ASSEMBLE+

ASSOCIATION OF EUROPEAN MARINE BIOLOGICAL LABORATORIES EXPANDED

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Public	☒
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Abstract

Developing Team of HCMR with its previous and confirmed expertise is able to implement a fully functioning, responsive and adaptive webpage/portal which includes the following services.

Technical research on the current "state of the art" technologies and tools as well as on the available platforms and desired specifications that will provide the best developing and operating options.

An extensive research on the interface design which makes focus on the content and usability, providing a levelled users navigation system with fully customized and simplified functions. Implementation of the latest techniques for webmetrics, accessibility and safety with respect to GDPR and WCAG2. Also support of basic socializing and in site communication functions are available. Moreover, webpage is equipped with an internal and efficient Publication Management System. Last but not least, the complete webpage implementation and all technologies included are fully compatible and 100% accessible from web crawlers dealing in this way with the dissemination of information and promoting the content to achieve goals.

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1. Actions performed for domain & hosting

a) Checked suggested Domain.

b) Domain Binding already Checked.

c) Hosting services and technologies evaluation performed. LAMP architecture preferred.

d) Control of necessary technologies as well as supported architectures and CMS system. WordPress CMS used for platform development.

e) Services installation for Hosting platform. Security and statistical analysis supported.

f) Domain and Hosting linking performed and communication achieved successfully.

g) Installation customization of CMS platform.

h) Online repository support.

i) Support and provision of services for System Administrator or Super User

Domain genomicobservatories.her.hcmr.gr is already booked and reserved in any case by the DNS handling – support of the HCMR institute.

2. Web page design

2.1.   *User Interface*

Choosing the correct and appropriate visual elements will help with task completion, efficiency, and user satisfaction. The proposed interface is based on the usage of Input Controls (dropdown lists, buttons etc), Navigational Components (slider, search field etc), Informational Components (tooltips, icons, progress bar, notifications etc) and Containers (e.g. array shape boxes).
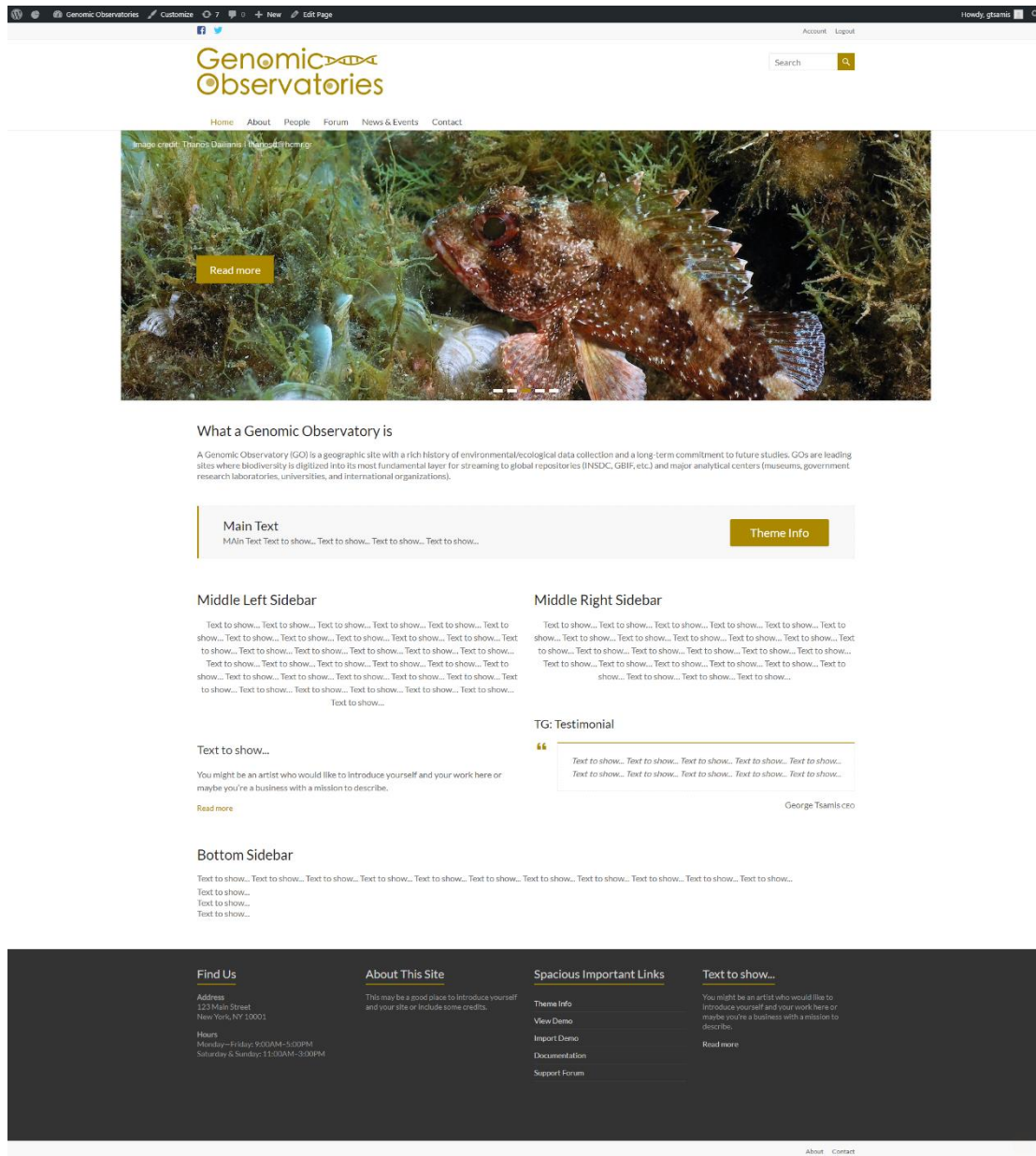

Figure 1 Proposed Website Interface Mockup

Access to specific Virtual Labs and user confirmation/access permissions can be derived from the global database achieving higher performance rate and safety, while implementing a solution which is based on a main confirmation system.

The above website template is under development but already supports basic and major services like users communication, dissemination of information, staff and people involved presentation, contact form, forum support etc.

2.2.   Admin Interface

The system administrator or the qualified user will be assigned with a complete Users ratings and permissions assign menu. Moreover, all available features and implemented services will be available and visible based on the following template.
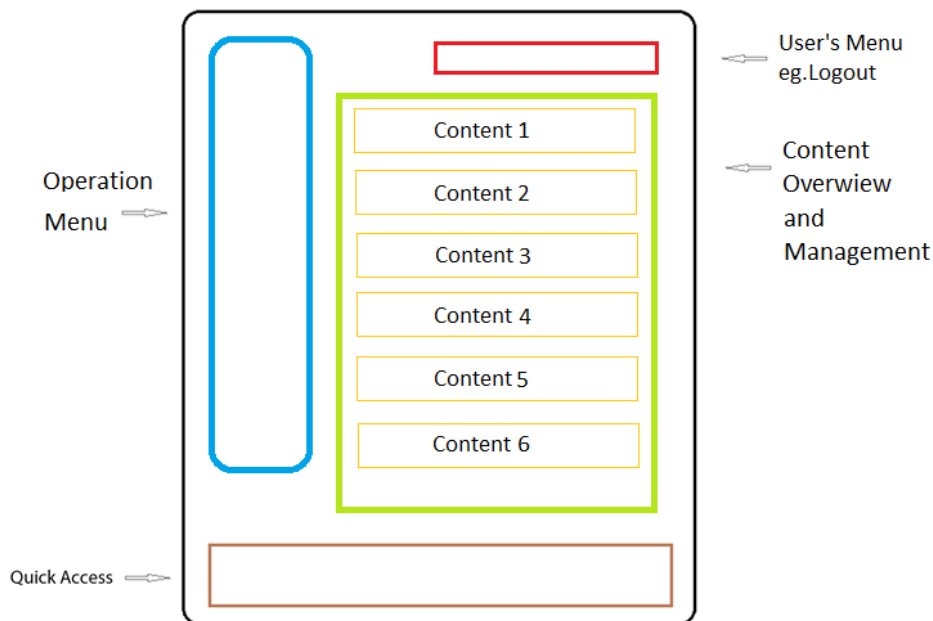

Figure 2 Admin Interface Mockup

Platform is able to support users with increased capabilities and specially assigned tasks such as data input or verification and information maintenance.

2.3.   Basic rules for developing the suggested Website Interface are:

i)   Visitor-like content
ii)   Same menu pattern and template everywhere
iii)   Structured and well-organized information hierarchy
iv)   Correct use of typographical data
v)   Proper use of colors and contrast
vi)   Ability to evaluate and users' feedback services
vii)   Simplified information entry forms
viii) Same design style everywhere

2.4.   Design selection through multiple samples

2.5.   Design with easy navigation system even for the most inexperienced Internet user

3. Accessibility and support of disabled

3.1 Compliance with the standard regulation system WCAD2 is supported which means that we ensure "in general"

3.1.1 Usability and Functionality

3.1.2 Full accessibility to all users regardless
- Device
- Operating System
- Age
- Body part disability
- Visual impairment

3.1.3 Easy search mechanism based on button "Search"

3.1.4 Services such as Contact or Help always are in a clear and visible position

3.2 The currently developed and supported conformation includes the following

3.2.1 Prime Directive
- Genomic observatories website strives to ensure that its services are accessible to people with disabilities. Developers have invested a significant amount of resources to help ensure that website is made easier to use and more accessible for people with disabilities, with the strong belief that every person has the right to live with dignity, equality, comfort and independence.

3.2.2 Accessibility on Genomic observatories website
- We make available the UserWay Website Accessibility Widget that is powered by a dedicated accessibility server. The software allows Genomic observatories website to improve its compliance with the Web Content Accessibility Guidelines (WCAG 2.1).

3.2.3 Enabling the Accessibility Menu
- The accessibility menu can be enabled by clicking the accessibility menu icon that appears on the corner of the page. After triggering the accessibility menu, please wait a moment for the accessibility menu to load in its entirety.

3.2.4 Disclaimer
- We continue our efforts to constantly improve the accessibility of site and services in the belief that it is our collective moral obligation to allow seamless, accessible and unhindered use also for those of us with disabilities.
- Despite our efforts to make all pages and content fully accessible, some content may not have yet been fully adapted to the strictest accessibility standards. This may be a result of not having found or identified the most appropriate technological solution.

3.2.5 Here For You
- If you are experiencing difficulty with any content on Genomic observatories website or require assistance with any part of our site, please contact us during normal business hours as detailed below and we will be happy to assist.

3.2.6 Contact Us

- If you wish to report an accessibility issue, have any questions or need assistance, please contact Support.

4. Webmetrics / statistics

Full log analysis enables site owner to extract scientific statistical data by monitoring information like: Number of visits and number of unique visitors, Visits duration and last visits, Authenticated users and last authenticated visits, Days of week and rush hours (pages, hits, KB for each hour and day of week), countries of visitors, last visits and unresolved IP addresses list, Most viewed page or entry and exit pages, Files types used etc.
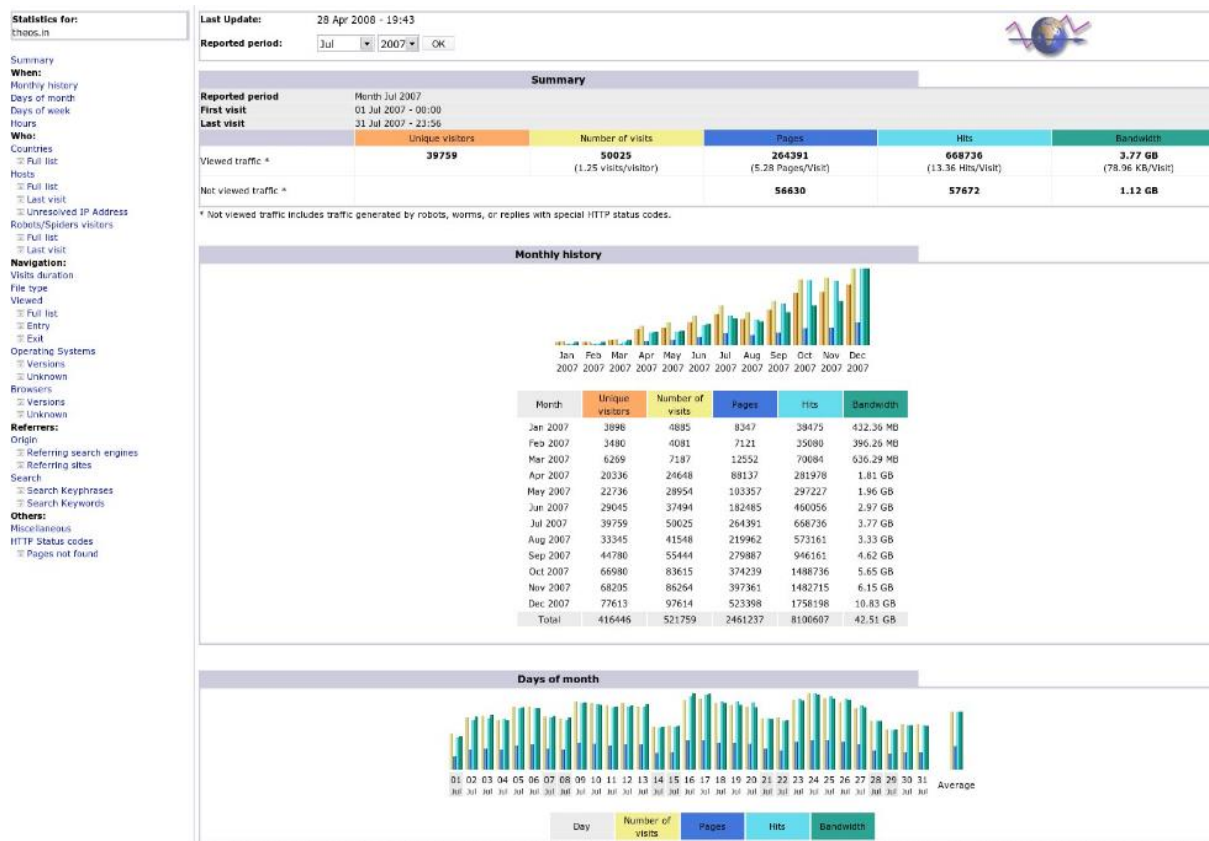

Figure 3 Web Statistics Example

5. Implementation supports the following services

1) Main and Secondary popup menu support

2) Logo Design

3) Automatic search mechanism

4) Communication forms and google recaptcha support

5) Tooltips support

6) Calendar with remind and events service

7) Announcements presentation Mechanism

8) News and RSS feeds

9) Asynchronous notification of search engines eg. Google

10) Ability to enclose services (portal)

11) User Registration and Login

12) Custom Profile Support

13) Certification of user email account

14) Current website traffic

15) Comments support

16) Personal or public communication between users (Forum Support)

17) Users groups management

18) Ability to create discussion groups and presentations of public issues (social networking)

19) Ability to monitor user activities

20) Notification and publishing mechanism on social networks such as Facebook, Instagram

21) Quick Links

22) Open Street Maps Support

23) Publication management and dissemination services

6. Publication management

A complete package/system which unites services like documents management and assessments, to a powerful BibTeX compatible and unified mechanism will be implemented. Optimizations will be supported for the needs of professorships and research groups like BibTeX compatible multi user publication management, BibTeX import/export for multiple publication entries, RTF export for publications, RSS feed for publications, metadata view, publication lists, publication searches and an interactive tag clouding system which is generated automatically on the fly. Also a detailed and complete publication management interface will be implemented for Registered Users.

Moreover, under investigation is the case of an (in site) zotero tool/service support which is characterized as a "free, easy-to-use tool to help you collect, organize, cite, and share research". During this investigation we are examining the compatibility, usability and the performance evaluation of the communication between our site and the zotero service (https://www.zotero.org/).

7. Socialization and user communication

Each user is equipped with his private space where full access to permitted services is provided. This page includes all of the features we've come to expect from any online community, like user profiles, groups, activity streams, notifications, and more.

Members Page show all currently registered Page Users and their basic profile info. Website also allows community members to share files or folders easily. Via the attachment API, page makes sharing content possible in a variety of ways.

We are currently examining sharing policies that include:

- Owner only (private)
- Password protected content
- Owner and friends
- Owner and specified groups
- Owner and specified members
- Public sharing (everybody)

A Forum service is already developed and supported. Using this tool users can create threads, share their opinion or knowledge and last but not least a file sharing mechanism is supported where users can upload and share files with each other, providing an online mean to operate as a data repository.

Figure 4 Forum interface example

8. Web analytics and Google services

Web analytics is the measurement, collection, analysis and reporting of web data for purposes of understanding and optimizing web usage. However, Web analytics is not just a process for measuring web traffic but can be used as a tool for business and market research, and to assess and improve the effectiveness of a website.

Web analytics applications can also help institutes measure or estimate their impact factor to society. It helps one to estimate how changes traffic to a website after the launch of a new content. Web analytics provides information about the number of visitors to a website and the number of page views.

Google Analytics is a web analytics service offered by Google that tracks and reports website traffic. It is also the most widely used web analytics service on the web. It is able to track the website activity of the users such as session duration, pages per session, bounce rate along with the information on the source of the traffic.

Google Analytics services are included on site's back end and site's monitoring algorithms have been activated.

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9. Dissemination

Internal mechanisms are developed to greatly improve SEO and create special XML sitemaps which will help search engines like Google, Bing, Yahoo and Ask.com to better index the website.

With such a sitemap, it's much easier for the crawlers to see the complete structure of the website and retrieve it more efficiently. Additionally, an efficient notification service is implemented for all major search engines. This means that every time a content is created or updated a notification about the new content will be sent to the according agent of each search engine.

Moreover, Google Analytics services are included enabling the ability to track your and allows you to view key Google Analytics stats. In addition to a set of general Google Analytics stats, in-depth Page reports and in-depth Post reports allow further segmentation of your analytics data, providing performance details for each post or page from website and services like Real-Time Stats, reports in real-time, Real-time number of visitors, Real-time acquisition channels, Real-time traffic sources details.

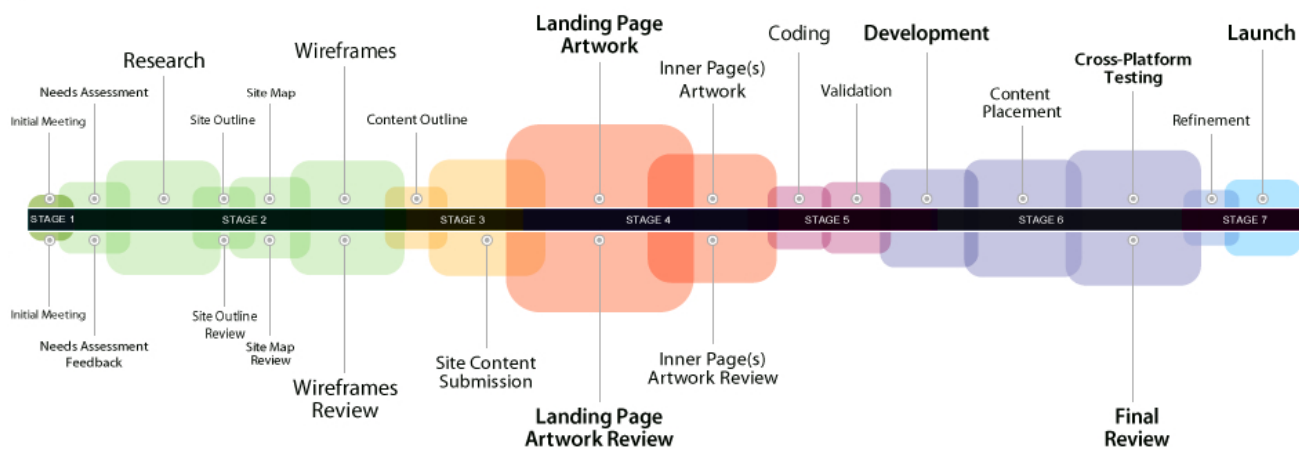# 10. Technical details

Figure 5 Website Development Life Cycle

Webpage's developing platform has the following specifications.

Database : MySQL Ver 15.1 Distrib 5.5.60-MariaDB

Developing Languages : PHP 7.2.14 (cli) (built: Jan 8 2019 14:05:15), HTML5, CSS, MySQL, Javascript

Server OS : CentOS Linux, VERSION="7 (Core)", 3.10.0-862.14.4.el7.x86_64, Apache/2.4.6

Server Specs : RAM 8 GB, Storage ~8GB, 4 CPUs at 2GH 64 bits

CMS : Wordpress 5.2

phpMyAdmin : Version 4.8.1