Evaluation of the Greek Go-Online Web Portal for e-Business Awareness and Training of vSMEs: Log Files Analysis and User Satisfaction Measurement

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ABSTRACT
This paper presents initial results from the ongoing evaluation of the Greek Go-Online e-business awareness and training web portal. The Go-Online portal aims to support the very small end of the small and medium enterprises (vSMEs) that participate in the Greek Go-Online initiative by providing a wide number of e-services that address the dynamic needs of a user group with diverse profiles. This paper presents results from the most recent evaluation activities conducted: the log files analysis of the Go-Online web portal and the online survey of the web portal users’ satisfaction.

Keywords: SME’s, web portals, evaluation.

1 INTRODUCTION
Governmental policies and initiatives across Europe focus on supporting the development of Information Society Technologies with the goal to promote the online presence and digital literacy of individuals and groups, as well as to promote the competitiveness of European enterprises in the global marketplace [1]. The eEurope Action Plan places small and medium enterprises (SMEs) in the forefront of such actions, stressing the importance of them becoming “electronically active across national borders” [2]. The Greek Go-Online is an initiative of the Greek Operational Programme “Information Society” which is funded by the 3rd Community Support Framework of the European Union. Go-Online’s main objective is to support the very small end of the small and medium sized enterprises (vSMEs) to increase their ICT knowledge and e-business readiness & awareness.

In the context of the Go-Online Programme a parallel initiative has been launched by the Ministry of Development in the framework of the Operational Programme “Competitiviness” (also funded by the 3rd Community Support Framework of the European Union) with the initial goal of training and supporting the vSMEs that participate in the

Go-Online Programme (initially targeting more than 50,000 Greek vSMEs): Training Support of the Go-Online Programme. The most important component of this parallel initiative consists of keeping Greek vSMEs with up-to-date information about ICT application and e-business practices integration in the activities of their enterprises, in-situ training their employees on ICT, and in general offering support to any other enterprise wishing to integrate ICT in its business activities. An important element of the Training Support of the Go-Online initiative is the Go-Online web portal (http://www.go-online.gr) that provides a number of services addressing the needs of SMEs and Go-Online programme participants.

In this paper we present initial results from the ongoing evaluation of the Greek Go-Online e-business awareness and training web portal. More specifically we present results from the application of two different evaluation activities that are currently in deployment: the log files analysis of the Go-Online web portal and the online survey of the web portal users’ satisfaction.

2 THE GREEK GO-ONLINE INITIATIVE

The use of e-business techniques is often cited as the principal gateway for SMEs to take greater advantage of opportunities in global markets. In order to stimulate usage of the Internet by SMEs, European Member States have deployed a wide range of policies and instruments, and have launched many different actions and initiatives based on them [3]. SME engagement with ICT and associated e-business techniques is considered to be vital to the achievement of the goals agreed at the Lisbon summit in March 2000 [2]. In the European Union (EU) there are more than 19 million SMEs and in most EU Member States they constitute more than 95 % of national enterprises. Therefore, SMEs generate a substantial share of European Gross Domestic Product (GDP) and they are a key source of new jobs, as well as a fertile breeding ground for entrepreneurship and new business ideas. This means that European SMEs need to become fully committed to exploiting ICT innovation and e-business opportunities.

An important number of action lines across Europe, focus on the technological aspects of Information Communications Technology (ICT). Participation in the new economy has been primarily identified in terms of ownership of equipment which is carefully measured and compared [3]. Nevertheless, according to a widely accepted study from the Cisco Information Age Partnership which is adopted by the related EC working groups [4], the ICT adoption from enterprises has more steps to be followed (Figure 1). The next goal after increasing ownership is providing SMEs with awareness and training instruments that can address their reluctance to embark upon e-commerce and e-business: This is where the need for continuous support, education and training in formal and informal setting rises for SME’s owners and personnel.

![Figure 1: The evolution of ICT adoption from enterprises (source: [4])](image-url)
In this context, training on ICT and e-business practices has been among the most common government programmes in EU countries. The Greek Go-Online Programme is such a wide-scale national initiative: its main objective is to support the very small end of the small and medium sized enterprises (vSMEs) to exploit ICT and web technologies in their day-to-day business. Following the EU policies and international trends, the Go-Online Programme is a large-scale initiative, addressing a target group of more than 50,000 Greek vSMEs. To achieve its objectives, the Go-Online Programme is based on two main lines of actions:

- Promoting ICT literacy and Internet presence by co-financing purchase of ICT infrastructure and provision of Internet access.
- Promoting ICT awareness and adoption by providing information to Greek vSMEs about the benefits of ICT use in small enterprises, as well as providing free of charge training of their employees on ICT and e-business practices.

To promote the second line of action, the Training Support of Go-Online programme has been launched in January 2002. The requirement for a flexible operational structure of training support that can be adapted to the individual vSME’s needs and preferences, along with the particularities of the Greek disperse geographical distribution, called

**Figure 2:** The home page of the Go-Online Web Portal

for the design and deployment of a specialized training strategy in the case of the Training Support of Go-Online initiative [5]. Towards this end, a blended learning approach [6] was followed, supported by two subsidiary actions:

- On-site training visits by specialized e-business consultants exploiting more than 25 hours of web-based interactive courses.
- An e-business Help Desk providing support and guidance (both telephone- and online-based) to Greek vSMEs (and also the other participants of the Go-Online programme).
- The Go-Online e-Business Vertical Portal supporting vSMEs e-business awareness and training (Figure 2).

In this paper we focus on the role of the Go-Online web portal and present evaluation results collected from the targeted user groups: namely, vSME’s personnel, e-business consultants, consortia implementing the Go-Online initiative and other users of the web portal. In the following sections we will present initial results of the on-going evaluation of the Go-Online portal.

3 THE GO-ONLINE WEB PORTAL

The main objective of the Go-Online e-Business Training and Awareness web portal is the establishment and operation of a national web-based reference point. To this end, the Go-Online portal incorporates a number of different services that aim to address the dynamic needs of a wide audience of end-users with diverse profiles. These are integrated in the following portal’s services centers:

**Go-Online Programme services centre.** The Go-Online Programme services centre provides interested parties with a set of programme-specific services, such as:

- SMEs: online access to necessary documentation with the requirements for participation in the programme, online application submission, online monitoring of the application status, registration to the SMEs virtual community and access to relevant information (such as financial and legal information).
- eConsultants: online access to job description, requirements and qualifications, online application for consultants, registration to the consultants’ community and access to relevant information (such as guidelines and best practice examples for the training of SMEs).
- Go-Online implementing agencies: online access to restricted information, monitoring of programme statistics, registration and participation in the Go-Online restricted communication areas.

**Information services centre.** The information services centre consists from a set of specialized services to promote e-business awareness of SMEs:

- e-business news update service, monitoring international and national progress and news in the area of e-business, and updated in a daily rate;
- digital library service with an online catalog of digital resources available through the portal along with online mechanisms for search and retrieval of the library resources;
- directories of useful links service, containing a collection, description and indexation of web sites and portals related with e-business issues;
- online glossary of terms, with description of common ICT, e-commerce and e-business terms.

**E-learning centre.** The online e-learning services centre provides access to all developed online educational material developed by specialist content developers. The educational content is appropriately structured to support the different needs of SMEs participating the program, covering issues from basic ICT introduction to advanced e-business issues and specialized business branches, and is appropriately categorized in e-learning course modules addressing the different training stages of the SMEs.

**Community services centre.** The community services centre provides users with the opportunity to register and participate in the virtual Go-Online community, facilitating communication between the community members.

(SMEs personnel, consultants, e-business experts and/or researchers, etc). Different communication and collaboration services are provided: online synchronous discussions (chat), asynchronous discussions (fora), e-mail communication, information and training material sharing.

**Help-desk services centre.** The online presence and support of the Go-Online Help Desk is achieved through the help-desk services centre. The help-desk services center provides online support 8 hours-a-day, 5 days-a-week to SMEs and consultants, using the communication services of the portal (help desk’s experts answer questions and provide guidance to SMEs both in the chat room and the discussion fora). Moreover, the help-desk services center has developed a Frequently Asked Questions (FAQ’s) section, constantly updating and furthermore developing it.

The Go-Online portal is a point of reference for the community of Greek vSMEs, with more than 14,000 registered users, 700,000 hits at the home page, and 5,500,000 page views. Its rich content (corresponding to more than 250,000 static HTML pages) includes more than 2,000 ICT and e-business news, 120 e-business specials and articles, 52 web-based courses that correspond to more than 29 teaching hours, about 340 items in the digital library, and 165 Frequently Asked Questions (FAQs). It was therefore important to discover how the target users of the portal evaluated the portal content and services. In the next section we will introduce the evaluation activities related with the Go-Online portal.

4 EVALUATION OF THE GO-ONLINE WEB PORTAL

Several evaluation activities have been taking place in the context of the Go-Online web portal. The initial evaluation of the portal took place during the second half of 2002, and right after version 1.0 of the Go-Online portal was deployed. It constituted a formative evaluation phase that aimed to technically verify and validate the web-portal services. A small group of expert users (technical experts, e-business experts, and selected experienced users) performed a focused expert evaluation that provided recommendations for corrections and improvements before version 1.1 of the portal was fully deployed. A summative evaluation phase followed in September 2002 engaging all actors involved in the Go-Digital portal development and operation: that is, decision makers (a selected group of policy makers related with the Go-Digital initiative and providing the funding for the web portal development), portal element experts (involving experts upon all elements of the portal, such as content experts, usability experts, e-business experts, etc.) and the end-users (vSMEs participating in the Go-Digital program, their consultants, and other visitors of the portal). In the current mature phase of the Go-Digital portal, a final evaluation phase is in full deployment since May 2004. During this phase, two different and complementary evaluation activities have been engaged: web portal server log files analysis and a user satisfaction survey. This evaluation phase is still undergoing, but initial results have been collected; they are presented in the following paragraphs.

4.1 Log Files Analysis Results

The large number of Go-Online web portal users as well as the high amount of content and information contained call for a systematic approach in monitoring and analysing the actual usage of the portal services. Log files analysis is such a systematic and practical method for examining actual usage of a web site, which can also reveal interesting patterns about its use [7,8]. During the final evaluation phase of the Go-Online portal, a server log files analysis has been carried out in order to study the visiting behavior of the portal users. The log files analysed referred to the whole period of the portal operation until the time of the analysis (that is from July 2002 to May 2004). Three different analysis steps were carried out:

i. First, the log files of the whole period were processed and analysed, and a number of indicators have been calculated for the whole period, such as the visits, hits and page views (impressions) per month, the most popular pages, the most downloaded files, the usage activity throughout the day and throughout the week, etc.

ii. Second, the log files were split into sets corresponding to different time periods (one set for each three-month period of the portal operation) and the most important indicators were calculated and compared across different periods.

iii. Third, the log files were split into sets corresponding to different areas and services of the web portal, and the most important indicators were calculated for each portal service.

Figures 3 to 6 present some selected results from the portal’s log files analysis. More specifically, Figure 3 presents the number of unique visits per month at all pages of the Go-Online portal (that is, the number of the unique sessions that it was possible to identify from users visiting the portal), whereas Figure 4 presents the number of page views or impressions per month (that is, the number that the web portal pages have been presented at the computer screens of users). Figures 5, and 6 present the number of unique visits per month at the portal’s Information and E-learning centers respectively.

Table 1 presents the ten most popular pages of the Go-Online portal. As it was expected, the home page of the portal is the most popular one, with more than 260,000 hits (requests). It is interesting to note that the e-business information centre attracts a high number of the portal users, since four of its sections (that is, the e-Business News Section, the e-Business Specials & Articles section, the Links Directory section and the Digital Library section) belong to the most popular pages of the portal. Additionally, we can see that the registered users’ community is very active, since the login to the personal account page is also one of the most popular pages. Very popular also are the pages of the Go-Online Information centre that provide information about the participating in the Go-Online and Educational Support of Go-Online initiatives.

![Figure 3: Unique visits at all pages of the Go-Online portal](image-url)

Figure 4: Page views or impressions of all pages of the Go-Online portal

Figure 4: Unique visits at the e-Business News and Information Centre of the Go-Online portal

Figure 5: Unique visits at the e-Learning Centre of the Go-Online portal

Table 1: The ten most popular pages of the Go-Online portal

<table>
<thead>
<tr>
<th>Rank</th>
<th>Page description</th>
<th># of requests for page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Go-Online portal home page</td>
<td>260.155</td>
</tr>
<tr>
<td>2nd</td>
<td>e-Business News page</td>
<td>70.451</td>
</tr>
<tr>
<td>3rd</td>
<td>Registered users login page</td>
<td>68.355</td>
</tr>
<tr>
<td>4th</td>
<td>e-Business Specials and Articles page</td>
<td>47.295</td>
</tr>
<tr>
<td>5th</td>
<td>Digital Library Files page</td>
<td>40.765</td>
</tr>
<tr>
<td>6th</td>
<td>SMEs Go-Online Application page</td>
<td>38.315</td>
</tr>
<tr>
<td>7th</td>
<td>Go-Online Programme Training Support Information page</td>
<td>36.756</td>
</tr>
<tr>
<td>8th</td>
<td>Directory of Useful Links page</td>
<td>35.877</td>
</tr>
<tr>
<td>9th</td>
<td>Go-Online Programme Financial Support Information page</td>
<td>31.094</td>
</tr>
<tr>
<td>10th</td>
<td>File Download page</td>
<td>29.848</td>
</tr>
</tbody>
</table>

Other results from the www.go-onlinel.gr log files analysis reveal that for the period into consideration, more than 560,000 unique visits have been recorded (about 850 visits per day) together with more than 5.500.000 page views (about 8.500 page views per day). Additionally, a total of 60MB of information have been downloaded (especially about 800 pdf versions of the web-based courses are being downloaded every month). Finally, it is interesting to note that although the whole portal content is in Greek, its brief English section is currently attracting about 500 visits every month.

4.2 User Satisfaction Measurement

The second evaluation activity is still ongoing (started on May 2004 and is expected to run until October 2004), and concerns the measurement of users satisfaction from the services of the Go-Online web portal. This evaluation activity also aims to compare the results obtained from different user groups (that is, the vSMEs personnel, the e-
business consultants that train the vSMEs, the Go-Online consortia experts and other visitors. Invitations to access the online evaluation questionnaires were electronically sent to all the evaluation participants, together with directions for exploring all features of the web portal. Apart from each portal service, user satisfaction is being measured upon a generic set of portal quality dimensions, and respective quality indicators are being calculated. The system of evaluation criteria used (Figure 7) was a scaled-down (for questionnaire simplicity reasons) version of the user satisfaction dimensions described in detail in [9].

After one month of running the evaluation, the initial results were collected and processed. In a first step, a descriptive statistical analysis of the participants’ assessment of each portal dimension was carried out. Then, the results obtained from the four groups were comparatively studied, as it is demonstrated in the example of Figure 8. Figure 8 comparatively presents the percentage proportions of the different user groups’ responses to the question “How much satisfied are you from the simplicity of the portal environment?”.

Figure 7: The evaluation criteria system used
Figure 8: The satisfaction of the four evaluation groups from the SIMPLICITY dimension.

Although this application of the descriptive statistics is useful for studying satisfaction from separate portal dimensions, it does not provide an overall perspective of the web portal. For this reason, two more analysis techniques are engaged:

- First, the synthesis of the responses of each evaluation group was used to calculate the distribution of responses for the higher level criteria. Figures 9, 10 and 11 present the case of each criterion (‘Design’, ‘Content’ and ‘Community’) synthesizing the assessments from all the lower level criteria. It is interesting to note that in many cases the distribution of synthesized responses on a high level criterion is different than the one of an individual lower level sub-criterion. For example, the percentage of experts perfectly satisfied by the overall ‘Design’ of the portal is over 37%, although its ‘Simplicity’ dimension highly satisfied only 30% of them.

- Second, the synthesis of all responses of each evaluation group was used to calculate the partial and global utility indicators. Figure 12 presents a comparison of the synthesized partial utilities of each criterion and the global utility (total satisfaction indicator) for all four evaluation groups. For example, the global satisfaction of the consultants user group was calculated to be 78%, which is very satisfactory compared to the targeted 60% threshold. Similarly, the global satisfaction of the SMEs user group was 72%; that is, lower than the satisfaction of the consultants but still over the threshold defined.

It is interesting to note from Figure 9 that as far as the ‘Design’ criterion is concerned, an important number of the Go-Online experts seem to be perfectly satisfied (more than 37% of them). In general, the majority in all user groups is perfectly or very satisfied from the ‘Design’ dimension of the portal. Similarly, Figure 10 indicates that the majority of the e-business expert categories (e-business consultants and Go-Online experts) are very satisfied from the ‘Content’ of the web portal. vSMEs personnel and other portal users are also satisfied, but not to the extent that the expert user groups are. Finally, Figure 11 shows that the ‘Community’ aspect is the weakest characteristic of the portal. Yet, more that 50-60% of the users belonging in each user group seems to be perfectly or very satisfied from it.

Figure 9: The distribution of the synthesized responses for each evaluation group on the DESIGN criterion.

Figure 10: The distribution of the synthesized responses for each evaluation group on the CONTENT criterion.

![Figure 11: The distribution of the synthesized responses for each evaluation group on the COMMUNITY criterion.](image1)

![Figure 12: Comparative presentation of the partial utilities and global utilities of the evaluation groups.](image2)

In relation to the initial 60% threshold goal, Figure 12 demonstrates that it has been achieved for all user groups. As a matter of fact, it the 70% threshold is achieved for the ‘Content’ and ‘Design’ criteria. The e-business consultants seem to be the most satisfied and less demanding user group; the vSMEs also express a high degree of satisfaction from the portal characteristics. The same holds for the other two user groups.

5 CONCLUSIONS

The Go-Online web portal for e-business awareness and training web portal if the Greek very small, small and medium enterprises (vSMEs) has been briefly introduced, and initial results of its ongoing evaluation phase have been presented. In general, the results from the web portal log files analysis revealed that the portal is highly

popular, especially as far as its dynamically updated information services are concerned (such as the e-business news and the directories of useful links). Additionally, the results from the online satisfaction survey indicate that all the targeted user groups are generally satisfied from the portal (with a total satisfaction over 70%) - the most satisfying dimensions of the portal being its Content and its Design.

6 ACKNOWLEDGEMENTS

The work presented in this paper has been partly funded by the Greek Go-Online Programme and more specifically by the “Training Support of Go-Online” initiative. The Greek Go-Online Programme and the Training Support of Go-Online are implemented in the context of the European Commission ‘Go-Digital’ initiative and are co-funded by the Operational Programmes “Information Society” of the Greek Ministry of Economy and Finance and “Competitiveness” of the Greek Ministry of Development (under the 3rd European Community Support Framework).

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