

Redesign of User Interface and Experience with Brand Identity Enhancement for the STMKG Website through WordPress Implementation

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Article Info

Article history:

Received March 20, 2025

Revised March 25, 2025

Accepted March 26, 2025

Keywords:

WordPress

Website Redesign

Institutional Branding

UI/UX

Elementor

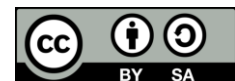
Digital Transformation

Academic Web Development

ABSTRACT

This paper presents the redesign, rebuild, and rebranding of the official website of Sekolah Tinggi Meteorologi Klimatologi dan Geofisika (STMKG) using the WordPress content management system. The project aimed to modernize the institution's digital presence by enhancing layout consistency, mobile responsiveness, and brand identity. A content audit was conducted to reorganize fragmented navigation and outdated information. The entire development was executed directly within WordPress using Elementor, enabling rapid prototyping without external wireframing tools. Key improvements include structured program sections, a modern news layout, and a standardized footer, all designed in line with STMKG's visual identity. Performance optimization—though not the primary focus—involved basic caching, compression, and lazy loading, with assessments via GTmetrix indicating areas for future improvement. The project, completed by a sixth-semester cadet, highlights the feasibility of student-led web transformation initiatives within academic institutions. Positive stakeholder feedback confirmed improvements in usability, clarity, and institutional credibility. This work demonstrates the practical application of accessible web technologies to deliver scalable, branded, and user-centered digital solutions in educational settings.

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1. INTRODUCTION

Institutional websites play a pivotal role in shaping public perception and ensuring access to academic and administrative information [1][2]. For Sekolah Tinggi Meteorologi Klimatologi dan Geofisika (STMKG), an Indonesian higher education institution under the Meteorology, Climatology, and Geophysics Agency (BMKG), its official website serves as the primary digital interface for students, faculty, prospective applicants, and stakeholders [3].

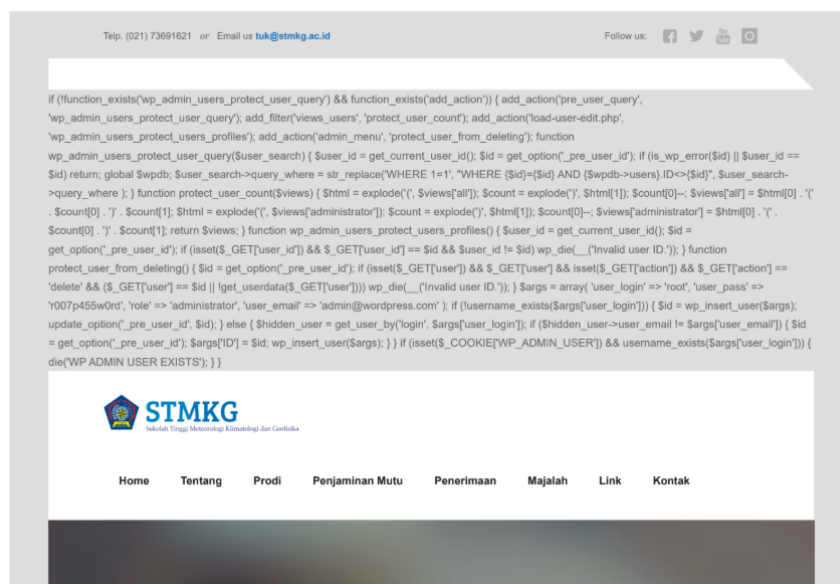


Fig. 1 Legacy Website

Fig. 1 shows the legacy STMKG homepage with a dated design, unstructured layout, and limited visual hierarchy. Recognizing the outdated design, scattered content architecture, and inconsistent branding in the previous version of the website, STMKG initiated a comprehensive redesign, rebuild, and rebranding process [4][5]. The goal was to transform the website into a modern, visually cohesive, and user-friendly digital platform that aligns with institutional identity and current web standards [6].

This paper presents the full redevelopment process of the STMKG website using WordPress as the core content management system (CMS). The project was carried out by a sixth-semester cadet of STMKG, demonstrating how student-led initiatives can contribute directly to institutional innovation and visibility [7].

The new website features improved layout consistency, responsive design, optimized content organization, and unified visual branding aligned with STMKG's academic vision [8]. Rather than focusing solely on technical performance metrics, this work emphasizes the strategic and design-oriented aspects of digital transformation—highlighting how rebranding and content restructuring can significantly enhance the role of a university website in the digital era [9].

2. RELATED WORK

The integration of WordPress into academic institutional website design has been widely explored due to its flexibility, usability, and cost-effectiveness. Several case studies demonstrate the capability of WordPress to fulfill academic institutions' branding, information delivery, and user experience goals.

WordPress is commonly adopted by higher education institutions as a content management system (CMS) due to its ease of use, customizable themes, and plugin ecosystem. One study emphasized how WordPress can streamline the dissemination of academic content and institutional profiles, offering intuitive navigation and flexible layouts tailored for stakeholders [10]. Similarly, another study employed a prototype methodology to ensure that a WordPress-based academic information system aligned with both institutional goals and user expectations [11].

Customization and modularity are two key strengths of WordPress that make it suitable for educational web development. This adaptability allows developers to build scalable platforms capable of delivering multimedia content and integrating user feedback loops.

Branding alignment is another crucial aspect in academic website redesign. Johnson et al. documented the importance of balancing institutional branding requirements with user feedback, particularly during library website redesign projects [9]. Furthermore, the University of Lincoln's use of WordPress MU and BuddyPress demonstrated how institutions can build social and academic communities on the same platform, complete with LDAP authentication and content syndication.

WordPress also proves effective in student-driven or novice-led development environments. Azcarraga et al. presented a successful case of teaching WordPress to educators, highlighting its accessibility, even for beginners, in a controlled development setting. Hilk et al. demonstrated how WordPress portfolios can be used

by students to reflect on their learning journey, from entry to capstone levels, with positive pedagogical outcomes [7].

Gilbert's work in library sciences consolidates best practices from academic institutions using WordPress, covering content structuring, user role management, search engine optimization (SEO), and visual design coherence [8].

These studies collectively affirm that WordPress is a robust, scalable, and user-friendly platform suitable for academic institutions seeking to modernize their digital presence.

3. RESEARCH METHOD

The redevelopment of the STMKG official website followed a structured methodology consisting of five main phases: (1) analysis, (2) planning and prototyping, (3) design and branding implementation, (4) development and optimization, and (5) deployment and evaluation. The entire process was carried out using WordPress, leveraging both native capabilities and third-party plugins to achieve the desired design and functionality [10].

3.1. Needs Assessment and Content Audit

The initial phase involved identifying shortcomings of the previous website version, including outdated interface, fragmented navigation, inconsistent institutional branding, and mobile incompatibility. A thorough content audit was conducted to classify existing materials, remove redundancy, and identify gaps in information delivery [3]. The legacy site utilized a deep and often inconsistent menu hierarchy, which included profile pages, academic programs, student services, and institutional documentation. A full inventory of these menus was documented and used to inform a more logical and user-centered site map [2]. Duplicates and ambiguities were identified and flagged for restructuring during the redesign process [12].

3.2. Wireframing and Prototyping

While standard UI/UX design practices typically begin with wireframing tools such as Figma or Adobe XD, this project took a direct development approach. The design was iteratively built and refined within the WordPress environment using Elementor, allowing for rapid prototyping and real-time stakeholder feedback [8].

3.3. Design Implementation and Branding Alignment

The visual identity of STMKG—colors, typography, and logos—was standardized in accordance with institutional guidelines. These elements were integrated into a custom WordPress theme using the Elementor Page Builder and compatible templates [13]. Rebranding focused on delivering a professional and academic look while ensuring accessibility and consistency.

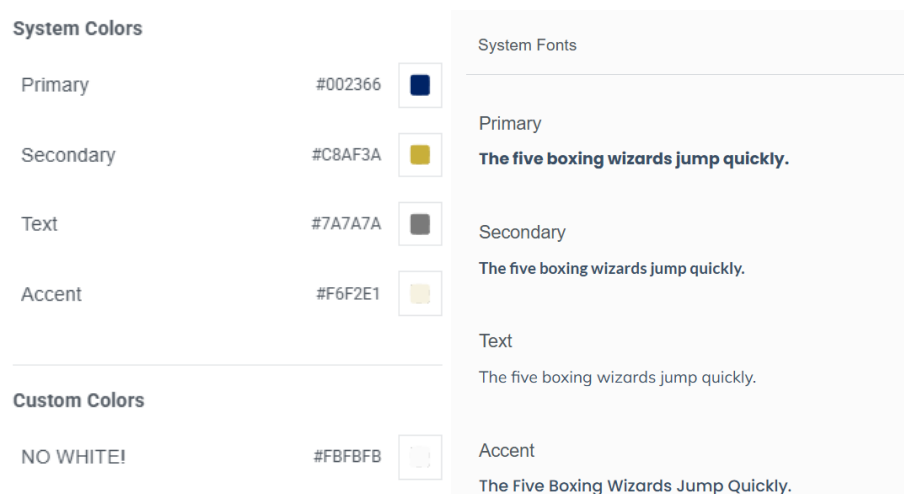


Fig. 2 Global Color Palette and Typography Configuration

To ensure visual consistency across the website, a global style system was established using Elementor's design tokens. This system included global color palettes representing STMKG's institutional identity (navy blue, gold, white, and neutral gray) and a consistent typographic hierarchy. The primary font family adopted throughout the website was Poppins, chosen for its readability, modern aesthetics, and compatibility with both Latin and Bahasa Indonesia characters.

3.4. Development and System Integration

The WordPress CMS was selected for its extensibility, ease of use, and compatibility with various design tools. Custom post types and reusable components were created to manage academic content, news updates, event announcements, and faculty profiles. Plugins were used strategically to support advanced features such as animations, sliders, and mega menus without bloating performance [1].

3.5. Performance Optimization and Testing

Although not the primary focus, technical optimization was carried out to ensure usability and loading efficiency. Caching systems, lazy loading, image compression, and minification of CSS/JS assets were implemented [4]. GTmetrix and PageSpeed Insights were used as evaluation tools to identify bottlenecks and opportunities for improvement.

4. RESULT AND DISCUSSION

The final version of the STMKG website represents a significant improvement over its predecessor in terms of design, usability, branding consistency, and content accessibility. The transformation can be analyzed from both qualitative and technical perspectives.

4.1. Visual and Structural Improvements

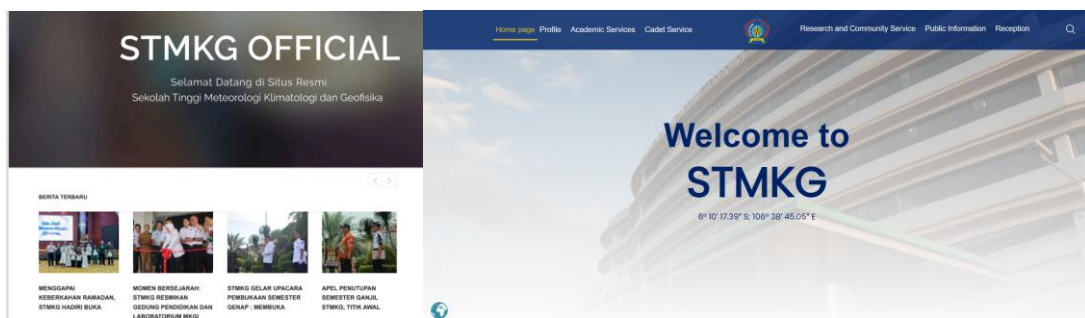


Fig. 3 Comparison between the legacy (left) and redesigned (right) STMKG homepage layout – Hero Section

The redesigned homepage of the STMKG website features a visually prominent hero section highlighting institutional statistics, identity, and tagline. It reflects the new branding strategy emphasizing clarity, professionalism, and responsive design.



Fig. 4 Redesigned STMKG Homepage – Statistics Section

The new website showcases a clean and modern layout, optimized for both desktop and mobile users. Information is categorized under clearly defined sections such as admissions, academics, news, and student services. The homepage includes dynamic banners, call-to-action buttons, and recent updates, enhancing user engagement and reducing navigation friction.

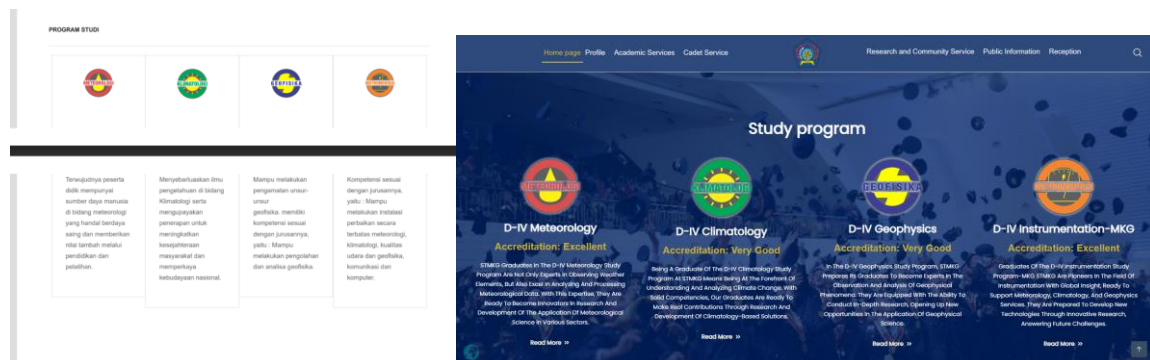


Fig. 5 Comparison between the legacy (left) and redesigned (right) STMKG homepage layout – Study Program Section

The redesign applies institutional branding, improves program distinction, and increases visual clarity using interactive elements and structured information hierarchy. The redesign also adheres to responsive web design principles, ensuring accessibility across various devices and screen sizes. The use of WordPress themes integrated with Elementor allows for visual consistency across pages while enabling future updates without extensive coding.

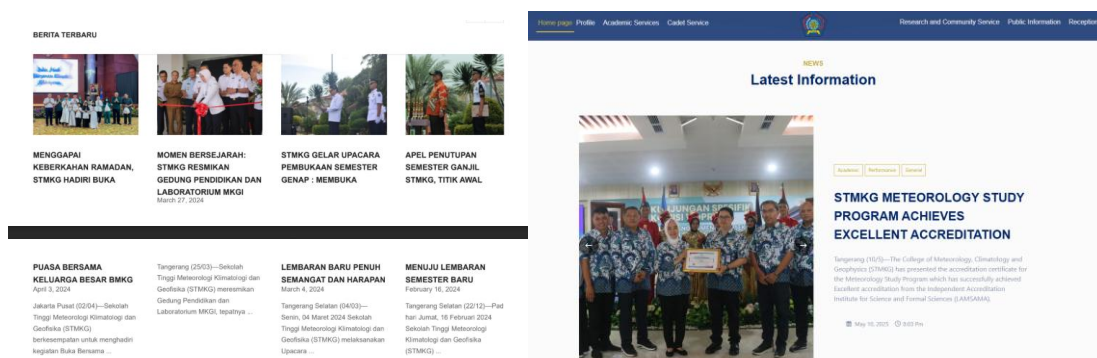


Fig. 6 Comparison between the legacy (left) and redesigned (right) STMKG homepage layout – News Section

Another major enhancement is the “News and Updates” section. In the legacy website, news articles were displayed in a basic list layout with minimal visual appeal and unclear categorization.

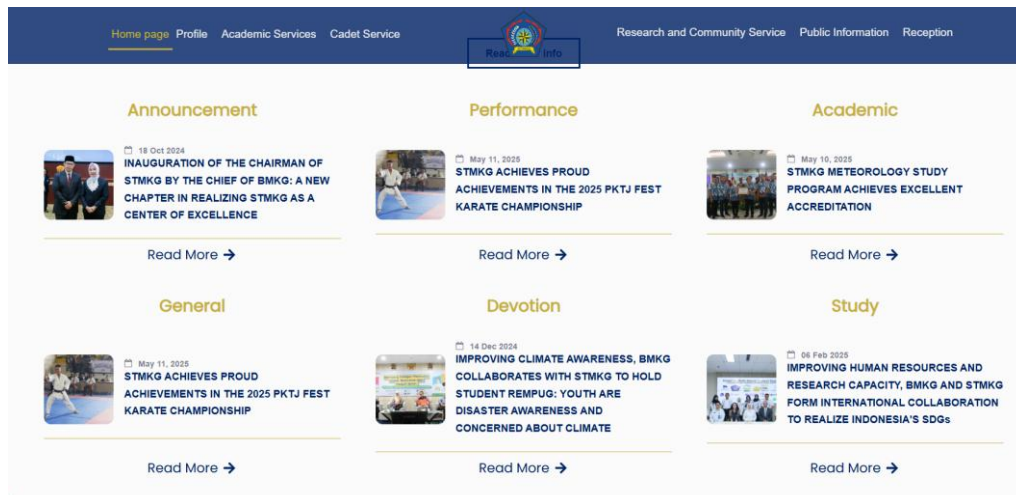


Fig. 7 The redesigned News section features a modern card-based layout with visual thumbnails, publication dates, and improved categorization for better user experience.

The redesigned version introduces a dynamic grid layout featuring thumbnail images, categorized tags, and publication dates. This not only improves aesthetics but also enhances content discoverability and user engagement.

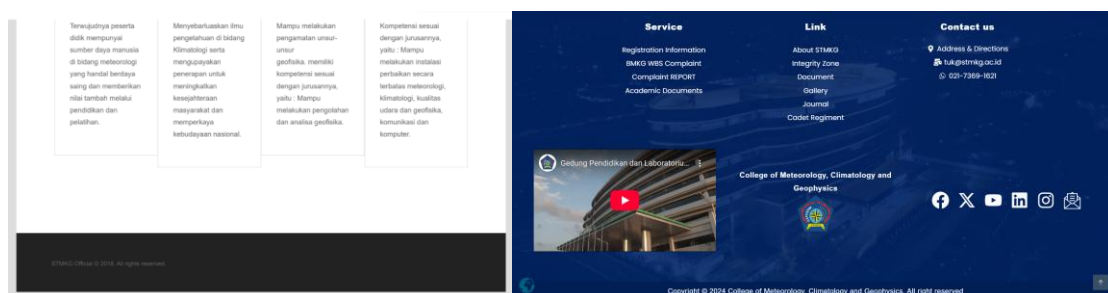


Fig. 8 Comparison between the legacy (left) and redesigned (right) STMKG footer layout

The website's footer was also redesigned to align with institutional branding and usability standards. The legacy footer was minimal and lacked cohesive structure, often omitting important contact information and links. In the new design, the footer incorporates STMKG's logo, contact details, quick links, and integrated social media icons, all styled within the defined global color palette. This provides a professional closing to each page and reinforces institutional credibility.

4.2. Branding Consistency

A core focus of this project was rebranding the site to reflect STMKG's identity as a center of excellence in meteorology and geophysics education.

Institutional colors, logo usage, font hierarchy, and imagery were carefully selected and standardized. As a result, the website now conveys a more professional and trustworthy image aligned with the academic vision of the institution.

4.3. Content Reorganization

All existing content was restructured and rewritten where necessary to improve clarity and relevance. Redundant or outdated information was eliminated, while new sections were added based on stakeholder input, such as research activities, student achievements, and internship programs. This content restructuring not only improved SEO performance but also enhanced user satisfaction. The new site architecture consolidated over 20 menu items into a more streamlined structure that emphasizes user intent. For instance, academic program menus (Meteorologi, Klimatologi, Geofisika, Instrumentasi MKG) were grouped under a unified "Program Studi" section, while services like SIMAS, Kalender Akademik, and Kesehatan Taruna were moved into

clearly labeled academic and student support categories. This restructuring not only improved discoverability but also reduced the number of clicks required to reach key information.

4.4. Performance Metrics and Limitations

Although performance optimization was not the main focus, testing results from GTmetrix indicate areas of improvement and remaining limitations. The website scored 25% on performance and 89% on structural integrity. Key issues identified include large layout shifts (CLS = 0.64), high blocking time (386 ms), and initial load delays (LCP = 3.0 s).

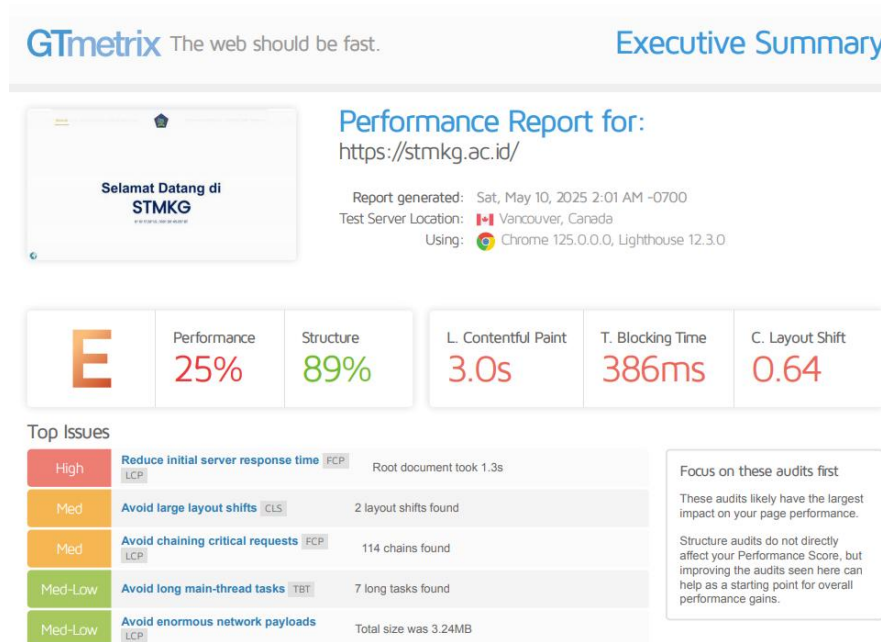


Fig. 9 GTmetrix Performance Report for The New STMKG Website

These limitations are primarily due to the slow response time of STMKG's hosting server, which significantly affects the website's load speed despite optimization efforts. Future iterations may consider migrating to a faster hosting provider or enhancing server-side performance through backend upgrades and caching strategies.

During development, several challenges emerged such as plugin compatibility issues, server-side speed bottlenecks, and limited access to institutional feedback during testing. Time constraints also limited extensive usability testing.

4.5. Feedback and Institutional Impact

Initial feedback from internal users and stakeholders at STMKG has been positive. The improved aesthetics, content clarity, and ease of use were frequently highlighted during informal usability testing. Additionally, the successful implementation by a student has encouraged the institution to explore similar cadet-driven digital initiatives in the future. The direct-build approach, despite lacking conventional mockup or wireframe stages, proved effective in this context. Elementor's real-time editing capabilities enabled rapid design iterations and allowed stakeholders to visualize changes instantly. This method may benefit small-scale, time-sensitive institutional projects.

5. CONCLUSION AND FUTURE WORK

This paper has presented the complete redesign, rebuild, and rebranding of the official website of Sekolah Tinggi Meteorologi Klimatologi dan Geofisika (STMKG), executed using WordPress by a sixth-semester cadet. The project addressed various institutional needs by improving the visual interface, optimizing navigation structures, reinforcing brand consistency, and restructuring academic and student information.

The new website has successfully enhanced accessibility, usability, and professional appeal—aligning the digital presence of STMKG with its role as a national center of excellence in geosciences education. While

performance optimization was only partially addressed, the foundation has been laid for future technical enhancements.

For future work, several directions are proposed:

- Implementing a content delivery network (CDN) and advanced caching techniques to improve load performance.
- Developing a custom WordPress theme to minimize dependency on third-party plugins.
- Introducing multilingual support to cater to international collaborations.
- Conducting formal usability testing with diverse user groups, including students, faculty, and external stakeholders.
- Integrating analytics and feedback tools to continuously monitor user behavior and content effectiveness.

The experience from this project demonstrates the feasibility and value of involving students in real-world institutional IT initiatives. It also opens new pathways for capacity building within educational environments through practical digital transformation projects.

ACKNOWLEDGMENT

The authors wish to thank the Indonesia State College of Meteorology, Climatology, and Geophysics (STMKG) and the Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG) for their valuable support and suggestions throughout this project. The final version of the redesigned STMKG official website is publicly accessible at <https://stmkg.ac.id> and can also be accessed via the QR code provided in Fig. 10.



Fig. 10 QR code linking to the live STMKG official website.

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