Web Application for Regional Presentation and Development

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Abstract

The development of Information Technology introduces data and knowledge in a large audience, through the use of the World Wide Web. This paper presents the design and development of a multipurpose website environment for regional development through the case study of the Hellenic University Forest Administration (HUFA). Mambo platform was used for the design of the site as well as a PHP (Hypertext Pre-processor) interpreter; both offered under an open source license. The maintenance of the website for the University Forests on the Internet, aims in upgrading their inventory and presentation, but also promotes neighboring mountainous province, as well as it promotes and encourages recreational and tourist purposes.

Key words: Internet Services, website development, open source, regional development.

1 Introduction

1.1 General

In today's networked environment, people demand new evolutionary technology for information retrieval and intellectual exchange (Feng et al., 2004). ICT (Information and Communication Technologies), as defined by World Bank (World Bank, 2002), consists of hardware, software, networks, and media for collection, storage, processing, transmission, and presentation of information (voice, data, text, images). The future is undisputedly ''digital'' and concern has been expressed on the effects of digital restructuring in deepening economic, political and social inequalities (Hull, 2003).
 ICT can improve people's understanding of environmental issues and their policy implications. It can ensure that environmental knowledge is communicated to a broader audience, especially by using electronic media to educate a new generation that does not believe that declining environmental quality has to be sacrificed for economic growth. The definition of forest has been changing towards a wider spectrum of qualitative features, more of an ecosystem aspect that integrates various land uses (Kennedy et al., 1998, Helms, 2002). Forests produce and regulate water, offer raw materials for the logging industry, forages for feeding livestock, food and nursery services for coastal fisheries, nutrients recycling, firewood, habitat, protection against disasters, among many other goods and services (Costanza et al., 1997). This generation is more sensitive and willing to be involved in formulating policies that affect their communities, countries and the world in the medium and long term.

ICT along with computer networks can be the tool to effective recognition of a rural region. ICT should be used within a context of sustainable development as a tool and not as an end in itself. Merely putting PC's into rural areas does not address the development needs of people when they are dealing with bread and butter issues. ICT should be used in the service of human development (Bridges, 2002). Among basic development goals for a region is the improvement of the attractiveness that upcoming will lead in reside in the local habitats. Regional development must depend on the natural environment of the area as a comparative advantage, characterized by the mountainous nature of the landscape (Andreopoulou et al., 2003, 2004). When is identified the centrality of broadband internet and related ICT's in reconfiguring access to local and global resources are therefore in a better position to decide whether, and how, to use this technology to enhance their own situation and help to close social, economic, education, health, age, gender and other divides (Dutton et al., 2004). The maintenance of a website for mountainous areas aims in the improvement of the communication, the attractiveness of the area as it supplies a range of reliable information and in the recognition of the area mainly from specific target groups. On parallel it sustains local commercial and tourism activities in order to promote local natural resources and various traditional and artistic products.

The simple case study of the multiple purpose website of Hellenic University Forest Administration demonstrates that with free and easily accessible tools it was relatively simple to develop a web application for regional presentation and development.

1.2 Case study

Aristotle University of Thessaloniki one of the biggest universities in the Hellenic district possesses two University Forests, one in Pertouli in the prefecture of Trikala and the other in Tachiarxis in the prefecture of Chalkidiki. The University Forest Administration holds the administration of the University Forests. The Hellenic University Forest Administration was established in 1951, according to law 1881, as legal entity of public low, in support of the students' education of the department of Forestry and Natural Environment, research and assessments, creation of template forests and last for effective administration and management. The Central Management Direction of the University Forest Administration is located in the accommodation of the Department of Forestry and Natural Environment in the Aristotle University of Thessaloniki. Decisions are taken from a 9 member Management Council, which is designated for two years (HUFA, 2000).

The location of the University Forest of Pertouli is close to the mountain range of central Pindos. It is in the East and Southeast slope of the mountain Kosiakas, in latitude of 39^0, longitude of $21^0 35$' and altitude from 1070 m to 2050 m. The measurement lengthwise of the University Forest of Pertouli is 3296,59 hectares. The 2530,39 ha of them are forested with spruce and pine, the 583,71 ha are mountainous rangeland, the 114 ha are grassland and the rest 68,49 ha are fields, built up areas etc.

The University Forest of Tachiarxis – Vrastamon is in the center of the prefecture of Chalkidiki and particularly in the South and Southwest slope of the mountain Holomontas latitude with $40^0 23$' – $40^0 28$', longitude $23^0 28$' – $23^0 34$' and altitude from 320 m to 1165 m. The length of the University Forest of Taxiarhis is 5834,6 ha. The 3894,48 ha of them are forested, the 264 ha are semi-forested, the 84,5 ha are arid area and the rest 1591,62 ha are fields, built up areas etc.

2 Methodology-Materials

2.1 PHP

In Web programming, PHP is a script language and interpreter that is freely available. PHP, originally derived from *Personal Home Page* Tools, now stands for *PHP: Hypertext Pre-processor*. PHP is an alternative to Microsoft's Active Server Page (ASP) technology. As with ASP, the PHP script is embedded within a Web page along with its HTML. Before the page is sent to a user that has requested it,

the Web server calls PHP to interpret and perform the operations called for in the PHP script. PHP is free and offered under an open source license.

2.2 Open source

In general, open source refers to any program whose source code is made available for use or modification as users or other developers see fit. Open source software is usually developed as a public collaboration and made freely available (Searchwebservices, 2005). Open Source is a certification mark owned by the Open Source Initiative (OSI). Developers of software that is intended to be freely shared and possibly improved and redistributed by others can use the Open Source trademark if their distribution terms conform to the OSI's Open Source Definition. To summarize, the Definition model of distribution terms require that: (1) the software being distributed must be redistributed to anyone else without any restriction; (2) the source code must be made available (so that the receiving party will be able to improve or modify it); (3) the license can require improved versions of the software to carry a different name or version from the original software. Open Source is the result of a long-time movement toward software that is developed and improved by a group of volunteers cooperating together on a network. Open-source technology is an important component in achieving sustainable development and should be encouraged. For example, open-source technology can be used to provide translation services for development projects.

2.3 Mambo

The website was constructed, using Mambo. First and foremost, Mambo is a Content Management System (CMS). It is the engine behind the website that simplifies the creation, management, and sharing of content. Mambo is a powerful platform for a wide variety of Internet applications that go far above and beyond the simple creation of content. The Mambo Development Team focuses on building a solid application framework rather than on add-ons that are typically found in many portal solutions. This keeps the Mambo core extremely lightweight and efficient, thus making it easier for anybody to extend Mambo through custom third party component and modules that directly serve their needs. Mambo provides a basic level of content approval for registered users "Fig. 1"; online help; page caching mechanism to improve performance on busy sites; trash manager; advertising management (banners); media upload and management; content display scheduling; content syndication (RSS); search engine friendly (SEF) URL's; internationalisation (interface translation); content macro language; advanced and separate system administration system; advanced package/add-on/template deployment system; simple but powerful template system; hierarchical user access groups; basic visitor statistics; multiple WYSIWYG (What You See Is What You Get) content editor support; simple polls; content voting/rating; extended user profiles such as forums; media galleries; document managers; templates; events; calendar etc.
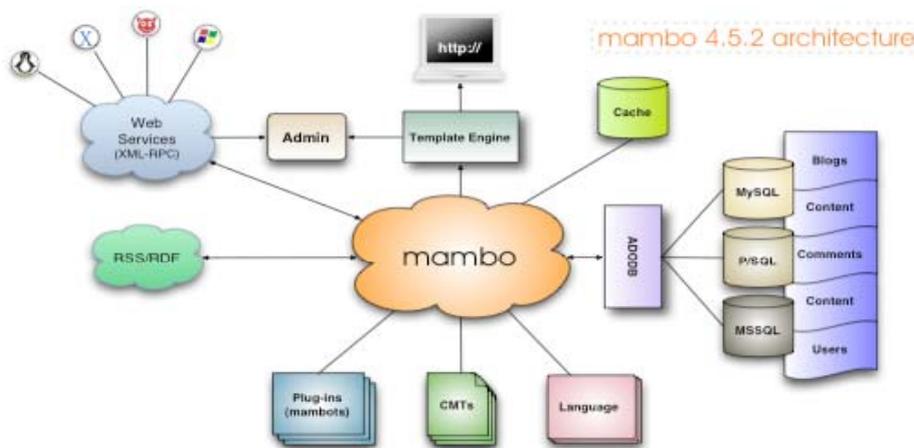

Fig. 1 Mambo architecture

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. When we speak of "free software", it refers to (1) the freedom to run the program, for any purpose; (2) the freedom to study how the program works, and adapt it to your needs (Access to the source code is a precondition for this) (3) the freedom to redistribute copies so you can help your neighbour and (4) the freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (Access to the source code is a precondition for this).

2   Results and implementation

In recent years the accelerating rate at which information is transmitted via the Internet have challenged service providers to adopt compatible techniques for information transfer. Such techniques need to have a widely accepted standardized form, they must be universally accessible and preferably they should be vendor independent. The maintenance of a website for mountainous areas aims in the improvement of the communication, the attractiveness of the area as it supplies a range of reliable information and in the recognition of the area mainly from specific target groups. The traditional production function of forests and forest lands is changing towards a multifunctional one in order to meet the increased demands for recreational and amenity services of forests.

The simple case study demonstrates that with free and easily accessible tools it was relatively straightforward to develop a web application for regional presentation and development. The website has a collection of pages that describe content, search and navigation instructions as well as information of general interest. The Home page "Fig.2" is a welcome to the Hellenic University Forests Administration. Websites interface was designed with the intention of circumventing usability problems. The menus include Administration and Management, for both University Forests; Tourism, where tourist information are stated for both areas along with the plentiful outdoor activities that can be accomplished; Society presenting the two non profitable clubs, Forest Friends of Pertouli/Tachiarxis, aiming in the protection, conservation and promotion of environmental and cultural inheritance; Links for further information regarding other Hellenic institutes supporting environmental issues; Search, within this site and the whole web; and a communication page with the administration and the stuff of University Forests Administration under the title, Contact us.
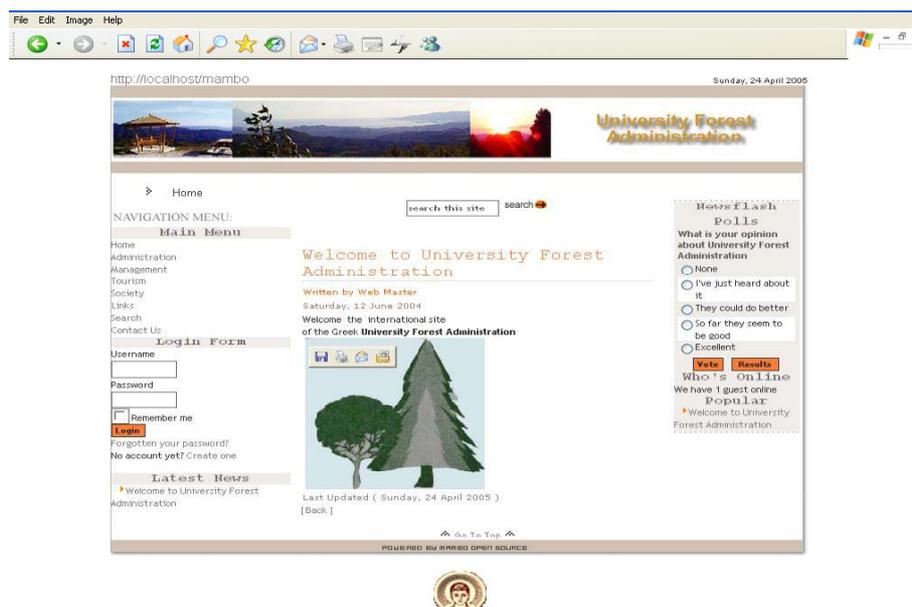

Fig. 2 Home page

The Pertouli forest belongs to the Greek government but the usufruct was given to Aristotle University of Thessaloniki for educational and research reasons with the 15/12/1934 decree-law, which was published as an accomplishment of the law 6320/1934. The administration of the University Forest of Pertouli is held due to a specific Management Plan, constructed every 10 years from the Foresters of the Service and with the guidance of the faculty of the Department of Forestry and Natural Environment. The Pertouli forest is used not only for timber production but it serves as well, the multiple goals that a well-organized forest can serve. It provides the necessary protection for the environment, even in danger of fire and stealthily interferences (HUFA, 2000). The zone in which the forest is found is Fagetalia and particularity in Fagion Illyricum. In this area dominates *Abietum Borisii Regis* (spruce) and scarcely there are species of the Abiety-Fagetum. This means that except for the domination of spruce (*Abies Borisii Regis*) sporadically is found oak (*Quercus*), beech (*Fagus*), maple (*Acer*), cedar, junipers (*Juniperus*), willow (*Salix*), basswood, and hop hornbeam. Due to reforestation some other species of pine, like *Pinus Nigra, Pinus Silvestris* and *Pinus Leucodermis* have been planted. The fauna found in the University Forest of Pertouli are bears (*Ursus arctos*), deer (*Cervus Elaphus*), hares (*Lepus Europaeus*), partridges and pheasants (*Phasianus Colchicus*).

The Tachiarxis – Vrastamon forest also belongs to the Greek government but the usufruct of it was given to Aristotle University of Thessaloniki for educational and research reasons with the 15/12/1934 decree-law, which was published for the accomplishment of the law 6320/1934. The area is dominated of deciduous forests. The species found in this area are *Quercetalia ilicis*, *Quercetalia pubescentis* and *Fagetalia*. Quercetum frainetto covers the biggest part of the area in the altitude of 400-1000m and in the gullies is found *Quecetum ilicis*. The uncultivated plants with great economical interest are *Quercus Conferta* (oak), and *Fagus Moesiaca* (beech)*, Fagus Orientalis* and *Fagus Sylvatica*. Sporadically one can find *Quercus Pubescentis, Quercus Delechampii*, and the evergreen broadleaved *Arbutus*, holly (evergreen oak), briar, basswood, etc., which have secondary economical interest. Due to reforestation one possibly will also find *Pinus Nigra, Pinus Silvestris, Pinus Brutia, Pinus Halepensis, Abies Borisii Regis* etc. The fauna found in the University Forest of Tachiarxis are roe deer (*Capreolus capreolus*), wild boars (*Sus scrofa*), hares (*Lepus Europaeus*), partridges, woodcocks (*Scolopax rusticola*) etc.

 The aim of the administration of the Tachiarxis forest "Fig.3" intends in:

- Succeeding the biggest production of timber with the biggest timber provisions by changing the forest from coppice stands to seed stands.
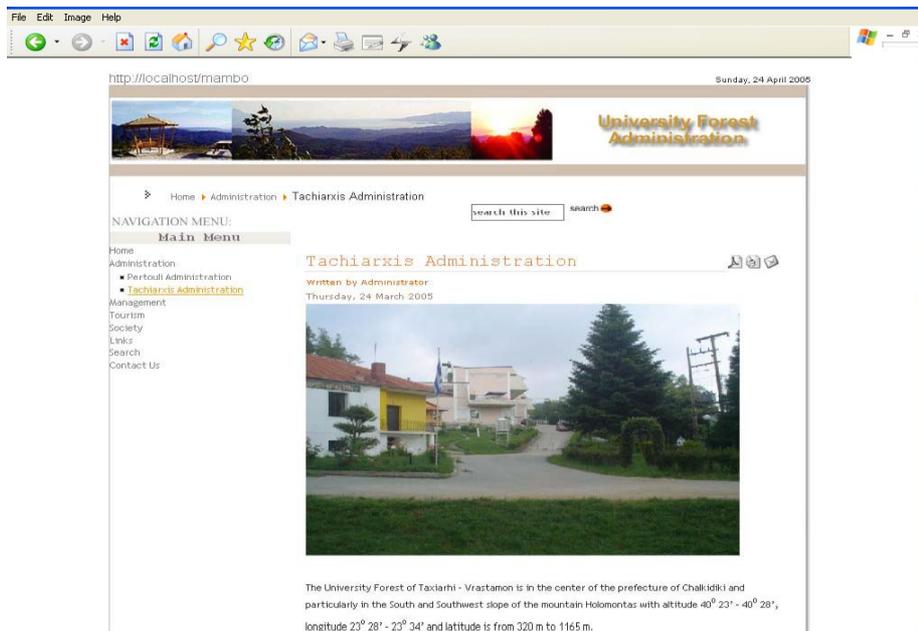

Fig. 3 Administration Tachiarxis

- Retaining and amending the health and the bearing of the forest with the best mixture of the species,

- Keeping and increasing the soil production,

- Retaining the hydrological, protective, healthy, esthetical etc. effects and

- Serving the research and education of the students of the Department of Forestry and Natural Environment

The University Forest of Pertouli offers numerous chances and opportunities for relaxation. Pertouli itself is a traditional village with picturesque rocklike houses and red or stone built roofs. Not far away a ski center "Fig.4" is being located. Its length is about 1100 m. and its altitude is from 1130m to 1370m. The ski center also offers accommodation. Pertouli and the other neighbouring villages are able to cover all the necessary visitor needs for accommodation. It is a very popular destination for winter, not only for Greeks. Various activities and sport events take place during the entire year. There are many organized locations for outdoor activities, like camping. Every year cultural festivals take place in the famous grasslands of Pertouli. Hunting is another popular sport, held in a controlled hunting area. Summer sports like ridding, cycling and archery are held with great response to visitors, and gives motivation to further development of the area. Pertouli is also well known for its traditional woody artistic products and herbs, such as mountain tea.

Holomondas can offer alternative tourism through out the year. Walking in the defiles, gives visitors the opportunity to take pleasure in the magnificence of nature. There are also bridle paths for riding and the mountain bike will increase adrenaline in high levels. Climbing, mountaineering and hunting are some other sports that everyone can attain. Tachiarxis is close to Thessaloniki. That is a great advantage as the visitors can combine the beauty of the mountain with that of the sea, since the famous beaches of Chalkidiki are almost an hour away by car. There are many accommodation options with traditionally formed rooms to rent during someone's stay. Traditional nutrition products, homemade liqueurs, sweets and pastry prepared by the village woman's cooperative, herbs and mushrooms gathered from Holomondas, will satisfy even the most demanding in taste.
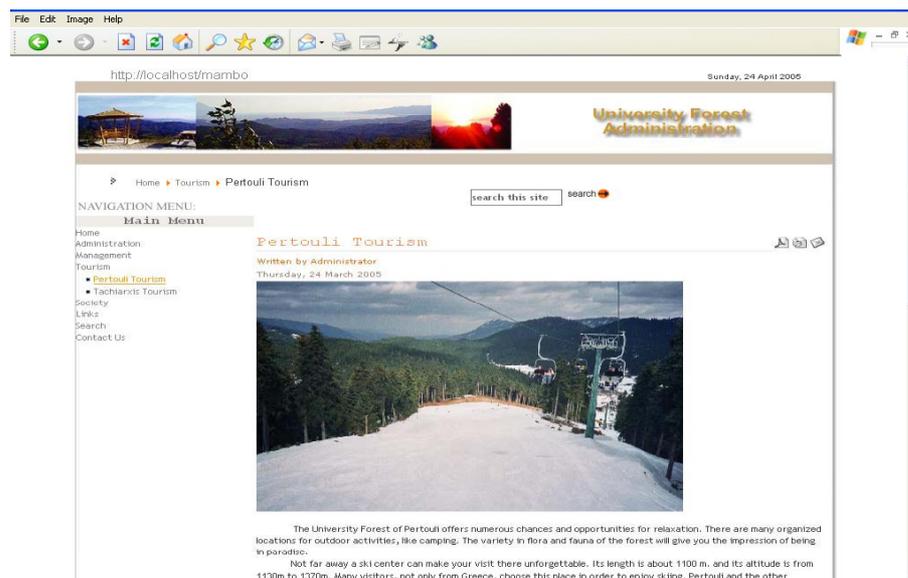

Fig. 4 Tourism Pertouli

4 Discussion

A multipurpose web application has been designed and implemented for the Hellenic University Forests Administration attempting to provide adequate information for administrative and research purposes and also to promote and sustain local development. Aiming to achieve local development in mountainous areas, it is essential to increase the local revenues and the offered working positions with encouraging of tourism activities and opportunities and the promotion of the area through the increase of identification as a dynamic tourism destination. Strategy planning should put emphasis on the launch of commercial activities based on the comparative advantage of natural environment and landscape. It is also vital to improve the infrastructure and services and finally, to appropriately notify the local authorities and policy makers. The neighbouring population should be acquainted with and try to support the local environment that is characterized from the extended forests. The process of policy-making has to be based on the appropriate information. Therefore, it is depended upon the availability, the clearness and the precision of the various needed information in a different grade for every given case (McLeod, 1998).

It is vital to understand the ways in which social processes influence the nature of knowledge and learning, and the impact they have upon efforts to codify and commodity knowledge including through the application of ICT (Bresnen et al., 2003).

The website has a bilingual presentation, either in Greek or English, in order to be useful and traceable worldwide. Interactive use of the website is enhanced through the bulletin board features available. There are also important information resources on the tourism and recreational possibilities in the area, in order to make the surrounding a recognizable tourism destination, especially for winter tourism, agro tourism, etc and in parallel to promote local tourism commercial activities.

Usability has become a primary factor in determining the acceptability and consequent success of computer software. Since the primary measures of portal success are high levels of user acquisition and retention, only those sites that attract and maintain the desired target audience and build valuable customer relationships will have the potential for long-term success.

The availability of up-to-date and accessible information that can be gathered from many sources and compiled easily to use for multipurpose purposes helps leverage resources and support programs such as community planning for economic development. Easy access can now be provided to up to date information that is always available (subject to Internet access) and the publishers of data can encourage proper use of information by providing metadata on province. Our ability to establish such goals, and even conceive of achieving them, is driven by not only the urgency of the concerns, but also the realization that we have within our reach the know-how and the tools to make the goals reality. One such set of tools is Information and Communication Technologies (ICT). These technologies have transformed our world, and in the process, our belief in how we can address its challenges.

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