3,996	29.19	2.76%
9	Friuli Venezia Giulia	2,984	29.08	2.06%
10	(the) Marches	3,616	28.89	2.50%
Total		**88,978**		**61.52%**

Table 3

GRAPH 2. REGIONAL PENETRATION RATES
NATURAL PERSONS



PR every 10.000 inhabitants

Internet diffusion among natural persons at a provincial level: the first 20 provinces

Ranking position based on registered penetration rate	Province	Domains number	Natural persons PR every 10,000 inhabitants	Registered domains percentage compared to the national total
1	Pisa	2,460	74.25	1.70%
2	Roma	18,438	59.26	12.75%
3	Rimini	1,179	50.53	0.82%
4	Florence	4,038	50.29	2.79%
5	Bolzano	1,840	49.41	1.27%
6	Milan	15,072	47.82	10.43%
7	Siena	949	43.24	0.66%
8	Bologna	3,366	41.92	2.33%
9	Trieste	746	35.37	0.52%
10	Leghorn	1,001	35.36	0.69%
11	Grosseto	641	34.79	0.44%
12	Trento	1,374	34.67	0.95%
13	Lucca	1,090	34.03	0.75%
14	Arezzo	942	33.93	0.65%
15	Perugina	1,725	33.24	1.19%
16	Aosta	339	33.17	0.23%
17	Pescara	829	33.04	0.57%
18	Padua	2,358	32.78	1.63%
19	Imperia	573	32.25	0.40%
20	Gorizia	376	31.28	0.26%
Total		**59,336**		**41.03%**

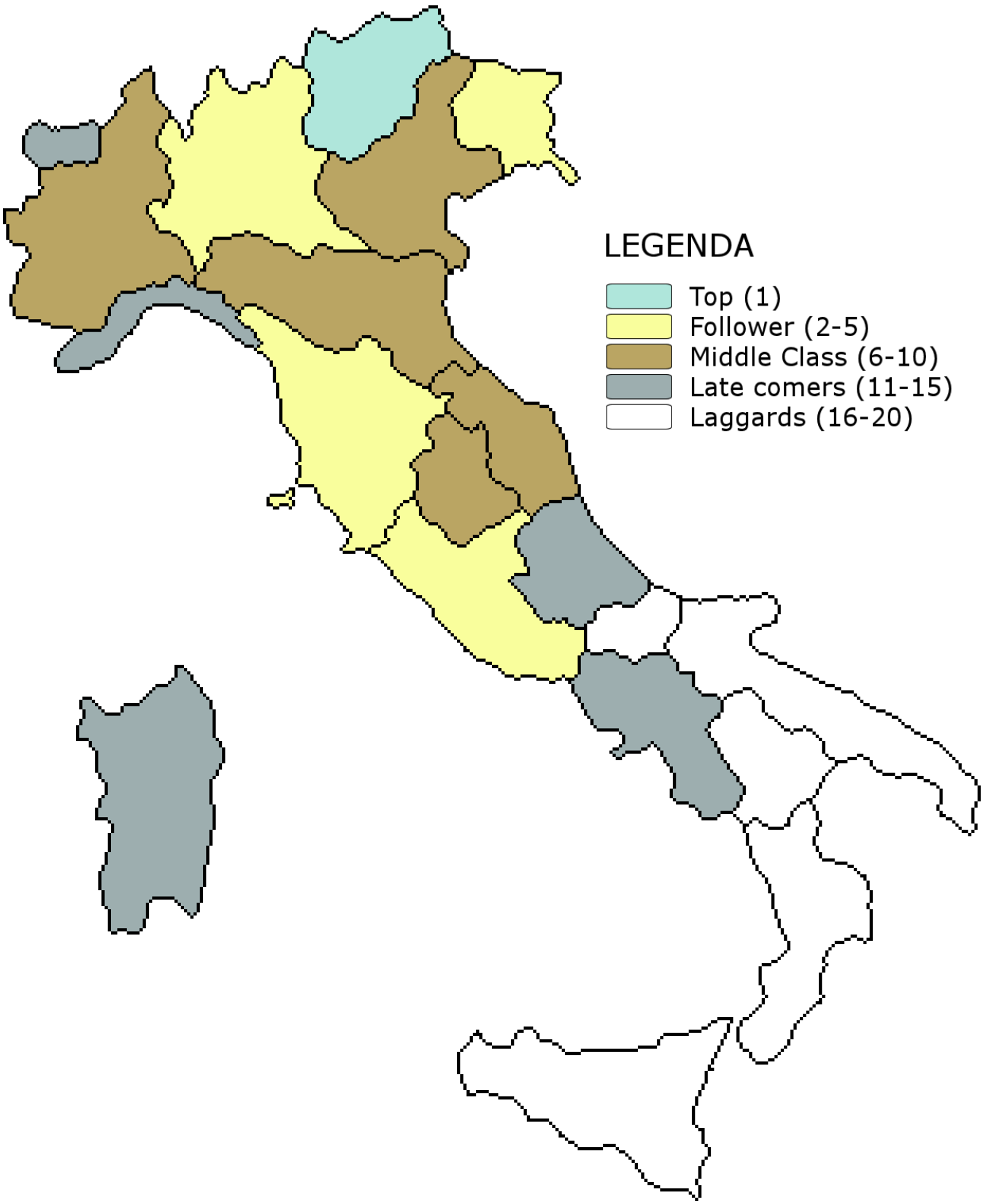
Table 4

Internet distribution among firms at a regional level: the first 10 regions

Ranking position based on registered penetration rate	Regions	Registered domains number	Firms PR every 100 firms	Registered domains percentage compared to the national total
1	Trentino Alto Adige	11,069	14.35	2.73%
2	Lombardy	97,201	12.93	24.00%
3	Tuscany	35,633	11.38	8.80%
4	Latium	40,510	11.29	10.00%
5	Friuli Venezia Giulia	9,581	11,06	2.37%
6	Veneto	38,679	10.28	9.55%
7	Emilia Romagna	36,828	10.22	9.09%
8	Piedmont	32,701	9.91	8.07%
9	Umbria	6,054	9.41	1.49%
10	(the)Marches	11,602	9.39	2.86%
Total		**319,858**		**78.96%**

Table 5

GRAPH 3. REGIONAL PENETRATION RATES FIRMS



PR every 100 firms

Internet diffusion among firms at a provincial level: the first 20 provinces

Ranking position based on registered penetration rate	Province	Domains number	Firms PR every 100 firms	Registered domains percentage compared to the national total
1	Pisa	5,432	17.33	1.34%
2	Bolzano	6,535	16.37	1.61%
3	Milan	54,319	16.25	13.41%
4	Rome	34,201	12.67	8.44%
5	Florence	11,185	12.56	2.76%
6	Siena	2,691	12.45	0.66%
7	Trento	4,534	12.19	1.12%
8	Udine	4,855	12.02	1.20%
9	Bologna	10,055	11.96	2.48%
10	Brescia	10,821	11.60	2.67%
11	Turin	19,185	11.36	4.74%
12	Vicenza	7,548	11.35	1.86%
13	Modena	6,528	11.25	1.61%
14	Lecco	2,624	11.12	0.65%
15	Ancona	3,821	11.11	0.94%
16	Varese	6,813	10.93	1.68%
17	Verona	7,436	10.76	1.84%
18	Como	4,572	10.75	1.13%
19	Padua	8,269	10.74	2.04%
20	Reggio-Emilia	4,332	10.55	1.07%
Total		**215,756**		**53.25%**

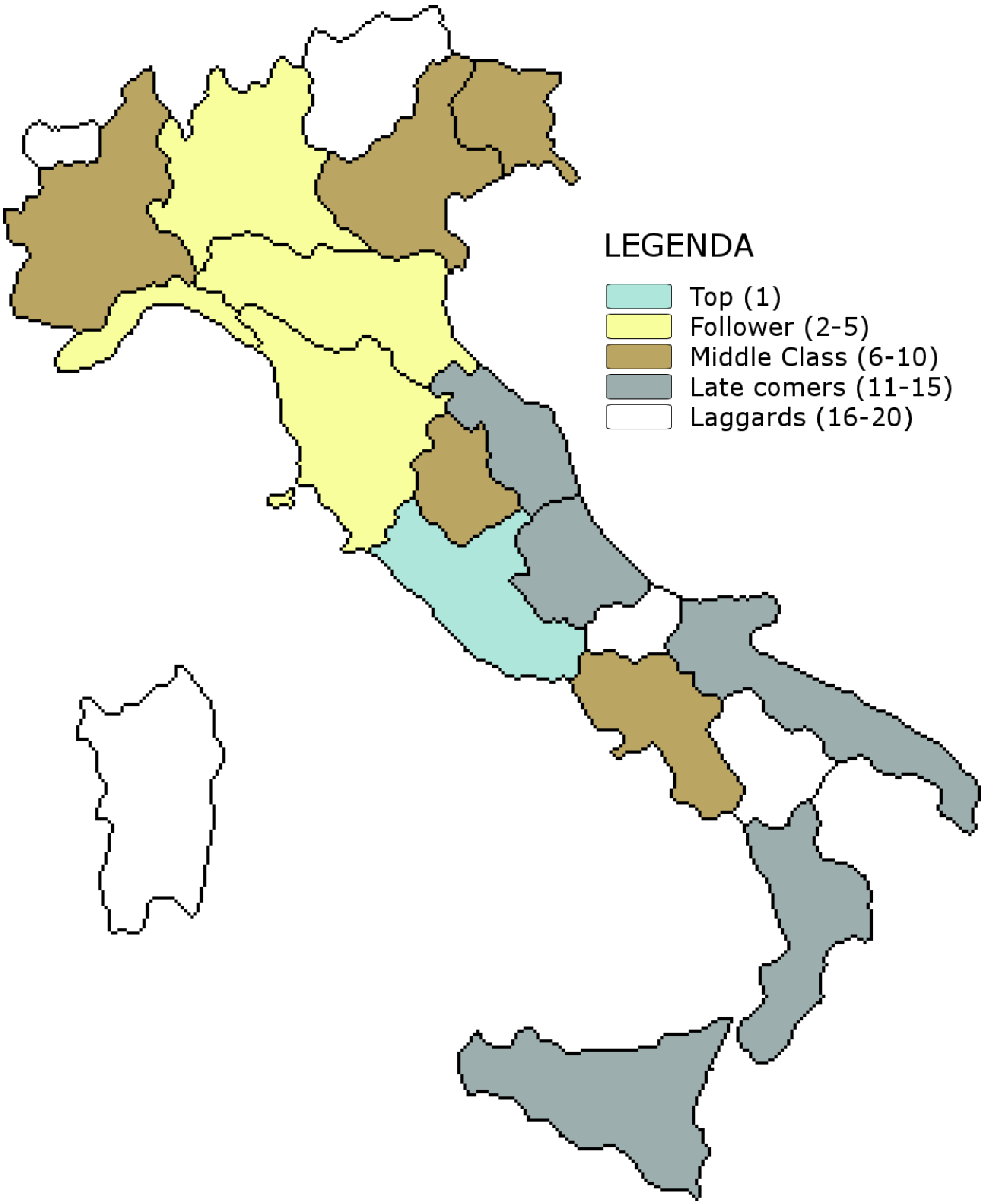
Table 6

Internet diffusion among associations at a regional level: the first 10 regions

Ranking position based on registered penetration rate	Regions	Registered domains number	Associations PR every100 associations	Registered domains percentage compared to the national total
1	Latium	4,395	26.76	14.61%
2	Lombardy	5,500	18.06	18.28%
3	Tuscany	2,607	15.00	8.67%
4	Liguria	946	14.14	3.14%
5	Emilia-Romagna	2,465	13.40	8.19%
6	Veneto	2,477	12.69	8.23%
7	Campania	1,532	12.57	5.09%
8	Piedmont	2,380	12.42	7.91%
9	Friuli Venezia Giulia	863	11.67	2.87%
10	Umbria	504	11.54	1.68%
Total		**23,669**		**78.67%**

Table 7

GRAPH 4. REGIONAL PENETRATION RATES ASSOCIATIONS



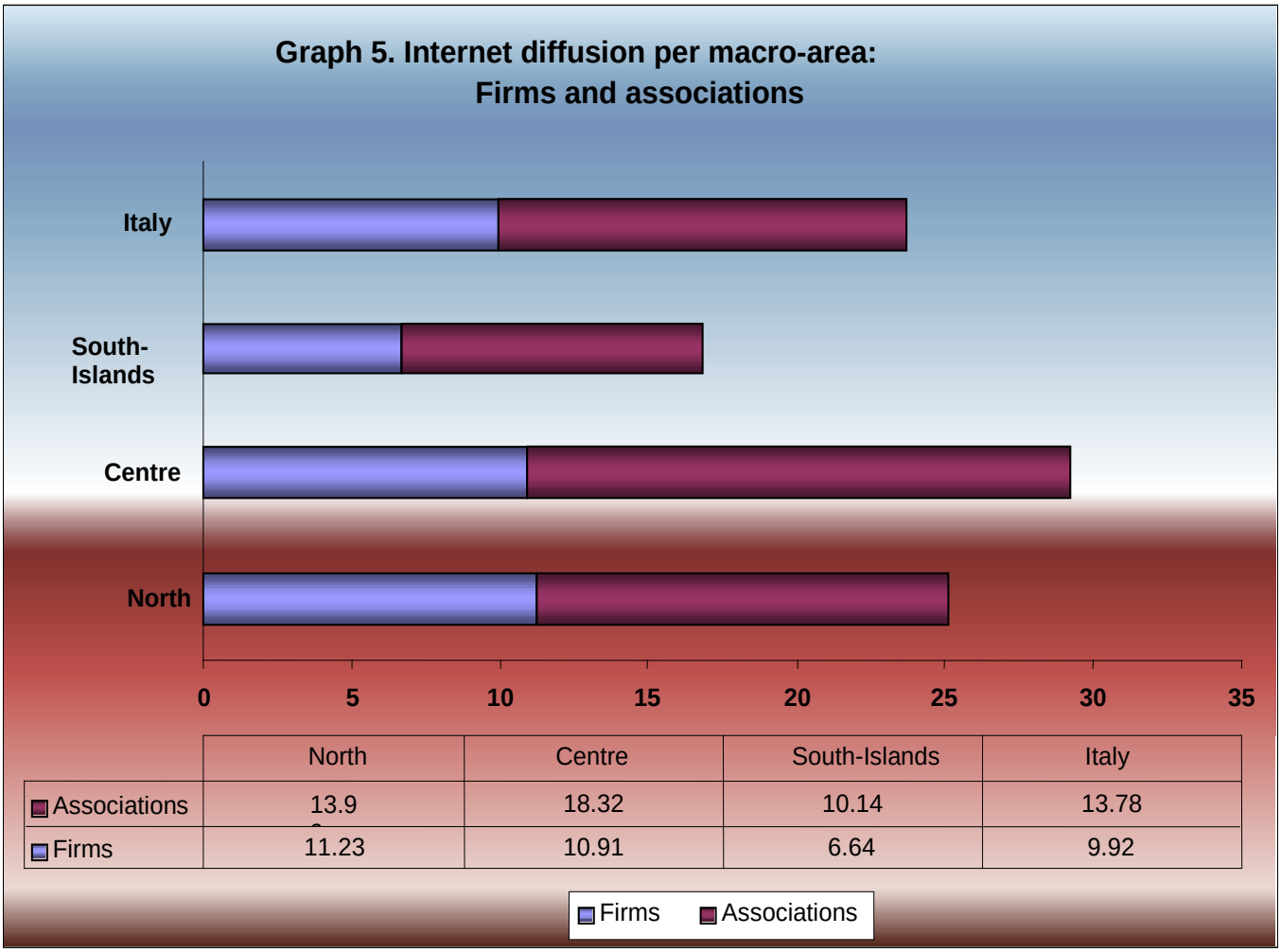
PR every 100 associations

Internet diffusion among associations at a provincial level: the first 20 provinces

Ranking position based on registered penetration rate	Province	Domains number	Associations PR every 100 associations	Registered domains percentage compared to the national total
1	Rome	3,805	33.37	12.65%
2	Milan	3,070	31.16	10.20%
3	Pisa	454	22.18	1.51%
4	Florence	923	20.75	3.07%
5	Bologna	792	18.47	2.63%
6	Turin	1,454	16.98	4.83%
7	Prato	152	16.58	0.51%
8	Trieste	224	16.35	0.74%
9	Genoa	558	16.32	1.85%
10	Naples	828	16.19	2.75%
11	Venice	499	15.22	1.66%
12	Reggio-Emilia	285	15.05	0.95%
13	Palermo	460	14.91	1.53%
14	Parma	257	14.18	0.85%
15	Padua	487	14.17	1.62%
16	Verona	506	13.90	1.68%
17	Imperia	136	13.68	0.45%
18	Rimini	147	13.56	0.49%
19	Varese	367	13.46	1.22%
20	Ancona	312	13.45	1.04%
Total		**1,5716**		**52.23%**

Table 8

Graph 5. Internet diffusion per macro-area: Firms and associations



	North	Centre	South-Islands	Italy
Associations	13.9	18.32	10.14	13.78
Firms	11.23	10.91	6.64	9.92

Internet diffusion among foreign people (firms, associations and individuals)

Ranking position based on registered domains number	Nation	Registered domains number	Total number of domains registered by foreign people percentage
1	Germany	2,584	35.40%
2	Great Britain	2,278	31.21%
3	France	412	5.64%
4	Austria	379	5.19%
5	Netherlands	375	5.14%
6	Sweden	360	4.93%
7	Denmark	325	4.45%
8	Greece	126	1.73%
9	Spain	121	1.66%
10	Ireland	108	1.48%
11	Belgium	94	1.29%
12	Lussemburgo	51	0.70%
13	Poland	24	0.33%
14	Finland	20	0.27%
15	Portugal	15	0.21%
16	Slovenia	4	0.05%
17	Malta	3	0.04%
18	Lithuania	2	0.03%
19	Czech Republic	2	0.03%
20	Norway	2	0.03%
21	Slovakia	1	0.01%
22	Hungary	1	0.01%
23	Cyprus	1	0.01%
Non classificato		12	0.16%
Total		**7,300**	**100.00%**

Table 9

Graph 6. Percentage diffusion of domains .it registered by foreign people