



Hyderabad Karnataka Librarians'  
Association

## **Design and Development of a website using CMS: A Case study**

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### **ABSTRACT**

This case study explores design and development process of Kalyana Karnataka Librarian's Association® website using Drupal7 CMS (Content Management System) platform. The study highlights the features of CMS websites, why is CMS platform so essential to build the website and different phases of website design, development and essential modules used in the development of the website.

**Keywords:** Website; Web Design; Content Management System; Web Development;

### **1. INTRODUCTION**

A website is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. All publicly accessible websites collectively constitute the World Wide Web. There are also private websites that can only be accessed on a private network, such as a company's internal website for its employees. Websites are typically dedicated to a particular topic or purpose, such as news, education, commerce, entertainment, or social networking. Hyperlinking between web pages guides the navigation of the site, which often starts with a home page (**Wikipedia, 2020**). Recent trend shows that many of the websites, blogs, micro-sites and social community websites use CMSs. CMSs plays a very important role in the web design and development domain. It is popular because of the provision for customization, availability of a wide range of CMS modules, themes and other resources on the public domain.

### **2. WHAT IS CMS**

CMS stands for Content Management System, which is essentially software that helps you to build a website. It may provide you with templates and it will give you a way to create and manage digital content, through a user-friendly platform, where editing software allows content to be edited in a form that resembles its appearance when printed or displayed as a finished product which is similar to using Microsoft Word. Some of the most popular CMS are Tumblr, WordPress, Joomla, Wix, and Drupal. E-commerce websites use ECM(Enterprise Content Management), which has typical web CMSs features by facilitating collaboration in the workplace by integrating digital asset management, eCommerce, and document management into the mix. Most of the websites are made using HTML and CSS (Cascading Style Sheets) coding language. The question is, was it coded from scratch, or is the web page using a CMS to piece the page together with more easily? CMSs often use pre-built templates to launch web

pages more quickly. You can then customize those templates to make them your own. This is a lot faster than coding something from scratch and is especially useful for those don't have coding knowledge (**Saltis, 2020**). Some of the key advantages of CMSs are discussed as follows;

**2.1 Content management:** CMSs facilitates managing the dynamic websites, which has multiple pages and makes it easier in adding, editing, deleting, Save content in a draft state, manage it through folders or taxonomy, easily update site navigation, restrict access, auto-publish, style your content using WYSIWYG editor, creation of polls web-forms, blogs and allows to manage its content efficiently.

**2.2 Customization:** The Frontend user interface of CMS allows effortless customization of static pages, which will be like using word processing software for creating website pages.

**2.3 Previewing and Testing:** CMSs allow previewing the website and its pages before publishing it. It has a test framework and tests included.

**2.4 Time Management:** Most of CMSs platforms come with a host of pre-built themes and to make the unique website, there is need of a customization of pre-built theme, which requires HTML or CSS coding knowledge, based on the theme design the rest of the pages will display at the user end, thus it saves more time in designing static pages.

**2.5 Multi-user Support:** Most of the CMSs provided with the blog feature, which allows publishing the blog entry by the registered user and allows others to comment or give feedback on the same. CMS manages the user accounts via an online registration process and it has a user access control mechanism.

**2.6 Mobile optimization:** Advanced CMSs offer mobile optimization, automatically tailoring presentation and content for different devices.

### 3. METHODOLOGY:

On the recommendations of the executive committee members of the KKLA(Kalyana Karnataka Librarian's Association®), formerly known as HKLA(Hyderabad Karnataka Librarian's Association ®). A decision was taken to redesign the entire website to make provision for more responsiveness and interactive to the visitors' actions on the website and also facilitate to browse on various platforms such as desktops, Smartphone's, tabs, etc. To meet the above purpose Content Management System (CMS) is used to design, development and execution of the KKLA website. We may find many CMS's among these Drupal7 is being used (**Drupal, 2020**), it is an open-source Content Management System. The website is being developed in seven phases namely; planning, content, designing, construction, previewing and testing and hosting and publicity (**Diffily, 2006**). Following are key issues are discussed, before planning web development as follows;

- The objective of a website and its contents
- Who is the team member of web design and development, and their skill sets and who gone lead the project or requirement of a web designer?
- Budget required to carry out web design, development, execution, and maintenance.

- Timeframe required to carry out the project
- Analysis of the risks involved in implementation.
- Proper communication is a must among the team members.

### 3.1 Planning:

In the first phase, the identification of the target audience done. Most of the KKLA website visitors are library professionals of the Kalyana Karnataka region, who are working in deferent parts of the country. The prime motto is to create an online platform which will help library professional engage themselves in an online platform to keep watch on the events and activities of the KKLA. Hence, Planning has been made to add a bunch of interactive drupal7 modules along with built-in core modules of Drupal7 to provide the best visitor experience while browsing through the website. Modules are being used to make a platform to discuss the topic of interest of the library professionals through blogs, forums, and an online chatting platform is added for instant message service.☐

### 3.2 Content:

Most common content is being used on the website which includes; plain text, images, PDF documents, social media widgets, links to external resources. Contents are chosen in such a way that, the website can be browsed in low bandwidth internet connection in various platforms.☐

### 3.3 Designing:

In this phase arrangements of content into graphical models can be used as a basis for coding site. Which facilitates website visitor an online experience through clear navigation and an intuitive structure. Logo and graphics are designed to use wherever required. Information architecture is structured in such a way that, it should be very interactive and responsive to the visitor's actions on the website. To design the entire Drupal7 website Premium responsive 7.x-1.7 theme, which is developed by [Devasaran.com](http://Devasaran.com) is used and customization of the theme is done based on the requirement (Devasaran, 2020).

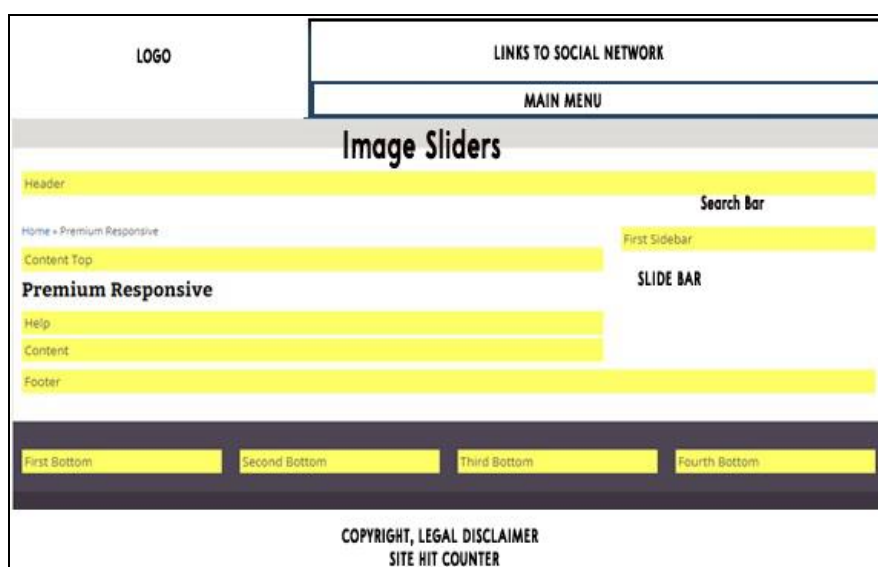


Fig. 1. Homepage Wireframe

### 3.4 Constructions:

In this phase converted content and design into web code, usually, HTML is done on the lines of browser compatibility and it has compatibility with various platforms and device browsers. Screen resolution is fixed to optimally display on the largest number of screens.

### 3.5 Previewing and Testing:

Preview and test have been conducted to ensure the capabilities of operating to a minimum acceptable standard. Utmost care is taken right from spell checking to a full security review.

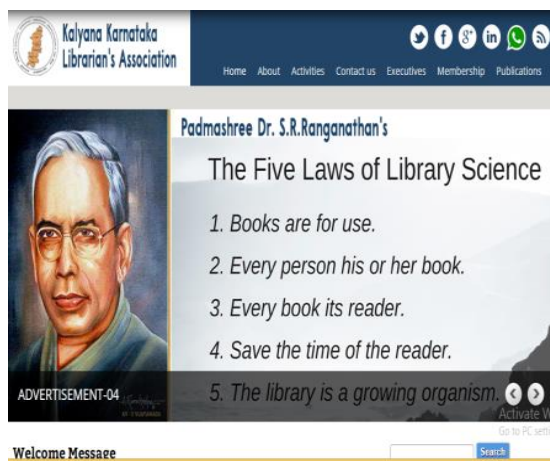


Fig.2. Screen Shot of Desktop View



Fig3. Screen Shot of Mobile View

### 3.6 Hosting:

Web hosting refers to the service that allows a site to be stored on and accessed from the internet. The website hosted on the domain name (The domain name is simply a textual label that corresponds to a numerical IP address) [www.hkla.in](http://www.hkla.in). As we have already purchased the domain name and third party hosting service, we installed the Drupal7 bundled with core modules under the subdirectory [www.hkla.in/kkla](http://www.hkla.in/kkla). Few additional modules are added during the design and development stage to give more power to the website.

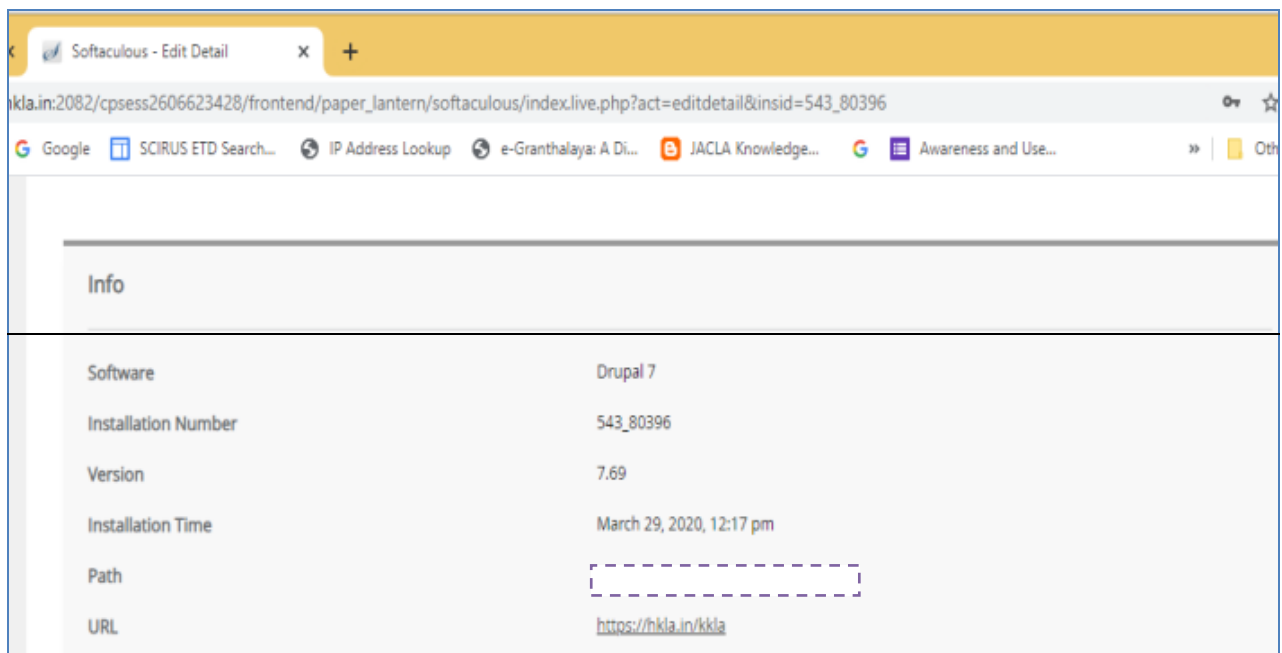


Fig.4. Hosting details of KKLA

### 3.7 Publicity:

To popularize the website this article is written to give the complete picture of the entire process of design, development, and execution of the KKLA website on CMS platform. E-mail ID's of members are used to promote the website. Concise content is written on social media platforms to publicize the website. Metadata added to increase internet traffic.

## 4. MODULES:

Apart from the built-in core modules of Drupal 7, we have also installed the following module to make more effective usability of the website.

**Table.1 List of Drupal7 Modules used in design and development of KKLA website**

Sl. No	Module Name	Description
1	Administration and Development tools	Administration and debugging functionality for developers and site builders.
2	Chaos tools	A library of helpful tools by Merlin of Chaos.
3	Date/Time	Views plugin to display views containing dates as Calendars.
4	Development	Various blocks, pages, and functions for developers.
5	Display suite	Extend the display options for every entity type.
6	Drupal Chat	It allows users to communicate via instant chat messaging.
7	Brilliant Gallery	Highly customizable Drupal module producing multiple table galleries of quality-scaled images from either a pre-

		defined local folder or from any Picasa gallery.☒
8	GTranslate	Uses Google power to translate your web site.
9	Page builder	Extends nodes to have multiple content tiers (a.k.a rows) of tier content (of different types). This is the basic framework that creates the entity type (tier).
10	Printer/PDF/E-Mail	Generates a printer-friendly version of Drupal pages and download PDF/EPUB etc.
11	Metatags/SEO☒	Adds support and an API to implement meta tags.
12	Service Links/Services	Module engine for add various service links about sharing networks to nodes.
13	Spam Control	Base CAPTCHA/imageCAPTCHA challenge module for adding challenges to arbitrary forms.
14	Counter	This module used for displaying a Site Counter, Node Count, Unique Visitor, and Client IP.☒
15	User Interface modules☒	Modules used to edit content with client-side editors such as WYSIWYG HTML editor for use instead of plain text fields and Indic Language Scripts
16	Views	Create customized lists and queries from the database.☒
17	Webform	Enables the creation of forms and questionnaires.

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## 5. CONCLUSION

Design of websites usually refers to the user experience aspects of website development rather than software development. A web designer works on the appearance, layout, and content of a website. This is an attempt to showcase my experience in designing the website of the library association to reveal the activities, services and on-going projects of the association and more importantly the Online Journal as a means to publish the scientific works of the people. Website is a continuous process and as such efforts are on to improve further and care is also required to ensure the content is reliable.

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