

# Branding and Sustainable Competitive Advantage: Building Virtual Presence

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Published in the United States of America by  
Business Science Reference (an imprint of IGI Global)  
701 E. Chocolate Avenue  
Hershey PA 17033  
Tel: 717-533-8845  
Fax: 717-533-8661  
E-mail: [cust@igi-global.com](mailto:cust@igi-global.com)  
Web site: <http://www.igi-global.com>

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Library of Congress Cataloging-in-Publication Data

Branding and sustainable competitive advantage: building virtual presence / Avinash Kapoor and Chinmaya Kulshretha, editors.

p. cm.

Includes bibliographical references and index.

Summary: "This book explores the processes involved in managing brands for long-term sustainable competitive advantage, helping readers better understand the importance of consumers' perceptions in brand management"--Provided by publisher.

ISBN 978-1-61350-171-9 (hbk.) -- ISBN 978-1-61350-172-6 (ebook) -- ISBN 978-1-61350-173-3 (print & perpetual access) 1. Branding (Marketing) 2. Brand name products--Management. 3. Product management. I. Kapoor, Avinash. II. Kulshretha, Chinmaya, 1976-

HF5415.1255.B72 2012

658.8'27--dc23

2011031126

British Cataloguing in Publication Data

A Cataloguing in Publication record for this book is available from the British Library.

All work contributed to this book is new, previously-unpublished material. The views expressed in this book are those of the authors, but not necessarily of the publisher.

# Chapter 13

## E-Branding and Institutional Web Sites: The “Visiting Card” of the Municipalities of Rome and Paris

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### ABSTRACT

*The research presented in this chapter is at the intersection of two large research programs designed and directed by de Rosa, both inspired by the Social Representations Theory: the first is aimed at mapping and comparing both representational and experiential imagery dimensions of tourists and citizens interacting with European historical capitals; the second explores the contribution of new internet based communicational systems to psychosocial research under different forms and through different channels, with a focus on communication applied to the field of tourism. In particular, this chapter presents the analysis of the municipal web sites of two historical capitals, Rome and Paris, considered as the Visiting Cards these two cities offer citizens and tourists.*

*In order to study the contents of both institutional web sites ([www.comune.roma.it](http://www.comune.roma.it) and [www.paris.fr](http://www.paris.fr)), a multi-method approach has been applied and in particular: the use of a grid designed by de Rosa & Picone, Nielsen's usability test, and the Atlas/ti program for a qualitative analysis of both web sites in two versions downloaded simultaneously.*

*The use of the three tools has enabled the identification and comparison of the elements that characterize the web sites of the Municipalities of Rome (analyzed lengthwise in time, comparing the versions*

DOI: 10.4018/978-1-61350-171-9.ch013

*downloaded in June 2003 and April 2004, with a replication of the usability test in November 2004) and of Paris (downloaded the first of April 2004 the same day of the Roman web site, with which it was compared). The analyses have allowed to highlight aspects related to contents, structure, and several technical elements important from a user's point of view (graphics, interactivity and usability in particular), emphasizing strengths and weaknesses.*

*Other than the descriptive value and the possible function of guiding web professionals and institutional communication managers of the city, the results presented in this chapter have a historical value (given the volatility and dynamicity of web sites, like many other Internet environments) with respect to the evolution towards web 2.0 scenarios, assuming a particular interest for further comparative analysis with 2010 web sites, currently under investigation.*

## **INTRODUCTION**

Being on the web is more and more equivalent to existing. This is true for single individuals, organizations and institutions. Institutional web sites of cities are like *visiting cards* for both citizens and tourists.

Manuel Castells has dedicated an entire volume of his "Network Society" trilogy to the theme of identity on the web (Castells 1996, 2000), offering an interesting contribution to the debate on the pervasive need to be visible on the web – at times polarized on "apocalyptic" (cfr. Inter-alia Inter-alia Inter-alia: Slouka, 1995; Maldonado, 1997; Wolton, 1999; Calegari, 2000) and "integrated" (cfr. Inter-alia Inter-alia Inter-alia: Turkle, 1995; Levy, 1997; Mitchell, 1999; Castells, 2001) viewpoints.

In the '90's the debate became more lively among experts belonging to different disciplines on topics related to new "virtual" identities of individuals, institutions and online organizations, and the spreading of social internet habits. Contemporaneously de Rosa together with collaborators of the Chair of Psychology of Communication and New Media (Faculty of Psychology<sup>2</sup> – La Sapienza University of Rome) gave way to a series of longitudinal empirical researches aimed at monitoring the developments of Social Representations of internet and the metaphors associated to them (navigation, ocean, global village, place,

marketplace etc.). The main focus of the studies was relative to the evolution of social practices and more specific fields (i.e. tourism) in which changes tied to e-commerce and web-marketing have radically redefined the relationship between possible customers that buy travel packages, tour operators and travel agencies.

The present contribution satisfies the interests of research on communication via internet applied to tourism (de Rosa & Bocci, 2001a, 2001b, 2002, 2005; de Rosa, Bocci & Saurini, 2006) and a wider research program, led by de Rosa, on citizens and European and non-European first-visitors to nine historical capitals (Helsinki, Lisbon, London, Madrid, Paris, Rome, Wien and recently also Warsaw and Brussels) This program is contextualized in the framework of previous empirical studies on Social Representations of Rome in first-visitors of six different nationalities (de Rosa, 1995; de Rosa, 2006; de Rosa, Bonaiuto, Calogero, & Antonelli, 1992a, 1992b, 1992c; de Rosa, Calogero, & Antonelli, 1992; de Rosa, Antonelli, & Calogero, 1995; de Rosa & d'Ambrosio, 2009, 2010) and meets the interest of the "Environmental Psychology" and "Social Representations of urban places" research areas (Ardone, de Rosa, & Bonnes, 1987; Ardone, de Rosa, Bonnes, & Secchiaroli, 1987; Bonnes, de Rosa, Ardone, & Bagnasco, 1990; Bonnes, Bonaiuto, Ercolani, & de Rosa, 1991a, 1991b; Nenci, de Rosa, Testa, & Carrus, 2003).

The main goal of the wider research program is the comparison between the imagination (before the visit) and experience (after the visit) of places and the Social Representations of the entire capital city and of its historical center in particular, guided by a series of hypotheses regarding the stability and transformation of the Social Representations and their dimensional elements. The multi-method research design guiding the wider research program is inspired by the Social Representations Theory (Farr & Moscovici, 1984, 1989; de Rosa, 1990, 1993, 1994, 2002, 2006; Jodelet, 1989; Moscovici, 1961, 1989; Moscovici & Duveen, 2000) integrated with other constructs derived from Environmental Psychology, like the social memory of urban places (Ardone, de Rosa & Bonnes, 1987; de Rosa, 1997; Jodelet, 1982; Hass, 2004; Hass & Jodelet, 2000). The relationship between different constructs is investigated, assuming that they are mediated by various communication systems such as anticipatory experience.

During the analysis of these communication systems we assumed that a crucial role could be played by Cities' Institutional web sites, considering them as official "visiting cards" that Municipalities present to citizens and tourists. The analysis of results will inform us if this hypothesis was (at the time of the first data collection) and is still well-founded (inspiring new and further still ongoing data collections) and applicable both to citizens and tourists, if it highlights the prospective potential areas of development of the web sites in time and tracks and gives direction to content enrichment, technical aspects, also in relation to potential targets (citizens/tourists).

In particular, this article is aimed at analyzing the Institutional web sites of the Municipalities of Paris ([www.paris.fr](http://www.paris.fr)) and Rome, both downloaded with *Teleport pro 1.29 version* the 1<sup>st</sup> of April 2004 (important historical data, as an anchorage for further comparative analysis, since web sites evolve continuously and past versions are hard to

retrieve) according to a multi-method perspective and multi-step level analysis.

These web sites have been studied by highlighting different but complementary perspectives (Stockinger, 2002):

1. in relation to the socio-economic context of reference: sector of activity, functions, targets, relationships with the "mother" Institution;
2. as a form of virtual organization (complex system characterized by web pages interacting with each other);
3. as a technological object that needs special technology in order to be produced, managed and used;
4. as a semiotic object, characterized by contents, expressive modes and forms of interactions between different components and users.

So globally, three levels of analysis have been used: structural (internal organization, contents, functions), interactionist (relationship with other web objects, relationship with other users) and socio-paradigmatic (accessibility and usability).

The evaluation of web the sites was performed by means of:

1. a grid for web site assessment devised by de Rosa & Picone in 2003 within the frame of activities carried out by the Chair of Psychology of Communication and New Media;
2. a usability test (Nielsen, 1994);
3. the Atlas/ti program for qualitative analysis of both web sites

## USABILITY OF A WEB SITE

The idea of “usability” emerges in the 1960s within the domain of studies on cognitive ergonomics centered on human-machine interactions: the attention of researchers focused on the way a user constructs a mental model of the product he/she is using, developing certain functionalities. The scope of studies on usability is to align the designer’s model of the software with the user’s model (Boscarol, 2003).

These researches have brought to the definition of guidelines that are applied as support to the design of interfaces which are the elements users interact with.

Up to the 1970s, the main users of IT products were designers themselves, or experts of the specific field. This means that the design model overlapped with user model.

In the ’80s and ’90s, with the pervasive diffusion of IT technologies in different work and domestic domains, a final fracture occurred between final user and designer; consequently it became necessary to identify strategies that could make the use of software easier for non experts. An epochal change was provoked by Macintosh, the first *user-friendly* computer characterized by the metaphor of a desk and the intuitive movement of objects.

The birth of Internet and the proliferation of web sites has shifted the problem of usability to a new domain and new problems have emerged: since a software is usually used after purchase, a web site is first used and, only if this first approach is satisfactory, a transaction will follow and maybe, profit too. The consequence is that, relatively to web sites, the theme of usability is an element strongly connected to economics, image and communication of brand identity.

Combining literature on this topic, Nielsen’s studies (1994) and the rules expressed by the *ergonomic requirements for office work with visual display terminals (VDTs) – Dialogue principles*

ISO 9241-10 standards, 9 heuristic principles have been defined:

1. **Visibility of the system status:** it is very important to keep users informed of the status of their actions. For example, one of the most common actions that can be executed on a web site is to follow the links (mouse sensitive website zones – both text or images- that allow us to shift from one page to the other). A suggestion is to change the color of the active link (in the moment it is clicked on) to inform the user that the action is being executed (the standard is to pass from the blue color of the non visited link to red color of an active link). It is also suggested to distinguish visited links from the other two statuses (non visited link and active link), to remind the user of the links he/she already visited, among those listed on the page.
2. **Match between system and the real world:** it is always worth knowing and using final users’ language for the concepts they are familiar with, either textual or graphical elements. This solution assures on one hand a better visitors’ comprehension and memorization of contents and on the other avoids that users, interested in the available information, exit the web site without considering it, because misled by the use of a wrong terminology and/or images that he/she doesn’t recognize (or has a hard time associating to the information he/she is looking for).
3. **User control and freedom:** normally, it is a good practice to give users control over the web site’s information, allowing them to easily access topics they are interested in and browse around them according to their needs. For this reason, it is important to mark links adequately, in a non ambiguous manner (avoiding false expectations) and positioning them where the user is expecting

- to find them. This allows a first-time visitor to easily understand if there are contents that satisfy his/her needs and eventually to explore them.
4. **Consistency:** it is important to mark every page with the same textual or graphical elements that reassure the user that he/she is moving inside the same web site. For example if passing from one page to the other users encounter different graphical styles, they are forced to analyze all the objects to check if they are still within the same web site, in which section, or if they exited by mistake. Consistency helps users search and use information.
  5. **Error prevention:** it is important to avoid situations in which users could make mistakes and end up in the wrong place; in any case, the possibility of exiting and returning to the previous status must be guaranteed. It is furthermore important to put a link on every page allowing to return to the home page and to the main sections of the web site: the user can then go back to more familiar sections if he/she doesn't enter the page he/she is expecting to.
  6. **Recognition rather than recall:** simple and schematic layouts are recommended, to facilitate the identification and examination of information on the pages
  7. **Flexibility and efficiency of use:** users should have the chance to follow different paths while browsing a web site, according to his/her experience of the Web and/or knowledge of the same. For non expert users visiting the site for the first time, it is useful to design a hierarchical access to contents (that makes the progressive deepening of topics explicit); on the contrary, for expert users short-cuts from the home page are recommended, in order to directly access sections of the site closer to their needs. Also in this case, it is important to signal them adequately, so they can be noticed.
  8. **Aesthetic and minimalist design:** if graphical elements inserted in the pages (browsing elements, images or photos) are too colorful, complex and/or too big related to texts, there is the risk of putting informational contents in the background: users will then be too engaged in identifying the meaning of images and looking for coherence with the other elements of the site, instead of analyzing the informational contents of pages. Furthermore, big and complex images are too heavy in terms of Kb in Internet, uselessly increasing time for download. It is then suggested to choose graphical solutions that highlight meanings in the text, few simple colors (overall a web page shouldn't have more than 6 colors) with subjects users are familiar with.
  9. **Help users recognize, diagnose, and recover from errors:** it is always useful to try and find which errors could be made by end users on the web site. If, for example, we set up a page with which users can send their personal data, a confirmation page should then appear, informing them if data has been sent successfully.

The ISO 9241 standard defines usability as:

*the extent to which a product can be used by specified users to achieve a specified goals with effectiveness, efficiency and satisfaction in a specified context of use.*

This complex concept can be represented with three perpendicular axes intersecting, a graphical expression of the three measurable attributes (Figure 1).

Analyzing the three concepts separately, it is possible to define:

- **Effectiveness** as: *“the accuracy and completeness with which specified users can achieve specified goals in particular en-*

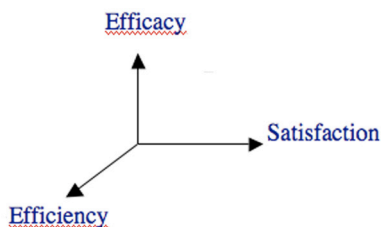
vironments” and can be measured by counting how many times, with respect to the number of trials, *specified users have achieved specified goals in particular environments*.

- **Efficiency** is defined as: “*the resources spent in relation to the accuracy and completeness of goals achieved*” and can be measured by counting resources spent to reach defined goals.
- **Satisfaction**, finally, is defined as: “*the comfort and acceptability of the work system to its users and other people affected by its use*” and can be measured in different ways, for example through questionnaires aimed at surveying users’ reactions to the system.

## DESIGN OF A GRID TO EVALUATE WEB SITES

Reviewing the literature (Nielsen, 1994; Stockinger, 2002) and publications for experts of the IT sector, available through online thematic web sites (like [www.usable.it](http://www.usable.it); [www.manuali.it](http://www.manuali.it)), indications have emerged for the construction of a grid to evaluate web sites. This grid allows to highlight both technical features (i.e. graphical aspects and applied technologies, clearly those available at the time of the research), and elements that can facilitate or, on the contrary, complicate the usability of the web site (i.e. different levels of video

Figure 1. Graphical expression of the concept of usability



resolution, compatibility with different browsers, consistency and flexibility characteristics).

The different elements of web site pages are: graphical elements (static or dynamic), utilities (i.e. archives, calendars, post-cards, sms...), elements that influence accessibility and usability, interactive components (with users/ other sections of the web site and the web) e-branding (organizational charts, banners...), contents (news, bulletins, information...). Filling out the grid basically means mapping the presence/absence of these elements. The evaluation of web sites can differentiate according to users’ characteristics and the goals of the evaluation; the grid contains questions that map the evaluator’s characteristics (socio-demographic and perceived level of expertise in Internet use) in order to trace these variables.

## Main Results of the Application of the Grid to the Web Sites of the Municipalities of Paris and Rome

In this research, to evaluate the most important elements of the web sites of the Municipalities of Rome and Paris (downloaded simultaneously the 1st of April 2004), de Rosa & Picone’s web evaluation grid was used (applied in a pilot study in 2003 in collaboration with Sara Saurini & Ilaria Botti<sup>1</sup>). The use of this grid allows to highlight different aspects of a web site: graphics, technology, contents, interactivity, usability characteristics.

### Graphics, Multimedia and Technical Features: Municipality of Paris Web Site

The web site, visualized with Internet Explorer 6 and Netscape 7.1 (the updated versions available at the time of the research), has 10 sections on the home page, white background and blue links, while every section has different colors for headers and titles (Figure 2).

In the different pages we find many tables with headers but with no legends. The logo of this site



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is in the upper left hand corner. It is a static logo made of text and color: the name of the site *paris.fr* is inside an orange rectangle and beneath it the writing: *Maire de Paris* closed in a blue rectangle.

Between these two texts we find a small image that changes according to the section we are in and the home page is the only one containing the images of all the different logos (Figure 3).

So we will find these symbols for each of the sub-sections:

- a “house”: when we are on the *home page*
- a “handshake:” when we are in the *solidarité* (solidarity) section;
- an “eye”: for the *culture* section;
- a “briefcase”: for the *education* section;
- a “jogger”: for the *sports* section;

Figure 2. Paris’ web site map



Figure 3. Logos of sub-sections



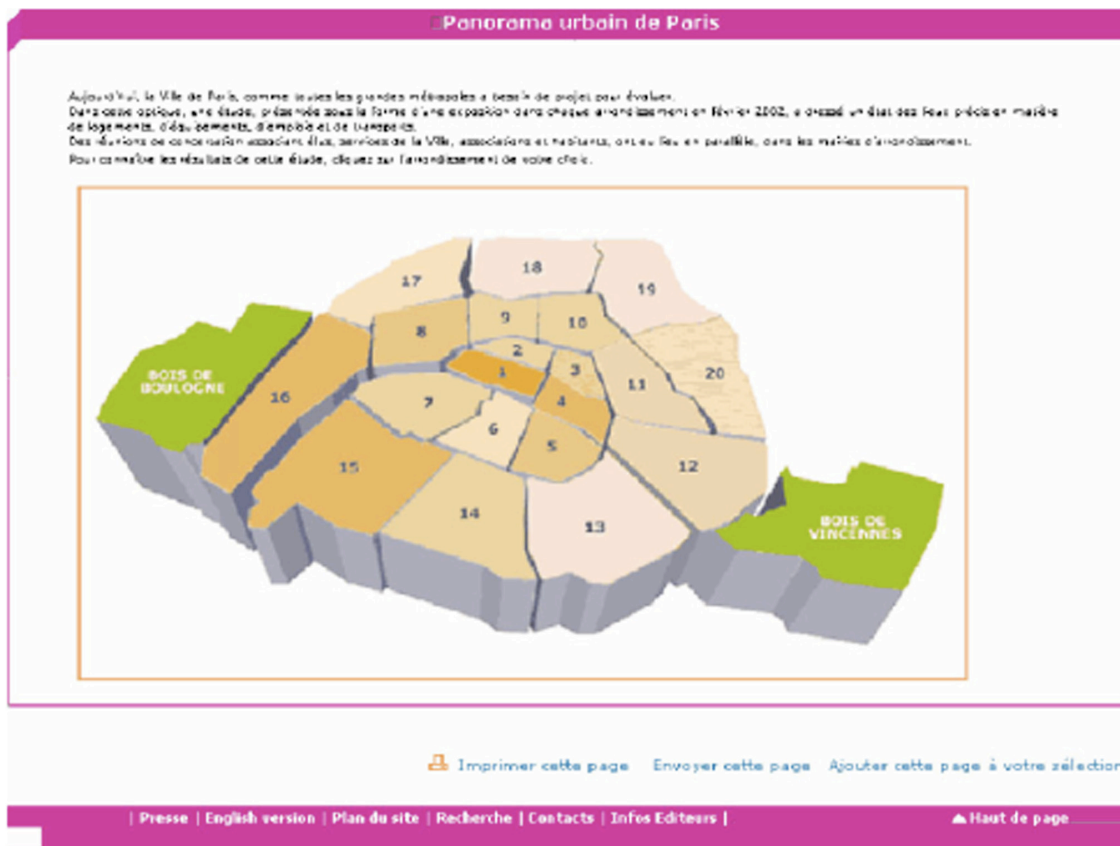
- a “man and a bus” for the *déplacements* (transports) section;
- a “hill with a tree and a building”: for the environment section;
- a “city”: for *urbanisme* (urbanism);
- an “office door”: for *économie* (economy)
- a “group of people” for *citoyenneté* (citizenship and associative life).

From the Paris city map it is possible to access every *arrondissement* (municipal administrative district) by clicking on the zone of interest (Figure 4).

### Graphics, Multimedia and Technical Features: Municipality of Rome Web Site

Differently from Paris’s web site, the Roman site doesn’t always recall the same colors: as a matter of fact, even if the background is always white, in various sub sections colors vary and may be complementary or in contrast: the home page is mainly orange, blue and red, while in the subsections *municipi* (municipal administrative district) and *companies, thematic areas, on-line services,*

Figure 4. Arrondissements of Paris



*citizen's network, projects* are a combination of red and blue, two contrasting colors that prevail in the entire web site.

Even in this case the logo is in the upper left hand side, but while on main pages there is a complete version of the logo (Figure 5), made of images, text and pictures (institutional SPQR shield, the text *comune.roma.it*, and in the background we find an architectural evolution that represents Rome yesterday and today (Colosseum and Auditorium and the paving of P.zza del Campidoglio), in other web pages we only find the SPQR symbol in different positions.

The choice of the logo is connected to the thematic area of the sub section, for example, the *library* section uses an open book, while the mobility and transport section uses a public transport vehicle.

Differently from the web site of the Municipality of Paris, the level of multimedia is sophisticated: animated gifs, 3D graphics, flash animations and videos with audio. For example, by clicking on the *radioromacomune* link (on the right side of the home page) it is possible to listen to the news of the past 30 days, or, entering the bulletin section (libraries) videos are also available. HTML language is used for still pages and ASP for dynamic pages.

There are few territory maps and it is difficult to find them inside the web site. A non-expert user not familiar with the structure of the city of Rome is not aided by the web-site.

Summing up, we can state that while multimedia and technologies used for this web site have not changed in a year, in both versions we find a

high level of multimedia and the same program language to construct web pages, whereas graphics have slightly changed.

In the pilot study, performed on the version downloaded in June 2003, the static logo used was composed of the text *comune.roma.it*, of the SPQR shield and of the picture of the Colosseum; in the present study (using the version downloaded the 1<sup>st</sup> of April 2004), apart the elements already listed, the logo also includes a picture of the Auditorium and the paving of P.zza del Campidoglio.

Even the colors have slightly changed; while the 2003 version of the web site mainly contained complementary colors (yellow-red, cyan blue-red, green-magenta) and contrasting colors (blue-red, green-red, yellow-magenta, cyan blue-magenta), in the analysis conducted in April 2004 the homepage is characterized by the use of orange, light blue and red, whereas other sections of the site mainly show a combination of red and blue.

## Utilities

### Municipality of Paris Web Site

The web site of the Municipality of Paris does not contain screen savers, wallpapers, online postcards, online help, web telephony or e-commerce areas, there are no utilities related to short messages on traffic, news and services, nor information about the number of visitors or archives of on-line directories, bibliographies and virtual libraries, but agendas of events are published.

On the contrary, there is a large amount of information on employment: the *solidarité* (soli-

Figure 5. Municipality of Rome logo



darity) section allows users to enter the *emploi* (employment) link, in which we find addresses to which CVs can be sent, information on public employment and internships.

## Municipality of Rome Web Site

This section of the grid dedicated to utilities does not highlight differences with the previous pilot study. Here also among the utilities, in particular in the section *comunica*, it is possible to receive short messages on one's mobile phone relatively to:

- traffic updates
- news
- services
- cultural events in Rome

It is possible to consult on-line magazines, that are visible with Acrobat reader (PDF file).

Statistics on how many people have visited the web site cannot be found on the Home Page but on secondary pages, as in the case of web pages dedicated to *libraries and Department VII*.

Book archives can be found in the libraries section, along with the addresses of Roman libraries etc.

On the *Training and Employment* link, accessible from the *thematic areas* section, information on every kind of job and employee contract are available, together with links to external job opportunity web sites (i.e. [www.romalavoro.net](http://www.romalavoro.net) thematic areas/ training on the job/ jobs: Employment Department web site).

*We also find the agenda of main events: municipio V (local town hall)/departments/ municipio and company.*

## Usability

### Municipality of Paris Web Site

Generally, the web site presents a fixed structure and, as a matter of fact, while visiting it only few

parts change. This kind of coherence allows rapid movements from one page to the other because the images remain the same. (The uniformity that characterizes the Municipality of Paris web site allows the user to easily understand if he/she is in the site itself).

The structure of the home page is typical of modern portals (obviously in line with the technology available at the time of the research): the logo is in the upper left hand side, followed by pictures of the city of Paris, a drop menu positioned horizontally, information positioned centrally and technical data at the bottom (Figure 6).

On the right side of the home page we find links to internal search engines and links to external web sites that contain useful information on the city of Paris, both for citizens and tourists.

The structure of the home page is not replicated in every web page; as a matter of fact constant links related to logo, drop menu and information at the bottom disappear; furthermore, every time we access the current news section (the link is present in every sub section of the web site), on the left hand side the menu of the specific section opens.

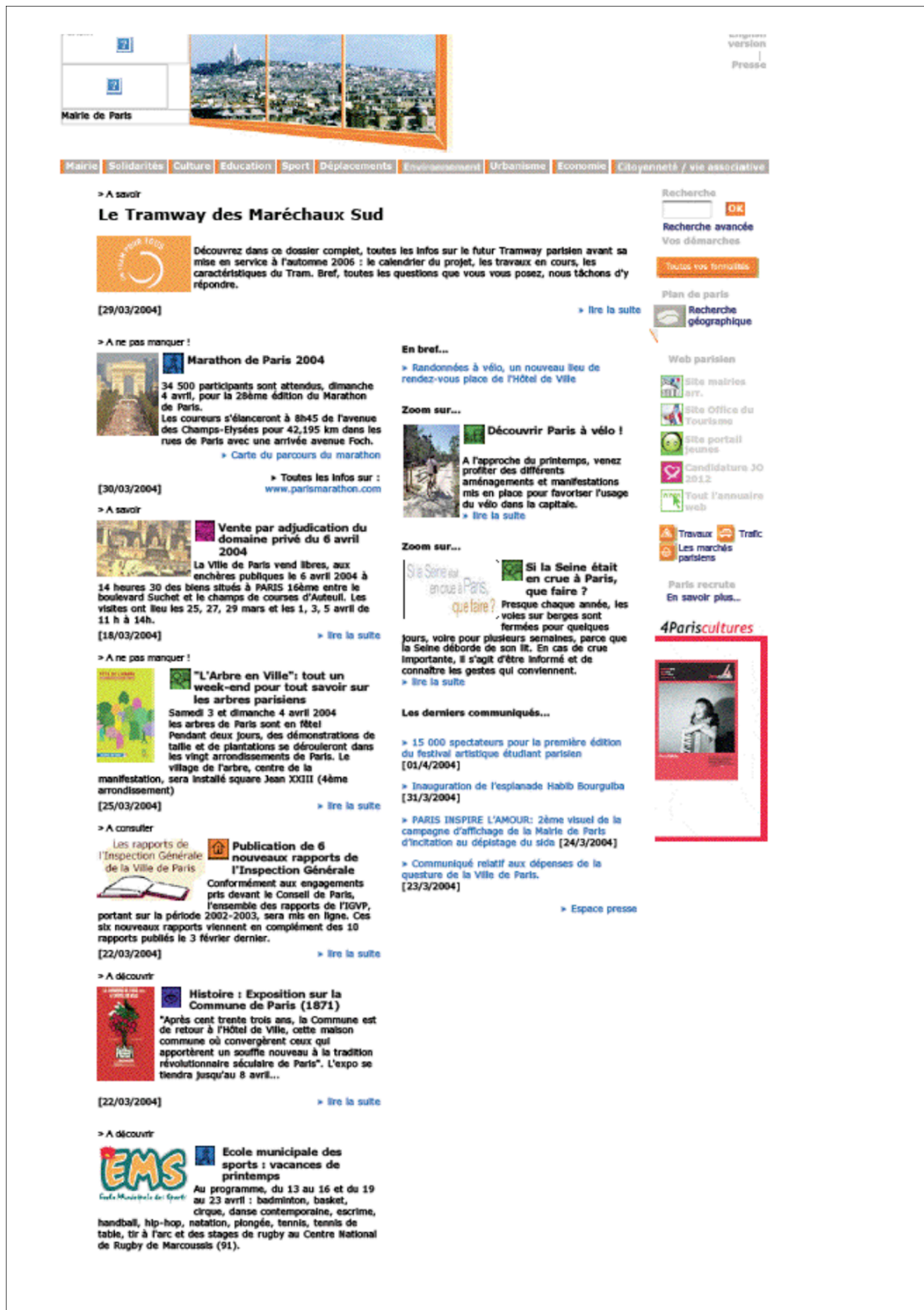
It is possible to access the site map at every moment. It is rather coherent, even if the menu does not maintain the same order of the drop menu.

This site is also available in English, but in a simplified version: if we are on any web page and click *version anglais* we are automatically sent back to the site map (and on the page we were on before) that has a different structure from the French version. The English version only has four sections focused on tourism, lifestyle, education opportunities and government.

When the document is too large vertical scroll bars appear, but at the beginning of each page we find a list of all the paragraphs it contains to help the reader, so by clicking on the link we quickly find ourselves on the section of the page we are interested in.

We have opened the Municipality of Paris web site with different browsers (Safari, Netscape, Explorer...) and operating systems to verify if it

Figure 6. Home page web site of the Municipality of Paris: www.paris.fr



was designed to be compatible with both systems. There generally is a certain stability while using the different browsers, but errors are more frequent with Netscape: for example, when we are in the site map some subsections remain out of the table and are not accessible.

When we access a thematic area the color and the header of the pages are not complete. Furthermore, the blue links often overlap words of the previous lines creating reading difficulties, in the page *accueil économie/tissu économique paris* graphics are not centered and are at the bottom, or in *environnement / Parcs et jardins / liste jardins / bois boulogne* if we click on a picture to zoom it the dimensions do not change.

Furthermore, in some pages a horizontal scroll bar appears (i.e.: *accueil déplacements / dossiersville / un tram pour tous*) and it is not easy to visualize the whole file because it is necessary to move the cursor from left to right and vice versa.

In this site elements that could facilitate navigation have been found, for example combo box or jumps in navigation and *bread crumbs* (that allow the user to go backwards by tracing, if he desires, his own steps).

The constant presence of the drop menu on every section of the site, other than the home page, makes navigation flexible, allowing to explore pages according to the needs of the user and not according to a rigid order predetermined by the webmaster.

### Municipality of Rome Web Site

The web site is built according to w3c standards (HTML4.01 recommendations and level 2 CSS) to guarantee maximum accessibility and usability of the information for all kinds of users and without distinctions of platforms or browsers.

The Municipality of Rome web site still maintains the previous year's structure: logo at the top, information at the center of the page,

menu on the left, and links (Figure 7). Standards used on the home page are not found on the rest of the site and the result is a non-stable structure that gives pages little homogeneity, therefore the visitor does not understand if he is still inside the site. This non-homogeneity is due to a graphical update limited to the home page.

The main navigation is planned to be carried out through the menu on the left, articulated in six sections:

### *Municipi and Companies, on-line services, Projects, thematic areas, Useful Links and Other Sections* (Table 1).

To access the links contained in the sections, it is necessary to click on every one of them except for "thematic Areas," a section that automatically expands.

This site is available in two languages, Italian and English, both accessible from the home page; however in the *municipio II* section a richer multi-language version is available in French and Spanish.

As for the Municipality of Paris web site, the English version has fewer pages and gives limited information on:

- the main events of the city: fun, exhibitions, theatre and cinema
- tourism
- available transport
- information related to school, family etc.

The button *Search on this site* is a search engine only present on the main pages and allows to search in internal pages.

The expression *Other Sections* is not intuitive for the user because it is not clear what will happen by clicking on it. This section allows to directly access the link *search engine* with which it is pos-

Figure 7. Home page web site of the Municipality of Rome: www.comue.roma.it

The screenshot shows the homepage of the Municipality of Rome website. At the top, there is a navigation bar with links for 'Sito accessibile', 'English version', 'Aree Tematiche', 'SP@RNews', 'Scrivi agli uffici', and 'Home'. Below this is a banner with the 'comune.roma.it' logo and a background image of the Colosseum. A search bar is located on the left, and a weather widget on the right shows the forecast for the following day (April 2, 2004) with a minimum of +15°C and a maximum of +20°C.

The main content area is titled 'PRIMO PIANO' and features a large article with a photo of a young child. The article is titled '4° Forum Mondiale delle Città contro la povertà 1° Villaggio del Millennio'. The text below the photo reads: 'La lotta alla povertà vede Roma tra i suoi protagonisti. Dal 31 marzo al 2 aprile si svolge presso il Palazzo dei Congressi, il 4° Forum Mondiale delle Città contro la povertà. Il Forum, che per la prima volta si tiene a Roma, è organizzato dall'Alleanza delle Città contro la Povertà - una rete mondiale promossa dal Programma per lo Sviluppo delle Nazioni Unite - in collaborazione con il Comune di Roma. continua...'

Below the main article, there are two smaller articles: 'Roma ha quattro nuovi Consiglieri Comunali' and 'Oggi fermi i veicoli con targhe dispari'. The 'Ultime notizie' section contains a grid of 16 news items, including 'Angelo Mai, intesa Comune-Ministero', 'Chiusa sede anagrafica del Municipio I', 'Appuntamenti settembre 2004: Centro Famiglie Villa Luis', 'Festival Metamorfosi all'Auditorium', 'CorvialRoma', 'Nuova fermata per la linea 311', 'Trasporti, aumenta il servizio', 'Corretto uso del contrassegno invalidi', 'Imprenditoria culturale in periferia', 'Autunno in mostra', 'Tamburi Rodari' dal 5 settembre', 'Il Campidoglio verso il 29 ottobre', '650.000 euro per piazza S.2appalà', 'Cala l'inflazione con RomaSpendeBene', 'Tutoraggio borse formazione lavoro per disabili (Municipio XI)', 'Gestione impianto sportivo in via degli Alberini (Municipio V)', 'Decoro urbano 'il mese del Municipio Roma'', 'Bando d'iscrizione pratica Forense presso l'Avvocatura del comune di Roma', 'Premio Amelia Rosselli - Terza edizione 2004', and 'Pubblici esercizi: domande dal 23/0'.

The left sidebar contains a 'Mappa del Sito' menu with categories like 'Comune, Agenzie e Aziende', 'Aree tematiche', 'Ambiente', 'Anagrafe, Cittadini e Pari opportunità', 'Bambini', 'Casa, Patrimonio ed Edilizia', 'Comunicazione e Semplificazione', 'Città, Decentramento, Municipalità e Orari', 'Cultura, Sport e Turismo', 'Economia, Commercio, Sviluppo e Tributi', 'Formazione e Lavoro', 'Giovani, Istruzione e Servizio Civile', 'Mobilità e Trasporti', 'Paritarie', 'Personale', 'Stranieri e Multietnicità', 'Sicurezza, Pronto Intervento e Guasti', 'Sociale, Salute e Handicap', 'Statistiche e Analisi sulla città', and 'Urbanistica e Lavori Pubblici'. Below this is a 'Servizi OnLine' section with links for 'Rate Civica', 'Progetti', and 'Link Utili'.

The right sidebar contains sections for 'Dal Campidoglio' (with links to 'Ultime Notizie...', 'Provvedimenti della Giunta Comunale', and 'Attività del Consiglio Comunale'), 'COMUNICA' (with links to 'Scrivi agli uffici', '060605', 'RomaSMS', 'SP@RNEWS', 'RadioRomaComune', 'L'evento', 'In Comune', and 'Capitolium'), 'Redazione Internet', 'Materie...' (with links to 'Scienze: sapere come portare a scuola un bambino portatore di handicap', 'Anagrafe: sapere quale documento fare a mio figlio di 12 anni per andare all'estero con la scuola', 'Commercio: attivare un laboratorio', and 'Consulta l'archivio...'), and 'In fondo in fondo' (with links to 'Decalogo per un consumo leggero di Anna Ciapparoni' and 'Consulta l'archivio...').

At the bottom of the page, there are several promotional banners, including 'estate romana 2004' with an image of acrobats, 'estate romana 2004' with a logo, and '300 scuole a Roma' with a logo. There is also a 'drin' logo and a 'ROMA spendebene' logo.

*Table 1. Sections of the Municipality of Rome web site*

<p><b>Municipality and Companies</b></p> <ul style="list-style-type: none"> <li>- City Council</li> <li>- District Council</li> <li>- Departments</li> <li>- Extra-Department offices</li> <li>- Local Town Halls</li> <li>- Companies</li> </ul>	<p><b>Thematic Areas</b></p> <ul style="list-style-type: none"> <li>- Environment</li> <li>- Registry Office, Citizens and equal Opportunities</li> <li>- Children</li> <li>- Housing</li> <li>- Communication and Simplification</li> <li>- City, Municipality and Opening Hours</li> <li>- Culture, Sports and Tourism</li> <li>- Economy, Business, Development and Taxes</li> <li>- Training and Employment</li> <li>- Youth, Education and Civilian Duties</li> <li>- Mobility and Transport</li> <li>- Personnel</li> <li>- Multi-ethnic Rome</li> <li>- Safety, Emergency Service and Out of Service</li> <li>- Social and Health</li> <li>- City Statistics and Analysis</li> <li>- Planning, Suburbs and Public Works</li> </ul>
<p><b>Online Services</b></p> <ul style="list-style-type: none"> <li>- Public Job Advertisements</li> <li>- Library/Newstand</li> <li>- Tax Computation (ICI)</li> <li>- Online Deliberations</li> <li>- Frequently Asked Questions (FAQ)</li> <li>- Elections</li> <li>- Municipality Offices Opening Hours</li> <li>- City Council Agenda</li> <li>- Price Observatory</li> <li>- Payment of School Fees</li> <li>- Online Taxes</li> <li>- Useful Files</li> <li>- Single Front Office for Production Activities</li> <li>- Street Plan of Rome</li> <li>- Towed Vehicles</li> </ul>	<p><b>Useful Links</b></p> <ul style="list-style-type: none"> <li>- Useful Links</li> <li>- Teletext</li> <li>- Netiquette</li> <li>- Intranet</li> </ul>
<p><b>Projects</b></p> <ul style="list-style-type: none"> <li>- Marco Aurelio</li> <li>- European Projects</li> <li>- Leonardo Project</li> <li>- Online Science</li> <li>- International House for Women</li> <li>- Global Junior Challenge</li> <li>- RomaPreview</li> <li>- Schools online</li> <li>- PEOPLE Project</li> <li>- Major Cities</li> <li>- TeleCities</li> </ul>	<p><b>Other Sections</b></p> <ul style="list-style-type: none"> <li>- Search ENgines</li> <li>- Contact Offices</li> <li>- 060606</li> <li>- RomaSMS</li> <li>- Sp@rnews</li> <li>- RadioRomaComune</li> <li>- The Event</li> <li>- InComune</li> <li>- Internet editorial office</li> <li>- English version</li> </ul>

sible to make an advanced search by intersecting the following voices that:

- contain all the following words;
- contain the following phrase;
- contain any of the following words;
- do not contain the following words.

Furthermore it is possible to choose the section in which one wishes to look for the object:

- all statistical documents;
- Main News;
- News;
- F.A.Q.;



- District Council measures;
- on-line deliberations

Links to external search engines are also available on this site. They allow access to Public Administration offices by inserting the information (even if partially) and by clicking on the button. For example, if we insert the word “work” we find a link to the “Ministry of Labor” and the “National Council of Economy and Labor”

The expression *Accessible site* is also not clear; this link is in the upper left hand side and allows the visualization of the site only in a textual mode.

The site was designed to be visualized at a dimension of 800 x 600 pixel or superior, the most common video setting for the creation of a web page, with which lateral horizontal scroll bars are never visible. Whereas, the quantity of information present on the site makes it impossible to eliminate the vertical scroll bars. Differently from the Municipality of Paris web site, very long texts are not broken down into small paragraphs and this is not very appreciable because people prefer going to a new paragraph and having the impression of a forward movement: clicking to continue to read gives the idea of progression (Burns, 2002). As for the previous research there are no elements that aid navigation regarding: facilities, personalization of interface (language, character dimension, graphical object positioning), the *undo* and *redo* buttons, *home* and *back*, but accelerators have been found, for example *combo box* present in the advanced search.

Even if the site has been designed according to the concept of modern portals, with the logo in the upper left hand side, main menu on the right (since left elements are always more important than right elements), contents are not in order and a graphic coherency is missing: form, order and position of objects change from one page to another and this gap in the structural backbone does not help the visitor to explore and navigate.

## **Interactivity**

### **Municipality of Paris Web Site**

By inserting the word “intranet” in the internal search engine, various thematic areas accessible by different categories of users have emerged: municipality, job search help etc. This site has a high hypertext complexity, with links both to other sites on different topics (i.e. culture: [www.culture.fr](http://www.culture.fr), or education: [www.crous-paris.fr](http://www.crous-paris.fr)) and to internal pages. Among the first we can cite links directly available on the right hand menu of the home page. In any case all links, both internal and external, are easy to find because differently from the rest of the text, they are blue. Other tools that facilitate communication with users and among users, like forums or chats, are not identifiable inside or outside the home page, nor in other parts of the site. The home page offers the opportunity for users to subscribe to a newsletter.

### **Municipality of Rome Web Site**

By inserting the word “intranet” in the search engine, many internal sections appear, usable only through special passwords, like for example the “MARCO AURELIO” project, and special learning software packages produced as an experiment, together with the documents of the “Jubilee 2000” event, by consultancies that deployed classroom training.

From the *Useful Links* section it is possible to find links to Intranet Services of the Municipality of Rome without accessing the Marco Aurelio Portal.

In the site we find different links that send us back to internal sections and external sites (example: [www.televideo.rai.it](http://www.televideo.rai.it), [www.inferentia.it](http://www.inferentia.it)). To allow an easy identification of internal and external links present within the web site, two colors have been used (red and blue).

Vice versa, in the previous version (2003) of the Municipality of Rome web site these two

colors had never been used with the same criteria: inside the *online Services* section, for example, external links were red, whereas inside the section *Municipi*, external links were blue.

Now instead, a significant improvement in coherency is apparent. The use of red and blue is consistent as red is used for internal sites and blue for external links.

No sections dedicated to forums or chats have been found, but F.A.Q. are available in an internal area of the *on line Services* section present on the home page.

As for the previous research, visitors have the opportunity to contact different professionals of the Municipality of Rome, through a special section that can be found both on the top right hand side of header of the home page *Write to Offices* and the *Comun.ica* area.

From this research it also emerged that main pages do not give the possibility to periodically receive special information, but if we enter in *Municipio V*, it is possible to subscribe to a newsletter to receive news via e-mail, appointments and press releases from the Social Affairs Department.

## **A Glance at Contents**

### **Municipality of Paris Web Site**

In the present research, as for the pilot study carried out a year before on the Municipality of Rome institutional web site, the contents downloaded the 1<sup>st</sup> of April 2004 have been evaluated by using two parameters: “level of update of information measured in terms of frequency of update in defined periods of time (daily, weekly, monthly)” and “level of reliability,” intended as clearness and certainty of sources. The information inserted on the home page is almost all referred to news: new tram line, the Paris marathon, public offering for book purchase, Paris by bike etc. As already said, the Municipality of Paris web site is articulated in

10 sections, each of which contains *actualité* links referred to current events discussed in that section. With reference to the “contents” addressed in the grid of analysis, we find information sections that are separated in three areas:

- **“transport”**: inside the *déplacement* section it is possible to find information on all kind of transport available in Paris: collective transport, subways, trains, “batobus,” special transport for the disabled;
- **“tourism”**: from the *économie* section it is possible to access general information related to tourism, for further information the web site directs the user towards a specific address [www.paris-touristoffice.com](http://www.paris-touristoffice.com);
- **“sports”**: an entire section is dedicated to this topic and it is possible to have information not only on which sports can be practiced in Paris but also which are the gyms present in each *arrondissement*;
- **“culture”**: an entire section is dedicated to this topic. In addition to the information about Paris’ cultural heritage, it provides information about: municipal museums and all those that can be found in different *arrondissements*, theatres, libraries and cinemas, as well as an updated agenda of the city’s cultural events (exhibitions, cinemas, theatres, ballets and scientific events). Furthermore, for each of these themes more in-depth information is available by clicking on the external links published on the Municipality of Paris web site ([www.paris-bibliotheques.org](http://www.paris-bibliotheques.org), [www.theatredelaville-paris.com](http://www.theatredelaville-paris.com), [www.ensemble-orchestral-paris.com](http://www.ensemble-orchestral-paris.com), [www.chatelet-theatre.com](http://www.chatelet-theatre.com), [www.maisondelapoesie-moliere.com](http://www.maisondelapoesie-moliere.com), [www.espci.fr/espla](http://www.espci.fr/espla));
- **“education”**: it includes more than one topic. It is very focused on information regarding student lifestyle, scholastic system

and teaching cycles (elementary school, high school, superior education, apprenticeship and orientation). Information on single *arrondissements* is also accessible: schools' addresses can be found thanks to combo box. In this section we also find information on health and prevention for children in school age.

- **“health”**: we find this topic in the *solidarité* section in which, apart providing information about health, more specific sites are suggested to provide the users with more detailed information;
- **“economy”**: an entire section is dedicated to this topic in which the economic structure of Paris is discussed: industries, services, tourism, apprenticeship, entrepreneurship etc.

### Municipality of Rome Web Site

The home page contains a large section dedicated to news (clearly sensitive to the time period of the date of download: 1<sup>st</sup> of April 2004) with a central zone of the page dedicated to news on the Municipality of Rome: 4<sup>th</sup> World Forum of the cities against poverty, four new Municipal board members, traffic block for odd numbered license plates etc.

At the bottom, at the center of the home page, we find news from the Campidoglio (City Hall), also accessible from the first menu at the top right hand side of the screen. One of the main characteristics of these contributions is the total absence of references to the sources of information.

Every *municipio* is an independent entity and independently manages news. Consequently, significant differences emerge between the information published on each page: some do not have spaces for news (i.e. *Municipio V*), others publish news and bulletins for citizens highlighting them in clickable columns at the margin of the page (i.e. *Municipio IV*); amongst the most complete

sections we find *Municipio XI*, in which we find a large area containing information and news from the municipality, from which we can access the Municipal Newspaper that can be read on-line thanks to an archive of previous editions; all sources are reliable and news is always up to date.

The grid of analysis for web sites contains, in the section on information, different categories of contents that in the Municipality of Rome refer to specific thematic areas, listed in the menu on the left hand, and to departments.

These content categories are the same that have been already identified in the previous pilot study:

- **“transport”**: allows to access up to date and complete pages managed by *Mobility Policies* of *municipio VII*; furthermore, an external link allows to access the *city traffic* service offered by the regional RAI Televideo [www.televideo.rai.it/televideo/pub/index.jsp](http://www.televideo.rai.it/televideo/pub/index.jsp);
- **“culture, sports and tourism”**: by accessing these thematic areas it is possible to obtain complete, up to date and reliable information on culture and sports. Information on tourism is scarce and the visitor is directed to three external sites -*Romaturismo* ([www.turismoroma.it](http://www.turismoroma.it)); *Azienda per la promozione turistica* ([www.aptprovroma.it](http://www.aptprovroma.it)); *Stazioni, orari treni e tariffe* ([www.ferroviedellostato.it](http://www.ferroviedellostato.it))-. The culture section contains information from the cultural department and has a rich list of culturally interesting places (historical archives, LibraryNewstand – book search in Roman libraries). Updated and reliable information on sports can be found in the pages of the Sport Office: a clear presentation of the institution, sections dedicated to news, laws, sports organizations, contacts;
- **“economy”**: it is possible to find information on this topic in the related thematic area, which present external

(*RomaEconomia* site [www.romaeconomia.it](http://www.romaeconomia.it)) and internal pages on commerce, crafts, heritage, local development, revenue and taxes Department section;

- **“social and health”**: this area is characterized by the presence of updated content related to different users (families, elders, disabled, immigrants) directly managed by the Social Policies and Health Department; furthermore, external links offer information on pharmacies ([www.comune.roma.it/Muoversi\\_nel\\_Municipio/Vivi\\_il\\_centro/Farmacie/](http://www.comune.roma.it/Muoversi_nel_Municipio/Vivi_il_centro/Farmacie/)) and social-health services present in the *Municipio*;
- **“youth and education”**: this section represents a valid resource to access updated information on schools, through external links to on-line schools and external ones such as those to *useful schemes on superior education, university and other information* and the site of *Educational and School Policies*. News on extra-scholastic activities, news on different topics such as music, employment and city events, are present on the external site *Informagiovani*. ([www.comune.roma.it/Sezioni\\_del\\_portale/Per\\_Conoscenza/](http://www.comune.roma.it/Sezioni_del_portale/Per_Conoscenza/)) The pages of the Municipality of Rome dedicate a lot of space to the problem of drug addiction on the *Municipal Agency for drug addiction* web site ([www.drogachefare.it/agenzia.html](http://www.drogachefare.it/agenzia.html)).

## USABILITY TEST

The purpose of evaluating of the usability of a web site is to obtain information on users' needs, on their understanding of the system and on the aspects they appreciate or dislike. The tools available for the evaluation of technical features (i.e. the one designed by UsableNet) and the standards of production of good interfaces (i.e. Comolli, 2000) cannot substitute trials with real users.

Typically, these methods are applied in different moments of the design process and can be used as formalized guidelines. In the usability test, users test the system by performing simple tasks under observation.

The observer tracks:

- time need to execute the tasks;
- error rate;
- percentage of tasks finished successfully;
- frequency of alternative navigation paths used to perform specific tasks;
- number of backtracks while executing a task;

Nielsen (1994) highlights that a test with 5 users allows to map 85% of usability problems.

The usability tests of the Municipalities of Paris and Rome websites ([www.paris.fr](http://www.paris.fr), [www.comunediroma.it](http://www.comunediroma.it)) involved 5 French subjects for the Municipality of Paris and 5 Italian subjects for the Municipality of Rome, each of which were asked to perform the following 4 tasks:

1. identify the members of the municipality council
2. send an e-mail to the web master
3. find a map that presents the structure of the cities of Paris and Rome;
4. visit the section dedicated to employment search/offering

It is clear that it would be interesting to extend this kind of research by involving non-residents of different nationalities and focusing on tasks that are most important for a newly defined research population: for example non-national citizens or tourists that consult the web site of the municipality they intend to visit, considering them as official information channels, supposedly more reliable than commercial ones.

Table 2 shows the bi-lingual (French and Italian) form used to collect information on the Municipalities of Paris and Rome:

## E-Branding and Institutional Web Sites

As shown in Table 3, among the four tasks that the subjects must perform, the third (related to *finding a map of the structure of the city – arrondissements* in the case of Paris and *Municipi* in the case of Rome) has required a higher average execution time compared to other tasks, both for French (average time = 3 min.) and Italians (average time = 5 min., a result that does not differ much from the previous pilot study). Furthermore, while French users did not show an explicit uneasiness towards this task, Italians judged it as more problematic.

In both cases, most errors were related to the “path” chosen by users (total of errors made by French = 11, total of errors made by Italians = 19). In the case of the French subjects, 3 managed to see the map of Paris by going through the path: *home page / plan de paris e urbanisme / panorama de Paris*. Only 2 Italians managed to perform the task through the path: *città (city), municipi, orari (time table)/ decentramento amministrativo (administrative decentralization)/ municipi*.

*Identify the members of the Municipal Council* and *Visit the section dedicated to job search/offers* have been, for both web sites, the tasks that required less execution time (for the first task average execution time was 1'2" for Italians and 1'6" for the French; for the second task both populations registered an average of 1'6")

The task *identification of Municipal Council members* was successfully completed by all French and Italian users with respectively 4 and 2 errors and the last task was completed successfully by 4 subjects out of 5 with 3 errors made by the French and only 1 made by Italians.

To identify municipal council members, users went through the following paths:

- **French site:** *maire (mayor) / exécutif municipal (municipal executive) / liste des adjoints (list of City Council members)*
- **Italian site:** *comune (municipality) agenzie (agencies), aziende (companies), /*

*giunta comunale (city Council)/ composizione della giunta (composition of the city Council).*

Whereas, relatively to the section dedicated to job search/offers, paths were shorter:

- **French site:** *solidarité (solidarity) / emploi (employment)*
- **Italian site:** *aree tematiche (topics) / formazione lavoro (job training).*

*Send an e-mail to the webmaster* required the same time for French (average time 2 minutes) and Italian (average time 2,2 minutes) users and execution was successful for 4 subjects in the first group and 3 in the second. The paths followed by users were:

- **French site:** *(contact / un message pour la Maire de Paris (a message for the mayor of Paris),* or by using the internal search engine and inserting the word *webmaster*;
- **Italian site:** by using the search button and writing the word *webmaster*, using *on line services / Internet editor, write to offices* or simply selecting the *central editor* link at the bottom of the home page.

After performing all four tasks, users have been asked to give an overall judgment of the usability of the web site on a value scale from 1 to 5 (1 = negative judgment, 5 = completely positive judgment). None of the Italian subjects has given a completely negative or positive judgment: 60% chose value 3, 20% value 4 and 20% value 2. Among the French, one user made a completely positive judgment and the others gave an overall positive judgment, appreciating accessibility (80% value 4 and 20% value 5).

The usability test applied to the *www.paris.fr* and *www.comune.roma.it* web sites has produced similar results with respect to different tasks, but with differences between groups on the same

Table 2. Usability test data collection form

<i>Tâche/ Compito (task)</i>	<i>Temps/ Tempo (Time)</i>	<i>N° erreurs N° Errori (N° Errors)</i>	<i>Succès du travail / Successo nell'esecuzione (Success Rate)</i>	<i>N° de backtrack N° di backtracks (N° of backtracks)</i>	<i>Parcours choisi/ Percorso scelto (Chosen Path)</i>
Trouver la composition Du conseil municipal / Individuare la composizione della giunta comunale <i>(Identify the members of the municipal council)</i>					
Envoyer un email au web master / Mandare un'e-mail al web master <i>(Send an e-mail to the web master)</i>					
Trouver le plan de la ville/ Individuare una mappa che presenti la struttura della città <i>(Find the map of the city)</i>					
Consulter la section du site concernant les demandes/offres d'emploi / Visionare la sezione del sito dedicato alle domande/offerte di lavoro <i>(See the section dedicated to employment search/offering)</i>					

Table 3. Usability test results for French and Italian subjects relatively to the Municipalities of Rome and Paris web sites

Tasks assigned to evaluate the Municipalities of Rome and Paris web site	Average time in minutes		Number of errors		Execution success rate (yes=1; no =0 for each subject)		Number of backtracks	
	French	Italians	French	Italians	French	Italians	French	Italians
Identify the members of the municipal council	1,6'	1,2'	4	2	5	5	4	3
Send an e-mail to the webmaster	2'	2,2'	5	3	4	3	8	8
Find the city map	3'	5'	11	18	3	2	11	19
Find the section dedicated to job search/offer	1,6'	1,6'	3	1	4	4	5	3

task, that could reflect the differences of the two web sites illustrated earlier. *Find the city map* was difficult for both groups, compared to other tasks, but even more for Italians (that took more time, made more mistakes and used more backtracks).

The major difficulties encountered by Italians are probably due to the fact that the map is not directly accessible from the home page, but through the *Municipality and Companies* link that contains primarily text information on the Municipal Council, Departments, *Municipi*, Companies. As a matter of fact, to visualize the map of Rome's *municipi* a different and not easily deducible path must be followed from the thematic area *city, municipio and hours / administrative decentralization*.

Almost all French subjects have dedicated more time to other tasks (but less compared to Italians), to click on the links: *déplacements* and *urbanisme* and the drop menu compared to other tasks – even if the Paris city map could be accessed directly from the home page, *home page / recherche géographique*. Furthermore, both groups easily found information on the *municipal council members* and *job search/offer* pages.

To evaluate the *stability of these results in different conditions* of use of the web site (allowing navigation in small groups, without constraining interactions among individuals and with the computer, with a methodology currently defined as *Think Aloud Protocol<sup>2</sup>*), we replicated the *Usability Test for the Municipality of Rome web site on 7 groups of Italian subjects in November 2004, asking them to perform the same tasks*. In Table 4 summarized average results are shown for all 7 groups.

In this group setting, the only task performed successfully by the whole group in less time (average time = 1'11'') and with no errors is *find the section on job research/offering*; whereas in this study (as in the two previous ones) the most difficult task (only 3 groups successfully performed the task), making the highest number of mistakes (5) and spending an average time of 6

minutes, was again the *search of the structure of the city of Rome*.

In this case also, at the end of the tasks we gave the groups a value scale that allows to give a brief judgment of the site. The site has generally been evaluated as accessible and the average evaluation of the 7 groups was 3.

By comparing results obtained by the three researches performed in sequence: June 2003, April 2004 (same usability conditions of the pilot study) and November 2004 (use in small groups) performed on the Municipality of Rome web site, we can conclude that the judgments related to the Municipality of Rome do not differ from 3 (average accessibility) in a year, in both usability conditions (individual and small group). Instead, on the basis of the results that emerged in 2004, the Municipality of Paris web site was judged more positively by French subjects (values between 4 and 5 that indicate a good accessibility of the site).

### Qualitative Analysis by the Means of Atlas/ti

The use of the Atlas/ti software requires a series of preliminary steps:

- site download with Teleport pro version 1.29 (available in 2004);
- copy of the sites on CD;
- visualization of contents;
- opening of files and visualization of contents;
- opening of Atlas/ti
- introduction of text (htm, html) files in Atlas/ti and exclusion of image files (i.e. those with extensions gif, jpg, png, swf).

### The Download of the Municipalities Web Sites by Means of Teleport Pro Version 1.29

The path used to download the Municipality web sites of Paris and Rome, [www.comune.roma.it](http://www.comune.roma.it) and

*Table 4. Results of the repeated Usability Test on 7 groups of Italian subjects relatively to the Municipality of Rome web site*

Municipality of Rome web site	Average Time	Errors	Success/Failure	Backtracks
Identify members of Municipal Council	2' 01"	1	7/0	1
Send an e-mail to the webmaster	2' 29"	2	6/1	2
Find a map of the city	6'	5	3/4	6
Find the section on job search/offers	1' 11"	0	7/0	1

www.paris.fr, with Teleport pro version 1.29 has been: *file/new project wizard / create a browsable copy of a web site on my hard drive/introduce name of site to download/project properties everything.*

Teleport pro is a highly sensitive program that allows to download every single page of a web site, along with images, texts, sounds, videos and other elements.

The main characteristic of this program is to maintain the functionalities of a web site so, browsing through the downloaded pages:

- we get the impression of visiting an on-line site because every section can be visited with internal links
- pages maintain their dynamicity and, according to the level defined in the download phase, it is possible to download external sites signaled by the web site.

Therefore, the program allows downloading of every page whatever its size. According to the path one desires to follow, Teleport pro allows two different download modalities:

- reconstructs the structure (partial or complete) of the site on the computer that executes the download
- complete: entire web site
- partial: choice of elements to download (i.e. only text)
- reconstructs the structure of the site positioning downloaded files in a single folder

This second approach, used to download the Municipalities of Rome and Paris web sites, follows two main criteria:

- download is performed according to the type of file (i.e. gif, jpg, html)
- maintains an alphabetical order of each file

According to these criteria files are downloaded in the following order:

*still or dynamic images* in alphabetical order:

- animated and static gif images
- jpg images
- png images

*text files* in alphabetical order

- htm
- html (objects of interest in the 'Atlas/ti analysis)
- asp

style sheet:

- css

javascript:

- js

*dynamic images* (flash):

swf

### **Main Steps of Analysis by Means of Atlas/ti**

The pages of both web sites (www.paris.fr and www.comune.roma.it) downloaded contemporarily with *Teleport pro version 1.29*, have been qualitatively analyzed with Atlas/ti. This tool



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facilitates the interpretation of research material, allowing a parallel work on different texts.

We have worked on 1735 text files for the Municipality of Paris web site, and 2462 for the Roman web site, all downloaded the 1<sup>st</sup> of April 2004.

Two hermeneutic units, namely work units (see Figure 8), were created: one for the Municipality of Rome and the other for the Municipality of Paris. With the drag and drop function all the text files of both web sites have been dragged inside the first box.

### Primary Documents (PDs)

In the Primary Documents (PDs) box the name of each inserted file appeared, preceded by the code P1 (automatically assigned by the program) for the first file, P2 for the second file and P3 for the third and so on, up to Pn of introduced files.

To improve the readability, it is possible to rename every single dragged file by executing the following procedure:

- click on the file with the mouse's right hand button;
- chose *rename*;
- insert the new title and confirm.

To eliminate a file:

- click on a note pad put on the left hand side of the box for PDs;
- select the file we want to eliminate;
- click on the eraser in the upper right hand side.

### Codes and Quotations

Codes are a series of instructions that allow to visualize a web page from a browser. Codes allow the identification of the most important parts of every text, namely *quotations*.

Inserted codes have been extracted from the 2003 pilot study and translated in French and are inserted in the third box by following the path: *codes / create free code*. The name of the code is then typed in and we click on confirm. It is possible to eliminate a code by selecting it and clicking on the eraser in the upper left hand side. The code that will appear in this box will have a value equal to 0 because quotations have not yet been calculated.

The quotations corresponding to each code, namely the statistics of how many times an instruction or code is repeated on web pages, can be obtained with the path: *codes / coding / autocoding*, or by opening the note pad on the left of the code box, clicking on the rectangular symbol in the upper right hand side, typing the name of the code and then clicking on confirm.

As soon as the program will have found all the quotations corresponding to a *code*, the total number of codes will automatically be introduced inside the parenthesis that follow the code.

After creating an hermeneutic unit, these pages have been set among primary documents (PDs) by using a drag and drop technique (dragging each file inside the documents' section). This mode has allowed to visualize the content of pages as text, without losing the html program language,

Figure 8. Hermeneutic unit of the del Atlas/ti program

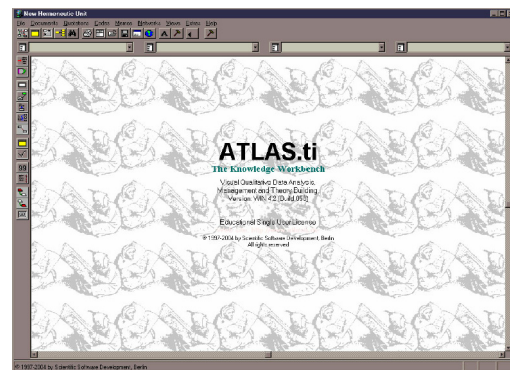


Table 5. Dimensions and codes used for the application of Atlas-ti software

Dimensions to be mapped	Codes used for the Municipality of Paris web site	Codes used for the Municipality of Rome web site	English Translation of the Codes
Page content	<i>description   contenu</i>	<i>Descrizione   contenuto</i>	<i>Description   content</i>
User	<i>public   publique   usage   usager   utilisateur*<sup>3</sup>   citoyen*   touriste*   jeunes   âgés   âgé   personnes âgées</i>	<i>Pubblico   utenza   utenti   cittadino*   turist*   giovani   anziani   anziano</i>	<i>public   users   citizen*   tourist*   young people   elderly</i>
Information	<i>information*   new*   actualité   communiqué*   événement*</i>	<i>informazione*   new*   attualità   comunicat*   avveniment*   evento   eventi  </i>	<i>information*   news*   statements*   event*</i>
Communication	<i>forum   chat   mail   faq   téléphone   appelle   écris  </i>	<i>Forum   chat   mail   faq   telefono   chiama   scrivi  </i>	<i>Forum   chat   mail   faq   phone   call   write  </i>
Presentation of Institution	<i>slogan   organigramme   adjoint   conseil   thématiques   gadget</i>	<i>slogan   organigramma   giunta   consiglio   tematiche   gadget</i>	<i>slogan   organization chart   committee   Council   main themes   gadget</i>
Presence and type of link	<i>link   href   mailto</i>	<i>link   href   mailto</i>	<i>link   href   mailto</i>
Presence and description of images	<i>img   alt   plan*   carte routière   film   vidéo</i>	<i>img   alt   map*   cartin*   film   video</i>	<i>img   alt   map*   cartin*   film   video</i>
Services	<i>service*   help   aide   recherche   traduction*   calendrier*   agenda*   carte postale   sms   plan*   statistiques   bibliographie*</i>	<i>Serviz*   aiuto   cerca   traduzione*   calendar*   agend*   cartolin*   sms   mapp*   statistiche   bibliografi*</i>	<i>service*   help   search   translation*   calendar*   agend*   postcard*   sms   map*   statistics   bibliograph*</i>
Colors	<i>Color</i>	<i>Color</i>	<i>Color</i>
Key words	<i>Keyword*</i>	<i>Keyword*</i>	<i>Keyword*</i>
Descriptive Information	<i>head</i>	<i>head</i>	<i>head</i>
Page Title	<i>title</i>	<i>title</i>	<i>title</i>
Thematic Areas			
Transport	<i>mobilité   transport*   tram   voiture*   automobile*   train*   métro*</i>	<i>mobilità   trasport*   tram   auto   automobil*   autovettur*   tren*   metro*</i>	<i>mobility   transport   tram   cars   train   trains   Underground*</i>
Tourism	<i>touriste*   hôtel   visite*   réservation*   dormir   manger   étranger*   multiethnique*   ethnique*   tourisme   itinéraire*</i>	<i>Turist*   albergo   visit*   prenotazione*   dormire   mangiare   stranier*   multiethnic*   ethnic*   turismo   itinerari*</i>	<i>Tourist   hotel   visit   booking*   reservation*   sleep   eat   foreign*   multiethnic*   ethnic*   tourism   routes, itineraries</i>
Sports	<i>sport*   sportif   compétition</i>	<i>sport*   sportiv*   competizione</i>	<i>sport   sports   sportsman*   competition</i>
Economy	<i>économi*   marché*   impôt</i>	<i>economi*   mercat*   tributi  </i>	<i>economy   economies   market*   taxes  </i>
Health	<i>social   santé   santé*   handicapé*   handicap  </i>	<i>sociale   salute   sanit*   disabil*   handicap  </i>	<i>social   health   health   disabled   handicapped   handicap  </i>
Culture	<i>culture*   événement*   exposition   musique*   musical   concert*   livre*   exposition   littérature   éducation   théâtre*</i>	<i>cultura*   evento   eventi   mostre   mostra   music*   concert*   libr*   esposizione*   letteratura   istruzione   teatr*  </i>	<i>culture*   event*   exhibition*   music*   concert*   book   books   library   libraries   exposure*   literature   education   theater*  </i>
Space for the Youth	<i>formation   jeunes   jeunesse   jeune homme*   jeune femme*   enfants   jeu   jeux   jouer  </i>	<i>Formazione   giovani   gioventù   ragazz*   bambini   gioco   giochi   giocare</i>	<i>training   young people   youth   boy*   girl*   children   play game*</i>
Employment	<i>travail*   occupation   emploi   formation</i>	<i>Lavor*   occupazione   impiego   formazione</i>	<i>work   works   employment   job   training</i>

continued on following page

Table 5. Continued

Dimensions to be mapped	Codes used for the Municipality of Paris web site	Codes used for the Municipality of Rome web site	English Translation of the Codes
European Contacts			
Paris	<i>Circonscription*</i>   <i>arrondissements</i>   <i>Paris</i>		
Europe	Nation*   union européenne	<i>Nazioni</i>   <i>unione europea</i>	Nations   European Union
Rome		<i>Circoscrizione*</i>   <i>quartier*</i>   <i>Roma</i>	<i>district*</i>   <i>neighborhoods</i>   <i>Rome</i>

so as to maintain the potential of the hypertext of a web page.

In this research, the same codes of the pilot study have been used, with the aim of highlighting the most important parts of each text (Table 5).

The different components of the main menu (Primary documents, quotations and codes) have different buttons to create different outputs that allow the user to visualize specific sections of the hermeneutic unit content. In particular, outputs have been created by using the following buttons:

- *document / output / quotations*: to identify all the quotations created for the selected document;
- *quotation / output / all quotation*: to visualize all the quotations present in the hermeneutic unit;
- *codes / output / quotations for selected code*: to obtain all the quotations related to a previously selected code;
- *file / output / all object*: allows to have the list of all the objects in creation date order;
- *codes / output / codes- Primary documents / Table*: allows to visualize with a cross-table the frequencies related to used codes (per line) for each primary document (in a column). This table can later be exported in SPSS.

### Description of Quotations of the Municipalities of Rome and Paris Web Sites Found in the Hermeneutic Units

The material in the hermeneutic unit can be initially described by visualizing the cross-table (*codes / output / codes-primary documents-table*) of all the frequencies of the used codes for each Primary Document. By analyzing the marginal totals for each line of this output, the occurrences of the used codes can be summed (tot. 42829) for the 1735 PDs of the Municipality of Paris web site. These values correspond to the sections of the text identified with Atlas/ti (Table 6).

On the Municipality of Paris web site a clear dominance of quotations of the code *titre de page* (tot. freq. 19076) emerges.

Next follows *Informations descriptives* (tot freq. 9499). The site dedicates a large amount of space to information on city events (tot. freq. 319) and transport to go from one area to another of Paris (*transport* tot freq 319) and on initiatives for youth (*espace jeune* tot. freq. 250).

Among the 2462 PDs found for the Municipality of Rome, a total of 33988 frequencies have been found as corresponding to used codes (Table 7).

For the Municipality of Rome web site there is a clear prevalence of frequencies relative to the dimensions *color* (freq. 13596), *page title* (freq. 8489) and *descriptive information* (freq. 3892).

As for the Municipality of Paris web site, there is a great deal of information regarding the city of Rome, such as available transport (freq. 903) or job offers (freq. 920).

Observing the previous output, but referring to marginal totals of columns, it is possible to select primary documents that present the highest number of quotations. In Table 8, PDs are indicated with the serial number of insertion in the hermeneutic unit; in the following tables, the PDs have been renamed referring to the obtainable output with the command button *document / output / lists*.

The PDs with the highest number of quotations, selected according to *dimensions*, are those related to the thematic areas of “urbanization” (inside which we find *housing project* - freq. 163 and *local map* - freq. 65) and *markets in Paris* (freq. 110); then follows information on *elected politicians* (freq. 100) and a series of sections dedicated to *sports* that regard sports events with a strong collective impact (as the 2004 *marathon* with freq. 97; and *sports initiatives* with freq. 70).

For the Municipality of Rome website the PDs that present most frequencies are those related to thematic areas such as *culture* (inside which we find different sections, *bibliopag* freq. 473, *libraries* freq. 160), the *municipi* section, in which historical information is found (*centoanni* freq. 705), services (*offices* freq. 258, *disability desks* freq. 239, *municipal police* freq. 149), art (*galleries* freq. 102) and an area dedicated to the youth (*youth and education* freq. 281) (Table 9). Instead the Municipality of Paris site has many frequencies for *environment* (*land charter* freq. 241, *agenda 21* freq. 112) and information on mobility (*blue label* freq. 272 and *parking, transport, permits, pollution, limited traffic zones* freq. 115). We also find an area dedicated to children (inside this area we find *Projects for childhood and adolescents in Rome* freq. 173, *front desk for families* freq. 143, *events and initiatives* freq. 101), whereas the frequencies related to the thematic areas *department* contain information on educa-

*tion policies* among which *bids* (freq. 171) and circular administrative information (freq. 105).

Moving our attention from marginal totals to values inside the table, the same output allows us to identify PDs with the most number of quotations that have been categorized according to codes (Table 10 and Table 11).

Important information that characterize the Municipality of Paris web site, mainly on policies and services for citizens, emerge from Table 10: city events, press releases, elected politicians, public housing, 2004 sports calendar, custody of children and solidarity initiatives for elders over 65.

The results presented in Table 11 confirm the prevalence of information on culture and educa-

*Table 6. Frequency of codes in the Municipality of Paris web site*

<b>Dimensions</b>	<b>Frequency of codes</b>
Titre de la page – Page Title	19076
Informations descriptives- Descriptive information	9499
Couleurs - Colors	8415
Présence et typologie de lien-Presence and type of link	2204
Mots clés – Keywords	1546
Information	848
Présence et description de l’image-Presence and description of images	345
Transport - Transport	319
Espace jeunes - Space for the Youth	250
Santé –Health	141
Culture	51
Travail - Employment	51
Services	34
Tourisme -Tourism	33
Présentation de l’institution –presentation of institution	7
Communication -Communication	4
Destinataire- User	4
Europe	2
<b>Totale</b>	<b>42829</b>

*Table 7. Frequency of codes in the Municipality of Rome web site*

Dimensions	Frequency of codes
Colors	13596
Page Titles	8489
Descriptive Information	3892
Page Content	3068
Presence and type of link	2041
Work	920
Transport	903
Communication	264
Health	139
Keywords	126
Presence and description of images	123
Culture	110
Services	89
Tourism	70
Paris	45
Economy	42
Space for Youth	29
Information	10
Presentation of Institution	7
Users	2
Europe	2
Sports	1
<b>Total</b>	<b>33988</b>

tion for the Roman site: historical events, libraries and youth education. Furthermore, information on services offered to citizens, for example the presence of offices dedicated to public relations and front desks for the disabled are present.

**CONCLUSION: HEURISTIC VALUE AND RESEARCH PROSPECTIVE**

To conclude, three tools (web sites analysis grid, Usability Test, Atlas/ti software) have been used to identify and compare elements that characterize the web sites of the Municipalities of Paris

and Rome, downloaded the 1<sup>st</sup> of April 2004 with *Teleport Pro version 1.29*, and to highlight aspects related to contents, structure, technical features, usability, strengths and weaknesses.

The application of the grid of analysis has directed users’ navigation of the site so as to capture the main elements, with an as much as possible objective perspective (thanks to explicit parameters to be observed).

Through the use of this grid strengths and weaknesses of both web sites have been identified and are summarized in Table 12:

The usability test on a sample of French users for the Municipality of Paris web site and Italian users for the Municipality of Rome web site has allowed to identify navigation difficulties for both web sites, that integrate the observations obtained from the grid of analysis. The most difficult task – both in terms of time spent (3 minutes for the Municipality of Paris web site and 5 for the Municipality of Rome) and errors committed (11 for the Municipality of Paris web site and 18 for the Municipality of Rome web site) – has been the task that required users to identify a city map of Paris (for French users) and Rome (for Italian users). This result is coherent with pilot study results and has been confirmed further also in the test for small groups. Differently, the task performed in less time and with fewer mistakes for both sites has been *identification of the municipal council members* that was completed by all subjects; whereas in small groups the easiest task relatively to the Roman site was, after 7 months, *find the section on job search/offers*.

Even if the users of both web sites have had the same difficulties relatively to the 4 tasks they were asked to perform, these difficulties were different for both groups relatively to the parameters of the usability test. Furthermore Italians and French did not equally evaluate the usability of the web sites they visited. As a matter of fact, the global evaluation French users made of the Municipality of Paris web site on a scale from 1 to 5 was approximately 4-5, indicating a good level of ac-

*Table 8. Municipality of Paris web site: Primary documents with the most number of quotations*

Primary Documents	Primary Documents	N° Quotations
1055 info pratique (Accueil Urbanisme> Logement social) <i>practical info (Home planning&gt; social Housing)</i>	Urbanismo casa popolare <i>Urbanism tenement</i>	163
1096 liste marché asp (Accueil Les marchés parisiens) <i>list steps asp (Home markets Paris)</i>	mercati parigini <i>Parisian markets</i>	110
331 conseillers 1 (Accueil La Maire > Vos Élus) <i>consultant 1 (mayor Home&gt;Your elected)</i>	politici eletti <i>elected officials</i>	100
151 calendrier 2004 (Accueil Sport > Haut niveau) <i>calendar 2004 (Home Sport&gt;Top level)</i>	sport ad alto livello <i>high-level sport</i>	99
349 courses 2004 1 (Accueil Sport > Actualités) <i>2004 race 1 (Home Sport&gt; News)</i>	attualità sullo sport <i>news on sport</i>	97
124 baromètre (Accueil Environnement > Propreté) <i>barometer (Home Environment&gt; Clean)</i>	ambiente pulizia <i>environmental cleaning</i>	81
528 default-235.asp.htm (Accueil Actualités > Paris > Journal 06) <i>default-235.asp.htm (Home news &gt; Paris &gt; Journal 06)</i>	novità <i>news</i>	80
717 default_parc_floral.ASP.htm (accueil environnement > Parcs et jardins > liste jardins > parc floral) <i>default_parc_floral.ASP.htm (Home environment &gt; Parks and gardens &gt; garden list&gt;floral park)</i>	ambiente parco floreale <i>environment flower park</i>	70
780 ems.ASP.htm (accueil sport > animations sportives) <i>ems.ASP.htm (home sport &gt; sporting activities)</i>	animazione sportiva <i>sports entertainment</i>	70
508 default-217.asp.htm (accueil Education > Guide loisirs) <i>508 default-217.asp.htm (home Education &gt; leisure guide)</i>	educazione guida hobby <i>hobby education guide</i>	68
427 default-143.asp.htm (Accueil Environnement > Parcs et jardins > liste jardins > parc André Citroen) <i>427 default-143.asp.htm (Home Environment&gt; Paks and Gardens &gt; garden list&gt; André Citroen Park)</i>	ambiente parco André Citroen <i>Environment park André Citroen</i>	67
400 default-119.asp.htm Accueil Urbanisme > Plan local d'urbanisme) <i>400 default-119.asp.htm Home Planning &gt; Local Plan Planning)</i>	urbano mappa locale <i>Urban local map</i>	65
315 conseil_parisien-1.asp.htm (Accueil Education > Vie étudiante > Citoyenneté > Conseil Parisien) <i>conseil_parisien-1.asp.htm (Home Education &gt; life student &gt; Citizen-ship &gt; Council Parisien)</i>	educazione consigli parigino <i>Education Councils Paris</i>	64
564 default-269.asp.htm (Accueil solidarités > enfance > Pmi) <i>564 default-269.asp.htm (solidarity Home &gt; children &gt; Pmi)</i>	solidarietà Pmi <i>Solidarity SMEs</i>	64
626 default-8.asp.htm (accueil environnement > actualités > crue seine) <i>626 default-8.asp.htm (Home Environment &gt; News&gt; raw seine)</i>	ambiente senna in piena <i>Environment Seine in flood</i>	64

cessibility of the web site, whereas Italian users gave a lower judgment positioned on a value of 3, indicating an average accessibility.

The qualitative analysis performed with Atlas-Ti of the elements that compose the 1735 documents of the Municipality of Paris web site and the 2462 elements of the Municipality of Rome web site, inserted in the corresponding hermeneutic units, have confirmed some evaluations and

differences already registered by means of the grid of analysis designed by de Rosa & Picone for contents. The site of the Municipality of Paris privileges political information and services for citizens (city events, namely press releases and declarations, elected politicians, public housing, 2004 sports events calendar, custody of children and solidarity initiatives for the elderly); whereas the Municipality of Rome privileges information

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Table 9. Municipality of Rome web site: Primary documents with the most number of frequencies

Primary Documents	Contents	N° Quotations
219 centoanni – <i>one hundred years</i>	Municipio IV -	705
125 bibliopag – <i>biblio p.</i>	servizi on line/biblioteche, indirizzi <i>-on line services/libraries, addresses</i>	473
774 giovani e istruzione – <i>youth and education</i>	aree tematiche/giovani, istruzione e servizio civile <i>-themes, youth, education and civil service</i>	281
861 bollino blu - <i>Italy anti-air pollution certificate</i>	Comune e azienda/dipartimento VII/ politiche della mobilità <i>-City and company/department VII/ mobility policies</i>	272
267 uffici - <i>offices</i>	municipio XVII-	258
840 carta dei suoli – <i>soil map</i>	comune e azienda/dipartimento/dipartimento politiche ambientali e agricole <i>-Town Council company/Department/ Environmental and agricultural policy</i>	241
341 sportello handicap – <i>disability desk</i>	municipio XII –	239
917 Progetto per l'infanzia e l'adolescenza a Roma <i>-project for children and adolescents in Rome</i>	Aree tematiche/bambini/vetrina informativa <i>-Thematic areas/children/showcase information</i>	173
143 bandi di gara - <i>notices</i>	dipartimento XI politiche educative scolastiche <i>-Department XI education policies school</i>	171
127 biblioteche - <i>libraries</i>	servizi on line/biblioteche, indirizzi <i>-online services/libraries, addresses</i>	160
796 polizia municipale - <i>municipal police</i>	comune e azienda/municipio XX <i>-City and company/Municipio XX</i>	149
792 sportello per la Famiglia – <i>family desk</i>	aree tematiche bambini <i>-areas children</i>	143
872 sosta, trasporti, permessi, inquinamento circolazione. Ztl <i>-areas, transport, permits, pollution movement, restricted area</i>	comune e azienda/dipartimento VII/ politiche della mobilità <i>-City and company/Department VII/ mobility policies</i>	115
844 agenda 21 locale di Roma - <i>local agenda 21 in Rome</i>	Aree tematiche/ambiente/agenda <i>-Themes/environment/agenda</i>	112
149 info amministrative-circolari – <i>administrative info-circular letters</i>	dipartimento XI politiche educative scolastiche <i>-department XI educational policy school</i>	105
766 gallerie - <i>galleries</i>	municipio XX	102
963 eventi e iniziative – <i>events and initiatives</i>	Aree tematiche/bambini/ eventi e iniziative <i>-Thematic areas/children/events and initiatives.</i>	101

*Table 10. Municipality of Paris web site pages in which sections of texts defined by dimensions have been identified*

<b>Dimensions</b>	<b>PDs</b>	<b>Quot (freq)</b>	<b>%</b>
Destinataire ( <i>Users</i> )	tips for young people (Home Citizenship)	3	0,0023%
Information	green areas in Paris (Environement)	17	0,0395%
	Social Action addresses (Solidarity)	17	0,0395%
	deliberation projects (mayor)	15	0,0349%
Communication	filming in Paris (Home culture)	2	0,0047%
Présentation de l'institution ( <i>Presentation of institution</i> )	municipal council (mayor)	2	0,0047%
Présence et typologie de liens ( <i>Presence and type of links</i> )	museums (Culture)	26	0,0605%
	collections in museums (Culture)	27	0,0628%
	assistance to the elderly (Solidarity)	8	0,0186%
	(Solidarity)	10	0,0233%
Présence et description de l'image ( <i>Presence and description of images</i> )	United cities and governments: world organization (Home)	2	0,0047%
	Budget e local taxes (mayor)	2	0,0047%
Services	professional insertion (Economy)	4	0,0093%
Couleurs ( <i>Colors</i> )	press releases and declarations of 2001 (mayor)	190	0,4%
	Public Gousing (Urbanisme)	111	0,3%
	Elected politicians (mayor)	81	0,2%
	Race calendars (Sport)	75	0,2%
	Children Custody (Homes)	62	0,1%
	Inter-municipal charter 2004	58	0,1%
	Improve the habitat for elders over 65 yrs. of age (Solidarity)	50	0,1%
Mots clés ( <i>Key words</i> )	(Solidarity)	10	0,0233%
Informations descriptives ( <i>Descriptive information</i> )	municipal events calendar (Maire)	11	0,0256%
Titre de page ( <i>Page title</i> )	judicial archives (Culture)	34	0,0791%
	2004 calendar (Sport)	37	0,0861%
	budget e local taxes (Economy)	37	0,0861%
Transport ( <i>Transport</i> )	Request for public housing (Urbanisme)	20	0,0465%
	markets in Paris (mayor)	54	0,1256%
Tourisme ( <i>Tourism</i> )	tourist's office and congresses in Paris (Economy)	4	0,0093%
Santé ( <i>Health</i> )	municipal council (mayor)	11	0,0256%
	social help for infants (Mayor)	11	0,0256%
Culture	cultural activities (Home culture)	3	0,0070%
Espace jeunes ( <i>Space for the youth</i> )	events calendar (Home Citizenship)	12	0,0279%
	markets in Paris	14	0,0326%
Travail ( <i>Employment</i> )	Training (Economy)	2	0,0047%
	work and training (Economy)	2	0,0047%
Paris	tramway	4	0,0093%
	tramway route	4	0,0093%
Europe	scholarships for foreign researchers (Education)	2	0,0047%



focused on culture and education (historical events, libraries and education for young people, but also information on services for citizens such as public relations and front desks for the disabled).

Considering what has been observed, it is possible to draw some conclusions by referring to Nielsen's (1994) heuristic principles described in paragraph 2.

The version of the Municipality of Paris web site we studied distinguishes itself for the consistency of its structure which, by keeping textual and graphical elements stable, allows the user to easily recognize he/she is moving inside the same site or has entered another site. Furthermore, links to the home page present on every web page prevents errors, allowing the user to return to more familiar zones if he/she should have difficulties.

The Municipality of Rome web site is characterized by a high level of hypertext, with contents integrated with information coming from external web sites. The main pages stand out for their design and minimalist aesthetics, with a dominance of text and few images and animations: this doesn't overload the site in terms of KB. The site is not easily navigable in every section: in fact the sections dedicated to *municipi* is characterized by the presence of individual textual and graphical elements; the structure of the menu, the order in which relevant information is presented, the overall design of the page change and the user often has the impression of having exited the Municipality of Rome web site. This clearly does not respect the fundamental principles such as *consistency, recognition, flexibility of use*, forcing the user to re-elaborate important information and use more time to find required information, making more errors to reach them. Further difficulties with navigation are relative to the absence of links to previous pages or home page (principle of *error prevention*) and scarce visibility of the *state of the system and completed actions*. Notwithstanding the absence of a non fixed structure which causes little conformity among pages, there is consistency in the use of links; in fact, to highlight external links

the color blue has been used, whereas internal links are red in order to facilitate their identification.

Both sites respect the *control and freedom* principle: this allows the user to quickly understand if topics of his/her interest are present even during a first visit.

Generally, we can state that to make both sites under investigation easy to use for any user target, some peculiar characteristics must be integrated between them: only in this manner we would obtain a web site characterized by a high consistency and flexibility, with a clear visibility of the state of the system, allowing the user to have control and freedom over the informational content of the web site.

In particular, among the main characteristics of the Municipality of Paris web site we recall:

- *logo kept in its integral version*: this element acts as a symbol of recognition of the site, it does not have to be present only on the home page but also in other sections and subsections of the web site, allowing users to easily recognize the site it refers to;
- *fixed structure*: the advantage of such a structure is that by changing only small parts of text uniformity is guaranteed between pages allowing the visitor to easily understand if he/she is still inside the site and to rapidly move from one page to the other since images remain the same.
- *easy access to the site map*: it is important to guarantee easy access to the site map in every moment, because it illustrates the site as if it were a street map. Links from page to page are visualized and the user can see how the site flows.

Instead the Municipality of Rome web site has the characteristic of being consistent with the colors that identify links: as a matter of fact, in this site it is not only easy to identify the presence

*Table 11. Municipality of Rome web site pages in which sections of texts defined by dimensions have been identified*

<b>Dimensions</b>	<b>PDs</b>	<b>Quot (freq)</b>	<b>%</b>
Contenuto della pagina (Page content)	house, heritage, constructions	15	0,04
	public relations offices	15	0,04
Destinatari (Users)	Leonardo da Vinci Program	2	0,006
Informazioni (Information)	events agenda	2	0,01
	news	2	0,01
Comunicazione (Communication)	curiosity (on civic museum o zoology)	18	0,05
Presentazione dell'istituzione (Presentation of institution)	on-line forms	2	0,006
Presenza e tipologia di link (Presence and type ok link)	services to citizens	16	0,05
	library	40	0,12
	culture council	20	0,06
Presenza e descrizione di immagini (Presence and description of images)	2004 program (library)	18	0,1
	Services	10	0,03
Servizi (Services)	on-line deliberation	11	0,03
	news	4	0,012
Colori (Colors)	One hundred year	693	2
	Biblio p.	424	1
	Culture lybraries	348	1
	instructions for youth	269	0,8
	Offices	247	0,7
	public relations offices	230	0,7
	ground charter	208	0,6
Keywords	bids	2	0,006
	offices and services	2	0,006
informazioni descrittive (Descriptive information)	bibliotecheweb	12	0,035
Economia (Economy)	Giordano bruno library	2	0,006
	public relations offices	2	0,006
Titoli di pagina (Page title)	culture council	55	0,16
	culture, sports, tourism	35	0,10
Trasporto (Transport)	ground charter	28	0,08
	green areas	19	0,06
Turismo (Tourism)	self-certifications	4	0,012
	news archive	2	0,006
	news	2	0,006
Sport	public hygiene	1	0,00

*continued on following page*

## E-Branding and Institutional Web Sites

Table 11. Continued

Dimensions	PDs	Quot (freq)	%
Sanità (Health)	green areas	5	0,015
	self certifications	5	0,015
	restructuring of center for the elderly	4	0,012
Cultura (Culture)	Agenda	41	0,12
	Tickets	4	0,01
spazio giovani (Space for the Youth)	library	3	0,009
Lavoro (Employment)	norms	62	0,2
	municipi	56	0,2
	front desk for the disabled	53	0,2
	municipal police	46	0,1
Parigi	neighborhood laboratory (Eur)	5	0,015
	number of libraries	4	0,012

Table 12. Main characteristics of the Municipalities of Rome and Paris identified by means of the grid of analysis elaborated by de Rosa and Picone

Municipalities of Rome and Paris web sites both downloaded the 1 <sup>st</sup> of April 2004	Strengths	Weaknesses
<b>Municipality of Paris web site:</b> www.paris.fr	<ul style="list-style-type: none"> <li>- The logo is always the same in every page of the site</li> <li>- Fixed Structure</li> <li>- Site map is always available</li> <li>- multi-language version</li> <li>- Presence of combo box, jumps in navigation and bread crumbs</li> <li>- Flexible navigation</li> <li>- Long texts are split in paragraphs</li> <li>- Hypertext complexity</li> </ul>	<ul style="list-style-type: none"> <li>- No multimedia</li> <li>- Few utilities such as screensavers, wallpapers, short messages, on-line post cards, web telephony etc..</li> <li>- No forums or chats, no FAQs</li> <li>- Little consistency of colors when indicating internal or external sites</li> </ul>
<b>Municipality of Rome web site:</b> www.comune.roma.it	<ul style="list-style-type: none"> <li>- High level of multimedia: animations, videos, audio</li> <li>- Utilities: short messages, on line newspapers, virtual library, on line addresses, Job Offers</li> <li>- Consistent colors for external and internal links</li> <li>- Multi-language Versions</li> <li>- Combo Box</li> <li>- Hypertext complexity</li> <li>- FAQ</li> </ul>	<ul style="list-style-type: none"> <li>- Logo is not always present in its complete version</li> <li>- Site map is hard to find</li> <li>- No fixed structure</li> <li>- Long texts are not split into paragraphs</li> <li>- No facilities, no <i>undo</i> and <i>redo</i> buttons</li> <li>- No forums or chat</li> </ul>

of a link, but different colors are used for external (blue) or internal (red) links.

Finally, an important element that both sites have attained to is the *position*, as elements posi-

*tioned on the left are considered more important than those on the right (Burns, 2002).*

In the Municipalities of Rome and Paris websites, the logo and menu are in the upper left hand side.

*Making a longitudinal comparison of results* obtained from three analyses performed on the Municipality of Rome web site starting with a pilot study, no significant differences emerge:

- Graphics, multimedia level and technologies remained the same, but colors change from the 2003 version (which alternated complementary colors with contrasting colors) to the 2004 version (dominant colors are red and blue).
- Utilities remained the same.
- Usability of the site has not changed: a non fixed structure causes difficulties in finding searched information. Furthermore the low graphical and language consistency of several sections (i.e. some of different departments) confuses the user. Contents are not always displayed in a rational manner, making access to the site difficult for all users. For example, a non-expert user of the territorial-administrative structure of the city of Rome will hardly be able to find a valid support in the municipal web site; as a matter of fact, the division in *municipi* is not visible on the home page, and one must follow a complicated path (*city, municipi/hours/administrative decentralization/municipi*). However, while in the 2003 version of the web site of the Municipality of Rome a static image could be found, characterized by the simple indication of *municipi*, in the 2004 version other than information on *municipi*, it is possible to enter each of them.
- Relatively to the interactivity of the web site, what improves is the level of consistency of colors used to mark external and internal sites. In every part of the site a high coherence is maintained. On the contrary, in the previous research a low level of consistency was noticed, in some sections blue indicated external links and in

others internal links, and the same for the color red.

The results presented in this chapter can be considered a model, a tool for guiding different web professionals (webmasters, content developers, web designers etc.) and institutional communication managers of the city, based on the results offered by users and on a systematic analysis of contents, structure and technical-graphical modes of the analyzed sites.

Furthermore they have a value as historical parameter with respect to the evolution that followed the new scenarios of cross-media communication. In fact, given the volatile nature of web sites, due to the continuous evolution of technologies and contents, the results based on web sites downloaded in 2004 assume a particular interest for further currently ongoing comparative analysis.

Even if institutional communication—in countries like Italy and France—is still far from fully integrating “social networks” in public administration “official web sites,” one should ask if, how, and to what extent the great social and aggregating impact of web 2.0 technological developments push Institutional web sites to direct towards different forms of interactivity, virtual sociality and interface between public administration and citizens. For this reason the grid of analyses we designed in 2003 has been updated in 2010 according to the evolution both of technologies and their social use.

Due to space limits we will only comment a single feature (multi-language accessibility of the web site) - in continuity with the elements already explored and discussed in this chapter – directly deducible from the comparison between the home pages of the Municipalities of Rome and Paris downloaded on May 13 2010 (see Figure 9 and Figure 10) relatively to the implicitly privileged target according to the communication strategy used:

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Figure 9. Image from the home page of [www.paris.fr](http://www.paris.fr) (retrieved on May 13, 2010)



Figure 10. Image from the home page of [www.comune.roma.it](http://www.comune.roma.it) (retrieved on May 13, 2010)



- in the home page of the Municipality of Rome web site there is no possibility of a multi-language access to the web site and this is limited to the section dedicated to tourism, even if it is now enriched with new linguistic versions: English, French German, Spanish and Chinese. This communication strategy for the site in general (and not only for the section on tourism) reveals an orientation towards a target of mainly Italian citizens, even if Rome is a cosmopolitan city that hosts many and large foreign communities and immigrants from every part of the world. Furthermore, even access for tourists is not facilitated by the presence of multi-lingual channels in the section for tourism starting from the home page.
- On the contrary, in the upper right hand side of the Home Page of the Municipality of Paris web site a multi-language access

to the site is available, even if limited to English and Spanish versions.

This is a short example that shows the importance of the communicational choices an e-branding strategies also on behalf of “institutional” web sites, other than commercial ones and offers interesting research material.

This research can be used as a prototype for further research aimed at comparing Municipal web sites of European Historical Capitals, but also for analyzing and comparing “official” web sites of capitals, cities and small urban centers in other cultural contexts and continents (such as America, Asia, Australia) characterized by a different development and impact of the Internet on “institutional” communication and its use on behalf of citizens.

Key questions that web professionals and heads of institutional communication departments of “cities” could ask themselves on the basis of studies and research of this kind, are:

- a. if cities could talk and present themselves to citizens, tourists, potential visitors, would they say the same things their official web sites say, and in which manner? Would they like to have the same “Visiting card” their administrators have designed?
- b. on the other hand, would citizens, tourists, potential visitors, according to their culture, social status, and age and relatively to their needs and expectations like to find the same contents of those “officially” communicated and in the same way?

Asking these kind of questions and trying to give non impressive answers, but based on systematic studies, could help to find effective solutions, with a strong impact also in terms of web-marketing of the city. Cities, and in particular historical capitals, with their places, monuments, museums, restaurants, churches, schools, universities, urban services, architecture, parks and urban

green areas, shops and shopping centers, centers, suburbs, in continuous evolution in time and space are of crucial importance for e-branding strategies of both sections on tourism and for citizens.

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## **ENDNOTES**

- <sup>1</sup> We thank dr. Sara Saurini and dr. Ilaria Botti for their assistance in the research programme.
- <sup>2</sup> The *think-aloud method* was introduced in the usability field by Clayton Lewis (1982) while he was at IBM, and is explained in *Task-Centered User Interface Design: A Practical Introduction* by C. Lewis and J. Rieman. The method was further refined by Ericsson and Simon (1987, 1993) and more recently by Hannu and Pallab (2000), who have proposed to divide the *think-aloud protocol* in two different experimental procedures: the first focused on the concurrent thinking aloud protocol, collected during the decision task; the second focused on the retrospective thinking aloud protocol

gathered after the decision task. Think aloud protocols involve participants thinking aloud as they are performing a set of specified tasks. Users are asked to say whatever they are looking at, thinking, doing, and feeling, as they go about their task. This enables observers to see first-hand the process of task completion (rather than only its final product). Observers at such a test are asked to objectively take notes of everything that users say, without attempting to interpret their actions and words. The purpose of this method is to make explicit what is implicitly present in subjects who are able to perform a specific task.

- <sup>3</sup> The \* designates the words without an ending in order to regroup the word's various forms (singular/plural, feminine/masculine etc.) into one single category.