

EVALUATING WEB SITES: A PRACTICAL APPROACH

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Abstract

While commercial applications of the Internet proliferate, particularly in the form of business sites on the World Wide Web, on-line business is still relatively insignificant. One reason is that truly compelling applications have yet to be devised to penetrate the mass market. To help identify approaches that may eventually be successful, one must address the question of what value is being created on the Web. As a first step, this paper proposes a framework to evaluate Web sites from a customer's perspective. A national study covering 2.335 sites, with representative samples from diverse industries is conducted to give a profile of the use of the World Wide Web in 2000 in Greece.

1. Introduction

Starting around 1994, the Internet Economy has grown in much faster pace than the Industrial Revolution that began in the 18th century. Perhaps more importantly, the potential scope, size and overall economics impact of this economic system is much larger than what we can comprehend today. The key characteristics that distinguish the new economy are information, knowledge and speed (Whinston et al, 2000).

The Internet, and especially World Wide Web, has become one of the most important technologies of this century. Increasingly, the "web" defines how many people get information, find entertainment, and work together. A huge investment is currently being made by businesses, organizations and individuals to get connected to the web and become information providers to the world. As suggested by Barua et al (2000), "Internet technologies and applications have grown more rapidly than anyone could have envisioned just five years ago, opening up new frontiers of interaction between consumers, businesses and trading partners".

Business enterprises--from multinational conglomerates to solo entrepreneurs--are staking their presence on the Internet, all poised to become pioneers in what promises to be the frontier of electronic commerce (Kalakota and Whinston, 1996). Yet, in spite of estimates by IDC putting the number of Internet users up to 200 million (predicted to be 1 billion by 2005), on-line business is still relatively insignificant. Transaction volume in the B2B space is estimated to be 10 times the size of B2C market within the next year or two. Recent US economic data suggests that retail e-commerce (B2C) now represents only about 1 percent of the total retail sales. B2B volumes will be much higher. The complexities are also much greater. B2B commerce is generally projected to grow from about \$150 billion in 1999 to \$7 trillion over 5 years (Forbes, April, 11, 2000).

Apart from the obvious difficulties with bandwidth and security (Alpar, 1996), technical issues that can no doubt be resolved eventually, there is the more probing question of what value is being created by information technology in general (Ho, 1994), and on the Web in particular. Certainly, one cannot expect real progress if it is simply the digital replacement of conventional channels such as newspaper ads, TV commercials, phones, and fax (Ho, 1996a).

Given the importance of the technology and the investment being made, it is perhaps timely that we begin to ask a critical question: ***How can we best evaluate web-based technology and its effects?***

Since Web-based business models are still in the nascent stage, there are no obvious criteria to evaluate the effectiveness of commercial Web sites. Indeed, the earliest attempts are in the purely subjective form of individual preferences, which are themselves recorded as pages of "Cool Links," "Top Lists," and "Hot Sites". More organized efforts have since appeared as Web reviews or popularity polls. Academic studies are still scarce, with the few examples covering either generic functions of commercial sites (Hoffman, Novak, and Chatterjee, 1995), or applications in specific industries (e.g. hotels (Murphy, Forrest, Wotring, and Brymer, 1996), and art galleries (Smith and McLaughlin, 1996)).

To date, academic research has focused on the anticipated or potential efficiency effects of Internet technology. Businesses use the Web for not only advertising and marketing activities, but also to obtain feedback and improve public relations (Cross, 1994). Alba et al. (1997) theorised how electronic marketplaces might function and explore consumers', retailers', and manufacturers' motivations for playing an active role in such environments. Johnson (1997) notes many people use the Web to facilitate media relations, for employee communication, and government and investor relations as well as for customer and consumer relations.

With the Web becoming an important medium to reach stakeholders, it would seem apparent that Web site creation would follow a detailed and organised planning effort equal to, if not more than, traditional communications planning. Thus, we would expect that Web site creation would entail careful consumer research, clear defining of the objectives of the Web site, and ongoing research to continuously refine the Web site, given its importance to many organisations.

This paper proposes a general framework to evaluate Web sites from a customer's perspective of value added. A national study of commercial sites in the Greek domain, conducted in September through December, provides a snapshot of the development of this new medium for business in 2000.

Marken (1995) advocates strategic thinking for creating Web sites and calls the Web the perfect channel for educating, informing, and persuading organisations' diverse audiences, but focuses on site design. When the term "planning" is used in most articles about the Web, it refers to planning what the site should look like and who will maintain it. This perspective does not take into account the needs of the audience with whom the organisation wishes to communicate. In fact, most articles assume there is an audience ready and waiting. However, it must be recognised that the audiences for many organisations do not fit the profile of Web users, a fact that is often overlooked particularly by those in corporate and academic settings where Web access is common.

This paper is divided into 5 sections. Section 1 is the Introduction while section 2 provides information about the conceptual framework used. Section 3 describes the Research Methodology used for this survey, while section 4 presents the results of the research. Finally, section 5 summarises the findings and highlights some of the most important conclusions.

2. Conceptual Framework

The typical purposes for websites:

- **Information Dissemination** (make information available to anyone who would be interested in it).
- **Education and Training** (provide specific training in well-defined topical areas)
- **Commerce and Advertising** (probably no area of web use will have a greater economic impact than this one).
- **Entertainment** (websites are constructed for entertainment purposes, to play games, post humorous essays or jokes, show cartoons, and so on).
- **Communications** (e-mail, bulletin boards and chat-room discussions, on-line conferencing using whiteboards etc.).

While these five purposes are the most frequent motivators for websites, most websites are designed to address more than one of them at a time. For instance, a corporate website is likely to be set up to disseminate information to the public, provide education and training, enable commerce and advertising, and facilitate communications.

2.1. Website Evaluation Methods

In many ways, website evaluation is no different from any other kind of evaluation. As in any program or product development effort, there is a definable evaluand, multiple stakeholder groups (e.g., users, initiators, conceptualizers, developers, implementors) that have a variety of sometimes conflicting interests, there are continual resource pressures, there are differences in goals and objectives, and so on. But in several important ways, website evaluation is a rather unique endeavour. Perhaps most notable is the key role of technology in the delivery of the site. While the technology poses important barriers and challenges, it also affords evaluation opportunities not common in other contexts. For instance, many evaluation questions can be well addressed by features built into the site itself. Software can be used to monitor unobtrusively and in nearly overwhelming detail the utilization of the site. Forms can be constructed to ask users to provide feedback.

This section describes a number of the most important evaluation methodologies and discusses how they can be applied to website evaluation (Trochim, 1993). It also suggests some new methods, unfamiliar to most evaluators, that might have particular utility in this context. No attempt is made to survey comprehensively all of the evaluation methods that could possibly be relevant.

a. Concept Mapping

Concept mapping is a general method used to help groups to articulate a conceptual structure for any topic of interest. The method is facilitated and follows a proscribed sequence of steps. Participants generate (e.g., brainstorm) a large set of statements that address the focus for the mapping.

Concept mapping can be used in a number of important ways in website evaluation. In the conceptualization stage it provides a method for involving a broad range of stakeholders (e.g., initiators, developers, managers, users) in mapping out the content for a website and determining the relative importance of different content areas. Using the related methodology of pattern matching, it is also possible to examine in detail the degree to which the various stakeholders are in consensus about the conceptual framework for the website. Concept mapping can also be an effective methodology for evaluating the expectations that users have for a website and, subsequently, determining how well those expectations have been met.

b. Computerized Evaluation Methodologies

One of the most exciting prospects for website evaluators is the potential for using the website itself to collect and analyze evaluative data. One of the most important methodological areas of this type is the use of software to monitor, analyze and report on the utilization of the site (analyze the current log data to show who is accessing the site, at what times, and in what locations).

A second way to employ the website itself for evaluation is to construct online surveys to collect user information and feedback. This kind of analysis can help us answer questions about website user reactions and problems, and the positive reactions to the site.

c. Survey Methodology

Traditional survey methodology will also play an important role in website evaluation. Surveys can be used during the conceptualization and development phases to conduct market research, identify potential users and ascertain their information needs and computer expertise. It can be conducted during the implementation and evaluation phases to assess user reactions to both the content and usability of the site.

d. Achievement Testing and Measurement

In the end it doesn't much matter how fancy a website is, or how cleverly the technology is utilized, if the desired goals are not achieved. Since one of the major purposes of many websites is instructional or educational, a key question will often be whether the user (e.g., student) learns the material effectively. The most common method of assessing such questions is through some form of content-based achievement testing.

e. Experimental and Quasi-Experimental Designs

In the complex fabric of a website user's life, the website itself is likely to play only a minor role. When we try to evaluate the impacts that websites have on users, we face the daunting task of trying to disentangle the effects of the website from the effects of all of the other factors on the outcomes of interest. Therefore, how can we ever hope to assess the cost-effectiveness, cost-benefit or return-on-investment of using websites if we can't determine the effectiveness, benefit or return attributable to the site itself as opposed to alternative causal factors?

Experimental and quasi-experimental designs are the major tools evaluators have for addressing these types of causal attribution questions.

2.2 A Toolbox of Criteria

This section attempts to present different criteria used in the bibliography and design a toolbox of criteria that can be applied by site evaluators. Not all these criteria will be appropriate for all purposes, but the intention of a toolbox approach is that evaluators can choose those criteria appropriate for their needs.

a. Scope

What items are included in the resource? Is the scope only implied, or is it stated through metainformation such as an introduction? Does the actual scope of the resource match expectations? Aspects of the scope include:

- **Breadth:** What aspects of the subject are covered? Is the resource focused on a narrow area or does it include related topics?
- **Depth:** What is the level of detail provided about the subject? This is related to the level of audience for which the resource has been designed, mentioned below.
- **Time:** Is the information in the resource limited to certain time periods?
- **Format:** A resource that provides links may restrict its scope to certain classes of resources.

b. Content

Is the information fact or opinion? Does the site contain original information or simply links? Does the resource stand alone, or has it been abstracted from another source, perhaps losing meaning or links in the process?

Specific factors related to the content include the accuracy, authority, currency, and uniqueness of a resource.

- **Accuracy:**
Is the information in the resource accurate? A resource may be checked against other resources or against information that the evaluator has. Are there political, ideological, or other biases? The Internet has become a prime marketing and advertising tool, and it is advisable to ask what motivation the author has for placing this information on the Net. Frequently, the answer is that the information is placed to advertise, or to support a particular point of view.

- **Authority:**
Does the resource have some reputable organization or expert behind it? Does the author have standing in the field? Are sources of information stated? Is the information verifiable? Can the author be contacted for clarification or to be informed of new information?
- **Currency:**
Is the resource updated or static? If it is updated, how frequently does this occur? Are dates of update stated, and do these correspond to the information in the resource?
- **Uniqueness:**
Is the content of the resource available in other forms (at other sites)? What advantages does this particular resource have? If the resource is derived from another format, does it have all the features of the original? Have extra features been added? Does it complement another resource, for example, by providing updates to a printed source?
- **Links Made to Other Resources:**
If the value of the site lies in its links to other resources, are the links kept up to date, and made to appropriate resources? Are the links made in such a way that it is clear that an external site is being referred to?
- **Quality of Writing:**
Is the text well written? While hypertext linking and multimedia are important elements of the Web, the bulk of the information content on the Web still lies in text, and quality of writing is important for the content to be communicated clearly.

c. Graphic and Multimedia Design

Is the resource interesting to look at? Do the visual effects enhance the resource, distract from the content, or substitute for content? If audio, video, virtual reality modeling, or other effects are used, are they appropriate to the purpose of the source?

d. Purpose and Audience

What is the purpose of the resource? Is it clearly stated? Does the resource fulfil the stated purpose? The purpose needs to fit the intended audience for the resource. Who are the intended users of this resource? At what level is the resource pitched: toward a subject expert, a layperson, or a student? Will the resource satisfy the needs of the intended users? Does the user group at which the site is aimed have the connectivity to access the resource?

e. Reviews

What do reviewing services say about the site?

f. Workability

Is the resource convenient, and can it be used effectively? This is the area where criteria for Internet resources differ most from print sources. Poor workability may indicate that the users should store the data locally, if intellectual property considerations allow this. Aspects of workability fall into a variety of areas.

- **User Friendliness:**

Is the resource easy to use? Are any necessary special commands clear? Is help information available? Have user interface issues been addressed, such as menu design and readability of screens?

- **Required Computing Environment:**

Can the resource be accessed with standard equipment and software, or are there special software, password, or network requirements? Has the resource been designed to work well with one software and user interface? Is it difficult to use with others?

- **Searching**

How effectively can information be retrieved from the resource? Is a useful search engine provided? What operators and ranking features are available? Is use of the search engine interface intuitive? Does the search engine index the whole resource?

- **Browsability and Organization**

Is the resource organized in a logical manner to facilitate the location of information? Is the organizational scheme appropriate (e.g., chronological for a historical source or geographical for a regional resource)?

- **Interactivity**

Where interactive features such as forms and CGI (Common Gateway Interface) scripts are provided, do they work? Do they add value to the site?

- **Connectivity**

Can the resource be accessed reliably, or is it frequently overloaded or offline? Is the connection one of limited bandwidth, so that pages take a long time to load or keystrokes a long time to echo? Is a local mirror site available, or do international traffic charges have to be incurred?

g. Cost

Currently, Internet information resources are perceived as being free. However, costs do exist, and they are likely to become more important. Costs can be divided into: (1) costs of connecting to the resource, and (2) costs associated with the use of the intellectual property contained in the resource. Internet users paying traffic charges already have to consider the costs of connection, and they may want include this in criteria for selection. For example, they may favour text-based rather than image-intensive sites, if the information content is the same.

Increasingly, there will be sites where a charge is made for the intellectual content of the site. If online transactions are used to pay for information, the security of these transactions at a site may become important.

A very useful table explaining criteria for website evaluation was created by Jim Kapoun (1998).

Evaluation of Web documents	How to interpret the basics
1. Accuracy of Web Documents - Who wrote the page and can you contact him or her? - What is the purpose of the document and why was it produced? - Is this person qualified to write this document?	Accuracy - Make sure author provides e-mail or a contact address/phone number. - Know the distinction between author and Webmaster.
2. Authority of Web Documents - Who published the document and is it separate from the "Webmaster?" - Check the domain of the document, what institution publishes this document?	Authority - What credentials are listed for the author(s)? - Where is the document published? Check URL domain.
3. Objectivity of Web Documents - What goals/objectives does this page meet? - How detailed is the information? - What opinions (if any) are expressed by the author?	Objectivity - Determine if page is a mask for advertising; if so information might be biased. - View any Web page as you would an infommercial on television. Ask yourself why was this written and for whom?
4. Currency of Web Documents - When was it produced? - When was it updated? - How up-to-date are the links (if any)?	Currency - How many dead links are on the page? - Are the links current or updated regularly? - Is the information on the page outdated?
5. Coverage of the Web Documents - Are the links (if any) evaluated and do they complement the documents theme? - Is it all images or a balance of text and images? - Is the information presented cited correctly?	Coverage - If page requires special software to view the information, how much are you missing if you don't have the software? - Is it free, or is there a fee, to obtain the information? - Is there an option for text only, or frames, or a suggested browser for better viewing?

3. RESEARCH METHODOLOGY

Although many research attempts have been made examining the way e-commerce is applied and its impact on the way business is done in different industries, very few of them have focused on the instrument used by e-companies (web sites), its characteristics as well as its effectiveness.

This is the first attempt to study the internal quality and other features of the web sites that are included in the Greek Domain, and to relate these internal characteristics to the effectiveness of the sites.

This survey was conducted between October and December 2000. However, the research instrument (a questionnaire) was developed in the period between June and September 2000. It is an eight page long questionnaire with 68 questions in total. It is based on questionnaires used by other researchers who tried to examine similar aspects of foreign web sites. However, and to the best of our knowledge, most of these surveys attempted to study the subject from a very narrow angle. This is mainly because, as it is recognised, it is extremely difficult to construct a questionnaire that will be manageable and at the same time complete. Completion time is also a very important aspect, especially, bearing in mind that usually the people who are responsible for evaluating the sites, and therefore use the questionnaire, are students.

The evaluation took place in the computer laboratories of the School of Business and Economics, TEI of Kavala, Greece. The evaluators were 2nd, 3rd and 4th year students under the supervision of the research groups. Before the evaluation there was a 3 hours seminar on how to complete the questionnaire. Students who did not attend the seminar was not allowed to participate. Participation was on a voluntarily basis, however, there was a small compensation for those who participated (10% bonus on their final mark on one of the Information Systems courses they were attending).

At the end 600 evaluators had accepted and were ready to participate. Each one was given an envelope with 25 questionnaires and a list of 25 WWW addresses. All the addresses were about similar web sites (for example from the same industry). In this way we tried to have evaluators who would be familiar with the way web sites for companies or organisations from the same industry are developed, and thus, to enable evaluators to judge in a comparative and more objective way. After they had finished with all 25 sites, evaluators were asked to look again at the five web sites they had evaluated first, in case they wanted to make any changes.

The addresses found in the Greek Domain at the end of 2000 were about 7000. From those, we were able to track down 3000, looking at the business parks of 15 of the most important ISP's in Greece. Five different students evaluated each of these 3000 web sites. Students were not aware that there were other colleagues of theirs who were evaluating the same sites. They were coming from different courses and they were in a different year of their studies. In this way, we tried to keep their judgment unbiased.

For different reasons about 300 addresses were not accessible. At the end of the evaluation process 13200 questionnaires were completed. The research team started

then to group all the questionnaires and to check whether they were correctly completed. All the questionnaires that had even a small flaw were discarded. In addition, if for one site there were less than 3 correct questionnaires, then all the questionnaires were discarded. Finally, 11.150 questionnaires were accepted as valid. These questionnaires referred to 2.335 sites.

There was one final step to be made before we analyse the data. For all the sites that were evaluated from 5 people (the majority of the sites), 2 of the questionnaires, the one with the best and the one with the worst scores were discarded (outliers). Finally, an average score was estimated for each question (from the three remaining questionnaires) and this was the one that was entered in the database.

Therefore, the database consists of 2335 cases, each one representing the average mark of at least three evaluators. Finally, a software package (SPSS) was used to analyse the data.

4. Analysis of the Results

4.1. Evaluators' Demographics

First, let us give some information about the demographics of the people who were responsible for evaluating the web sites.

In this survey, as in most of the other similar surveys, students are used as evaluators. Although, they are relatively young (18 to 23 years old), they are not without experience in using the Internet. More specifically, only 6% of the evaluators found to have less than 12 months of experience, while 20% of them have more than 24 months of experience. The average experience for all the evaluators is 17,1 months.

Despite the fact that the evaluators were quite experienced, 83.3% of them needed 10 to 30 minutes to complete the questionnaire. Of course, one can argue that this is due to the size of the questionnaire (68 questions). Nevertheless, it is also an indication of the responsible way evaluators completed their task and thus the validity of the data collected. The mean time of completion for all questionnaires was 23.4 minutes.

Most of the evaluators were women (61%) and 3rd year students (42%). No statistical difference found to exist between the answers provided by evaluators with different demographic characteristics.

4.2. Web Site Demographics.

First of all, it must be stressed that most of the sites mainly focuses on expanding their clientele through using Internet (Figure 1). More specifically, 78% of the total number of the evaluated sites can be considered as commercial sites, 8% are personal sites, and 6% are sites concerning different educational institutes. Finally, 7% of the sites belong to state owned organisations.

It can also be seen (Figure 2) that the main purpose of having a site is to inform the audience (surfers) about different aspects of the company/institute/person and

products/services/personal (40%). However, a significant number of the sites (28%) are used for promotional purposes and another 17% for purely advertising reasons. A direct sale is the purpose for only 15% of the sites. Nevertheless, it can be noticed (Figure 3) that the main target for 34% of the sites is to attract customers (increase sales). The main target for most of the sites (49%) is to communicate with the general audience, while another 10% is targeting suppliers. Finally, 10% of the sites are targeting students. This is normal since some of the sites belong to educational institutes. However, it could be argued that since students are the customers of this type of organisations, then customers is the main target for 41% of the sites.

The mean number of pages within the sites included in this survey is about 12, although more than half of them (55,4%) have less than 8 pages.

Most (84,4%) of these web sites did not include a “hit” counter or any other counter to measure the number of surfers who entered the site. It is important to stress that although the mean number of hits for the sites that reported a counter is 49.230 hits, the median number is 5.000 hits, while, 68,7% of them have less than 10.000 hits. These “hits” have taken place within an average period of 23 months.

Among the sample, there are 160 (7,7%) web sites that have been awarded a prize for a special characteristic/feature of them (mainly for their design). However, it is not clear who the awarding organisation is nor the evaluation process and the number of participants.

Looking at the language used to provide the information, it is found that the main two languages are Greek and English. There are a few sites (less than 10%) using other languages as well (French, German, Italian).

Finally, 28,5% of the sites reported that there is a sponsor supporting the site.

4.3. Web Site Design and Ease of Use.

Although the evaluation process took place within the computer laboratories of TEI of Kavala (equipped with the state of the art technology of PCs’ - Pentium III, 750 MHz, 128MB RAM, 8MB Video RAM, etc.), the downloading time of the initial page of each site as well as the speed of moving around the site (changing pages) can not be considered as satisfactory. More specifically, it is found that although 50% of the sites can be downloaded within 15’’, the mean time for downloading them is 26’’.

Additionally, the speed of changing pages within each site for 65% of the sites is less than 10’’, the mean time for all the sites is 13’’. Again, this is not something that can be considered as satisfactory. Furthermore, the evaluators consider downloading speed for both graphics and multimedia applications as moderate. These findings are very important because as it will be shown later, access or downloading time is one the most significant factor that can persuade Internet users to come back to a site.

Although the general feeling is that the quality of the design as well as the consistency of the design is rather high, the authentication of the design of the sites can be considered as moderate. These findings can lead us to the conclusion that most

of the web sites have nothing new to offer (as far as the design is concern), but they are rather copies of other sites. This actually means that the developers of the sites do not try to create something new in order to attract audience but they are looking at what already exists and then copy it. This finding is consistent with what was found by White and Raman (2000). They report “None conducted formal research before launching his or her Web site. ... Decisions were usually made based on personal preferences, copying what they liked about other sites, or were left up to the outsourced Web consultant”.

This can also be supported by the results obtained by analysing the next set of questions where site attractiveness was examined. It is found that the attractiveness of the sites when content, graphics and colours are considered is rather moderate. However, site attractiveness is rather low when the use of multimedia applications is considered.

Most of the sites are not designed to provide users with personalised information, that is, to monitor the needs of the users and then to come back to each one of them offering them information to satisfy their specific needs.

In addition, it is found that the co-ordination between different pages of the same sites is rather good, as is the ease of moving around the sites and the search of information within them, despite the fact that there are not any appropriate navigation support tools. This can explain why users think that the help that they are given in each site is not adequate.

Finally, half of the sites provide users with links to company’s other information sources, while most of them can be reached via email. In addition, 2/3 of the sites include some banners to advertise other companies or products or events.

Last, but certainly not least, it is very important that in 2/3 of the sites no on line shopping is allowed. We will come back to this finding later on.

4.4. Content

An important finding concerns the quality of information as well as the quantity of information provided within each site. Examining the information quality according to different criteria like validity, subjectivity, accuracy, uniqueness and usefulness it is found that the criterion with the highest score is validity, while the lowest score was given to uniqueness (Figure 4). Nevertheless, with the exception of the level of uniqueness, the score for all the other five information quality criteria is very similar (high) and no statistically significant difference is found examining the mean score of them.

However, it can be seen that information usefulness is not the same when different audience (users) is taken into consideration. For example, it is found that while usefulness is high for customers or potential customers, it is rather moderate for suppliers and the general audience. This actually means that sites are mainly targeting customers and they are providing information to satisfy the needs of their customers.

It is important to stress that the evaluators were quite satisfied with the content of the site when the size of each site (number of pages) was compared with the quality and quantity of information it contains. In addition, they were satisfied with the format of the information as well as the currency (the last time the site was updated) of the information provided. In specific, half of the sites reported that they were updated within 2000. This is important considering that the evaluation process took place at the third quarter of 2000.

Nevertheless, users are not persuaded to buy, although it is quite easy for them to have access and understand the information provided within each site. Actually, the level of persuasion is rather moderate. What makes things even worse is that the few sites that provide the facilities for on line shopping do it in a very bad way. This actually can explain why so few people in Greece use the Internet for on line shopping.

4.5. User Satisfaction, Criteria Used, and Intention of Users.

Overall, the evaluators were quite satisfied with the speed of searching information as well as with the speed of downloading the sites (Figure 5). This of course contradicts what was initially found about the actual downloading time. An explanation might be that the time to download other (foreign) sites is even longer, and thus, comparatively, they are in a certain degree satisfied with the performance of the Greek sites.

They were also satisfied with the content of the sites. On the other hand, they were moderately satisfied with the updating time. This result is not a surprising one since it is already found that at least 50% of the sites were updated within 2000. This also underlines the need of users for recent information.

Furthermore, evaluators were moderately satisfied with the quality of the graphics and the facilities enabling them to communicate with the site administrator.

However, what is really important to look at is the importance of the criteria evaluators are usually using to assess web sites. It is found (Figure 6) that the most important criteria are the quality of information, as well as the user-friendliness, the time the site was last updated and the speed of downloading the site.

Although some other criteria are also found to be important, their importance is not as high as the importance of the four criteria mentioned earlier. These criteria are the quantity of information, the aesthetics of the site, the communication features, the links provided within the site and finally, the features included in the site to enable on-line shopping.

The last finding is very important because it implies that users are not very desperate to make their shopping online. They rather prefer to use Internet to gather information. However, this might not be the real picture. Rather, it could be the behaviour of users who are disappointed with the facilities for an on line shopping provided by the sites, as it has been found to be the case for the Greek websites. Therefore, one could argue that what probably made them abandon the idea of

making their shopping online is not that they are not really interested but that they can not find the right way to do it, since the existing features are not the appropriate ones.

Going further, an attempt was made to discover the intention of the evaluators to do different things after they had seen the sites (Figure 7). It was found that it is moderately possible for them to come back to the site again, as well as to talk to a friend about the site. However, it is very unlikely that they would add most of the sites to their “favourites” folder, or to attempt to communicate with the web administrators, or even to make their on line shopping. Nevertheless, one must be very careful when interpreting these results. Having in mind that the evaluators are students, that their age is between 18 and 23) and the type of the sites (mainly commercial), then this is not a surprising result. Students and young users in general, are using Internet mainly for fun and not to make their shopping.

The previous results are also supported by the results of the cross tabulation and chi square analysis. It is found that the intention to buy using the Internet is related to the existence of facilities for on line shopping, as well as to the ease and friendliness of these facilities. Of course, the same intention is related to the quality of the information provided in the sites as well as to the quantity of the information. The significance of the chi square analysis for all these relations is less than 0,001.

Additionally, the intention of the users to buy is also related to the level of the satisfaction of the users, to the quality of the content, the graphics provided, the downloading speed and the time the site was last updated.

This is a very important finding as well, suggesting that not only the quality of the information but also some other technical characteristics of the site are very important for manipulating the attitude of the users against the site, and thus increasing the possibility for them to buy.

It must also be stressed that the existence of facilities for online shopping as well as the ease of using these facilities are significantly related not only to the possibility of users to come back to the site again, but also to the possibility users to add the sites to their “favourites” list and to make their shopping online. It is also important that the intention of the users to do different things is also significantly related to their level of satisfaction with the content, the graphics, the speed of searching for information, and the downloading speed.

Finally, the intention of the users is related to the importance of the criteria in general. For example, it is found that the importance of criteria is related to the possibility the users to come back to the site again, to add the site to the “favourites” list etc. This result implies that the significance of these criteria for the users and the way users take their decisions are related.

All the previous findings indicate that the higher the satisfaction of the users for a feature found in the site, or the higher the importance of each criterion for the users, the higher the possibility for these users to come back to the site or to make their shopping online etc.

Finally, it is of crucial importance that the type of the site (commercial, etc) is related to all purpose, site attractiveness, information quantity and quality, level of satisfaction and importance of criteria. This result suggests that each different type of web site should be developed in a different way (application of different rules) in order to make them more effective.

5. Summary and Conclusions.

This survey has attempted to examine the web sites that can be found in the Greek domain in order to examine their potential effectiveness. What has been found is that the quality of the sites (in terms of design and content) is rather moderate. Users are not attracted by the sites and therefore users' intention to come back to the site is rather low. On line shopping is not the target of the sites; this is actually why most of them do not provide users with such facilities, or if they do, the ease of use of these facilities is low, and therefore the end result is the same: no shopping. However, from the users' point of view, on line shopping is not a priority as well. Greek surfers on the Internet are mainly looking for information and entertainment and not to make their shopping on line.

Web site designers should be aware that copying is not the best way to create effective sites. Before they start designing a site they have: a)to look at different aspects of each site such as type, purpose, target, and users, b)to examine the different characteristics of each one of those aspects and the way they affect the sites, and c)to understand how their target users evaluate sites and what criteria they are using. In any other way, they will end up creating something that nobody will look at or that will not meet the requirements.

As Jarvenpaa and Todd (1997) found, the overall shopping experience, product perceptions and customer service on the Web today lead to a dissatisfaction of potential customers and require the attention of marketers and researchers.

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FIGURE 1: TYPE OF THE WWW SITES

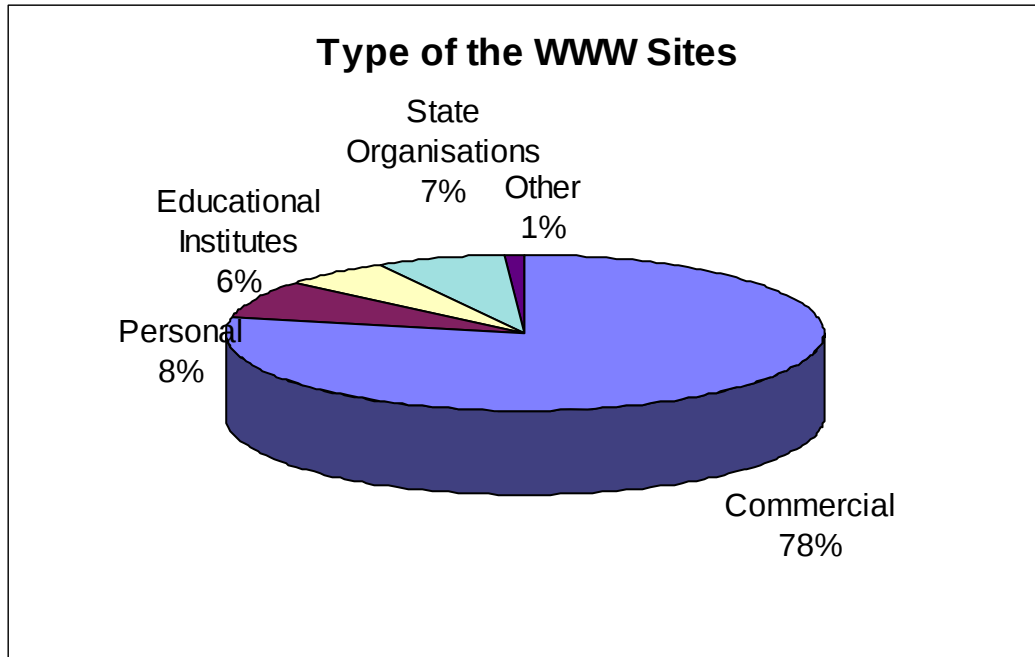


FIGURE2: PURPOSE OF HAVING A SITE

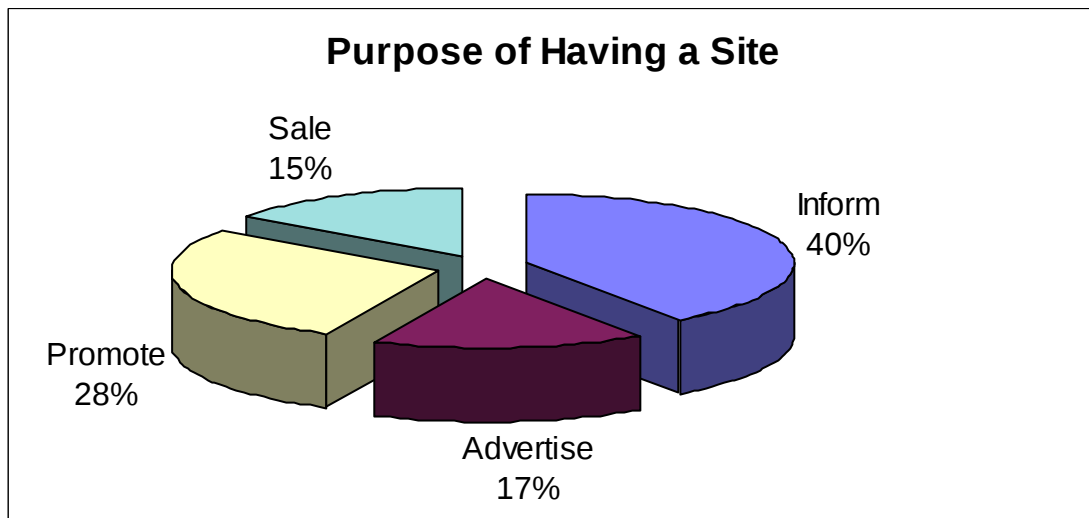


FIGURE 3: TARGET USER

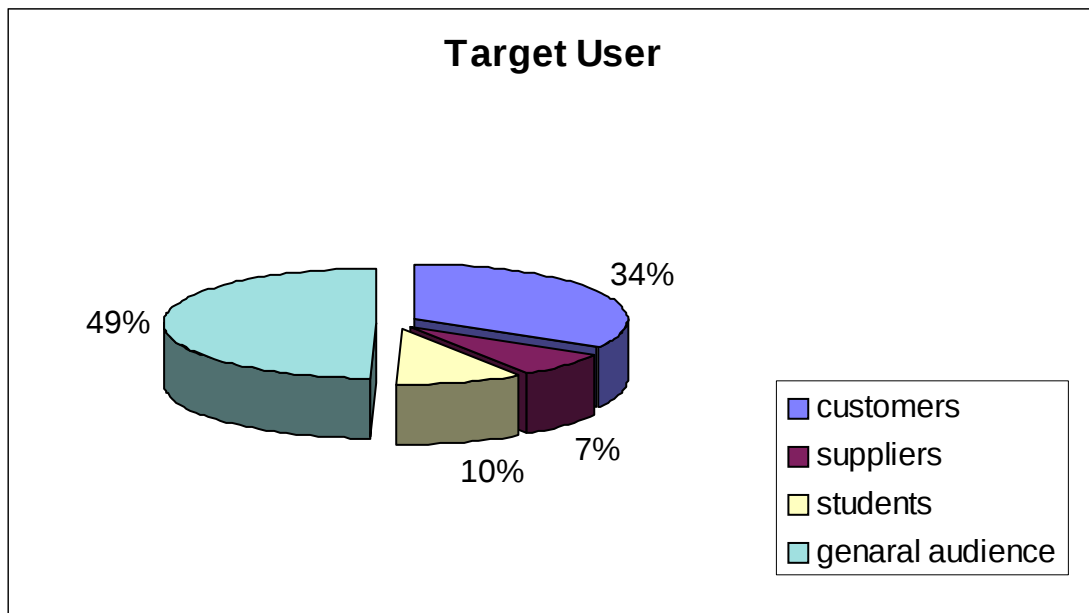


FIGURE 4: INFORMATION QUALITY

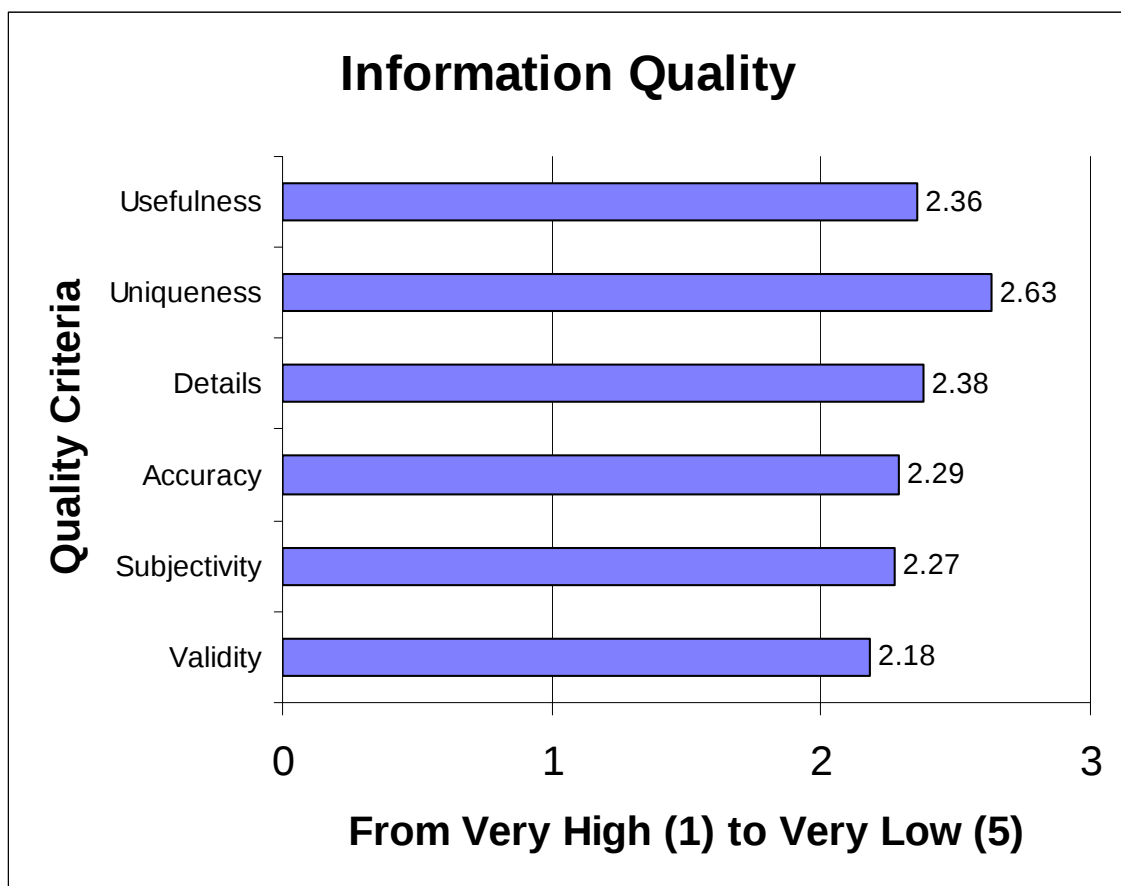


FIGURE 5: USERS' SATISFACTION

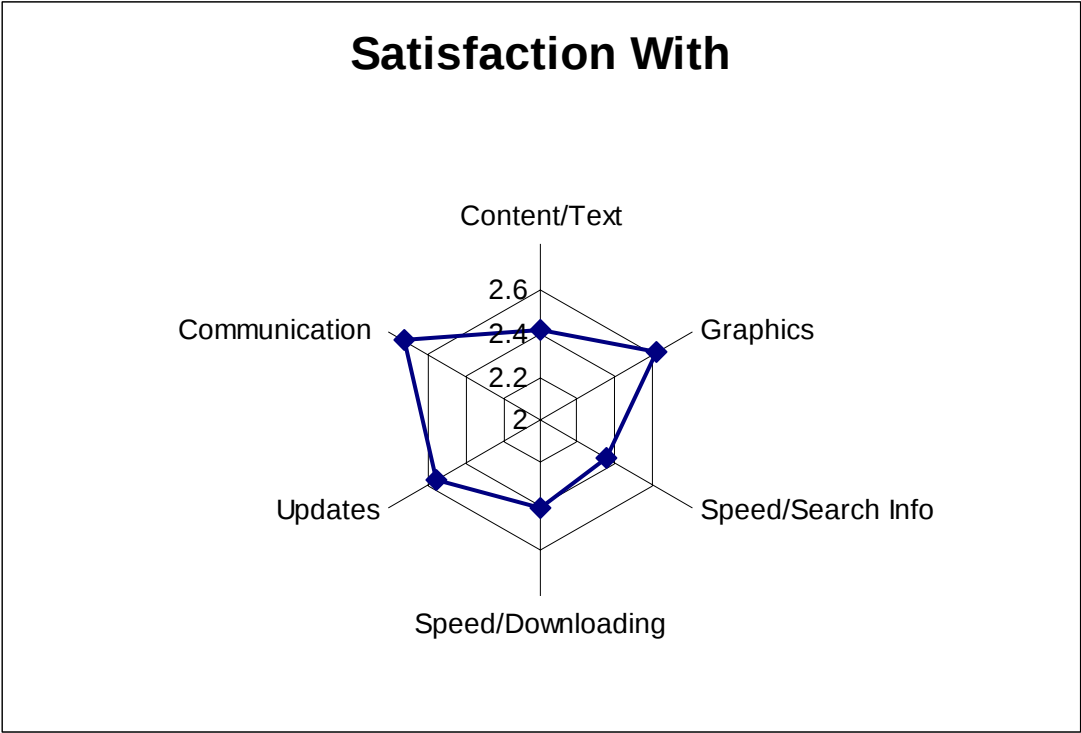


FIGURE 6: IMPORTANCE OF CRITERIA

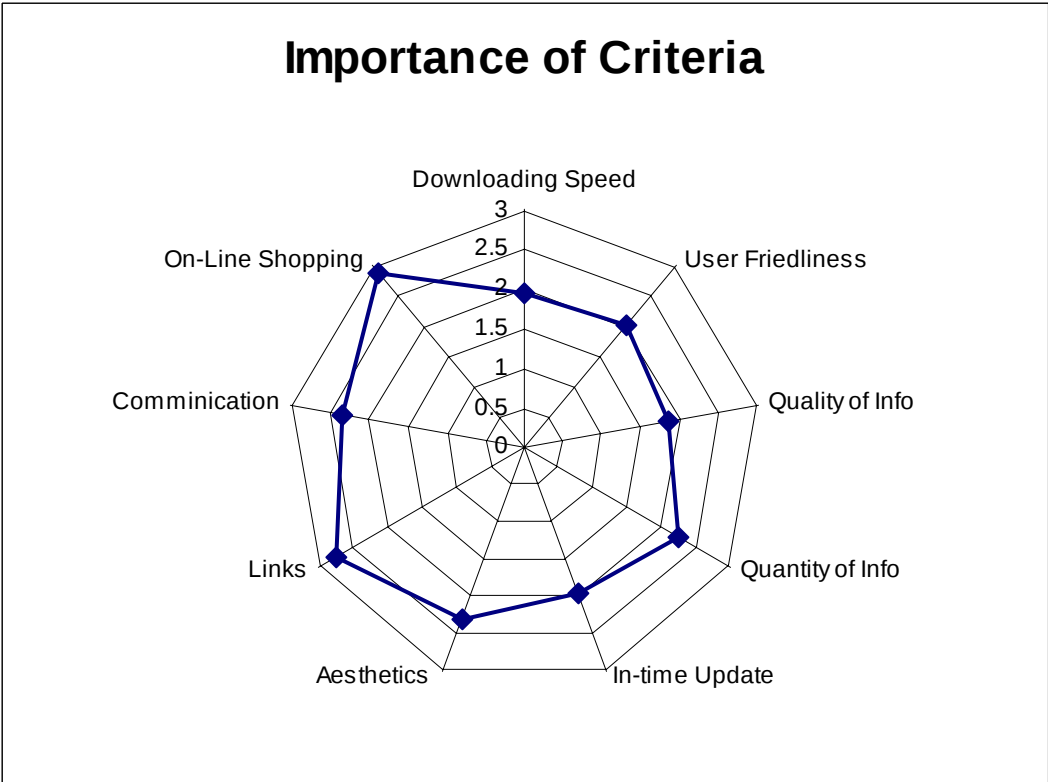


FIGURE 7: USERS' INTENTIONS

