

A Structured Approach to Organizational Website Development and Usability Measurement Using the Modified System Usability Scale

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Abstract—The increasing demand for accessible and up-to-date digital identity has encouraged organizations to adopt websites as a primary information platform. However, limited technical resources often hinder effective content management. This study proposes a structured approach to developing an organizational website using the Waterfall model and evaluates its usability through the System Usability Scale (SUS). The development process consists of five stages: communication, planning, modelling, construction, and deployment. Requirements were collected through semi-structured interviews with organizational stakeholders, resulting in the decision to implement a web-based system using a Content Management System (CMS) to ensure ease of maintenance. After deployment, usability testing was conducted using Modified SUS with a Likert scale of 1–5, involving five respondents instead. The evaluation produced an average score of 4.6, indicating that the system is highly acceptable and easy to use, although suggestions were made to improve dashboard terminology and add a search feature. The results demonstrate that a structured web development approach combined with CMS integration can effectively empower non-technical users in managing digital content. Future development may include interface personalization and multi-admin features to further enhance usability.

Keywords—Website Development, Content Management System, Usability Testing



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I. INTRODUCTION

In 2025, the number of internet users worldwide reached 5.56 trillion individuals [1]. The massive scale of internet usage has transformed the digital ecosystem into one of the most influential domains in modern human interaction. As daily activities increasingly shift toward online platforms, digital infrastructure has become a critical asset that must be

strategically managed by organizations across various sectors in order to establish, communicate, and maintain their public identity. In both private and public sectors, the digital presence of an organization is now regarded as an extension of its institutional reputation.

Among the various forms of digital infrastructure, the website remains one of the most essential and enduring [2]. Unlike social media platforms, which often rely on third-party algorithms and are susceptible to visibility instability, websites allow organizations to maintain full control over their content, structure, and long-term accessibility. Beyond serving as a universal source of information, websites enable the presentation of diverse content types—text, images, multimedia, and interactive elements—within a single, centralized platform, making their optimal utilization highly significant in supporting digital branding and communication strategies [3].

The credibility of an organization's website has been shown to strongly influence the perception of its customers or service users [4]. A well-structured and regularly maintained website conveys professionalism, transparency, and reliability. This is especially relevant in educational institutions, where institutional credibility is a major consideration for prospective students, partners, and stakeholders [5]. Maintaining public trust requires institutions to consistently provide accurate, relevant, and up-to-date information across all points of access.

However, managing a website effectively poses notable challenges. Many organizations—particularly those with limited staffing or technological resources—struggle to maintain their digital infrastructure due to constraints in technical expertise and operational capacity. Even when a website has been successfully deployed, ensuring long-term sustainability and ease of maintenance often becomes a bottleneck [6].

To address these challenges, the adoption of a Content Management System (CMS) presents a practical and scalable solution. A CMS allows administrators to manage digital content without requiring in-depth programming skills, thereby

simplifying the structuring of layouts, uploading of content, and modification of interactive components [7]. With the right configuration, CMS-based websites can offer both flexibility for administrators and usability for end-users, making them suitable for organizations seeking efficient digital governance without technical dependency.

Based on this background, this study aims to implement a CMS-based system within an organizational website. The implementation is expected to streamline website content management and ensure that the displayed information remains continuously updated and accessible. Furthermore, usability evaluation is conducted to determine whether the developed system aligns with user expectations, particularly from the perspective of non-technical administrators.

II. LITERATURE REVIEW

A. Organizational Identity within Digital Infrastructure

Digital infrastructure has become a fundamental backbone across various sectors to support faster, more efficient, and sustainable operations [8]. At the local level, for instance, village administrations have begun adopting electronic data storage systems to simplify data recapitulation and maintain archival resilience [9]. In the tourism sector, destination identities are increasingly being represented through digital infrastructure, although challenges remain in preserving cultural authenticity while maintaining engagement with a global audience [10].

Businesses are likewise dependent on digital infrastructure as a primary medium for communicating their identity and branding [11]. With adequate infrastructure support, corporate identity can be consistently projected across multiple digital platforms, thereby reinforcing reputation, increasing public trust, and ensuring competitiveness in the modern era.

to utilizing pre-built platforms. Each method carries its own advantages and limitations; for example, manual development offers full flexibility but requires more time, whereas ready-to-use platforms allow for faster and more accessible implementation [14].

A previous study [15] employed a combination of HTML, CSS, and JavaScript to develop a web-based employee attendance system, resulting in a solution that was tailored specifically to organizational needs. Conversely, other studies have shown that the use of Content Management Systems (CMS) is more effective when applied to website development for micro, small, and medium enterprises (MSMEs), particularly when used as promotional media, as it simplifies the content management process [6]. Supporting this finding, another research project utilized CMS as the core platform for developing an application prototype, which significantly accelerated the implementation stage [16].

Furthermore, one study [17] emphasized that CMS enables comprehensive optimization of content management, making it highly recommended for adoption. Another study [18] added that CMS is user-friendly and comfortable to operate, making it suitable not only for developers but also for general users who wish to manage their digital identity through a website. Therefore, CMS can be considered a relevant and effective digital infrastructure for supporting website management across various sectors.

III. RESEARCH METHOD

The objective of this study is to design and develop a website for an organization. To ensure that the developed system accommodates the organization's needs, the Software Development Life Cycle (SDLC) method is employed. Specifically, the Waterfall model is adopted in this research [19], as illustrated in Figure 1.



Figure 1. Waterfall Model [19]

One of the most widely utilized forms of digital infrastructure is the website. A previous study [12] demonstrated that websites can serve as an effective medium for identity representation in telecommunications companies. Similarly, another study [13] reported that website features play a crucial role in shaping identity branding within educational institutions, as their presence has been shown to positively influence user participation and brand reputation.

B. Content Management Systems in Website Development

Websites can be developed through various approaches, ranging from manually coding using programming languages

A. Communication

The communication phase consists of two main processes. The first is the project initiation process, which involves outlining the preliminary understanding of the system requirements. At this stage, the objectives, scope, and expected benefits of the system are identified to ensure that the development process proceeds in a structured and directed manner.

The second process is requirements gathering. Since the website is being developed for organizational purposes, the

collection of requirements was conducted by involving the responsible stakeholders within the organization. Discussions and interviews were carried out to determine the types of information that should be presented on the website, ensuring that the implemented features and content are fully aligned with organizational needs and effectively support the delivery of its digital identity.

B. Planning

The planning phase consists of three main processes: estimating, scheduling, and tracking. Estimating is conducted to determine the required resources, while scheduling involves arranging project activities in a structured timeline. Tracking is then used to monitor the project's progress to ensure that it remains aligned with the established plan.

This phase produces a development timetable that serves as a reference for execution, detailing the schedule of each stage to guide the overall implementation process. In addition to the activity schedule, a project supervisor from the organization is also appointed to oversee and ensure proper coordination throughout the development process.

C. Modelling

The modelling phase consists of two main processes: analysis and design. In the analysis process, the requirements gathered during the communication phase are evaluated to determine more detailed system specifications. The results of this analysis are then used in the design process, during which the system architecture is formulated in terms of both workflow and interface layout. This design serves as a reference for the subsequent implementation stage.

D. Construction

The construction phase consists of two processes: coding and testing. During the coding process, the application is implemented based on the design produced in the modelling phase, allowing the system to take shape according to the predefined requirements. Subsequently, in the testing process, the implemented code is evaluated to ensure that the system functions properly and aligns with the specified criteria.

E. Deployment

The deployment phase serves as the final stage and consists of three processes: delivery, support, and feedback. During the delivery process, the fully developed website was implemented within the organization's system to ensure it could function as intended. In the support stage, adjustments were made to configurations and any issues encountered during implementation were addressed to optimize system performance. Once the system was properly installed, the feedback process was conducted by requesting input from the organization as the system owner for evaluation purposes. In this study, the system was assessed using the System Usability Scale (SUS) method, which is discussed in the following section.

F. System Usability Scale

The usability evaluation of the system was conducted using the Modified System Usability Scale (SUS) method, which consists of 10 statements. Each statement was rated using a five-point Likert scale, where 1 indicates strong disagreement (very dissatisfied) and 5 indicates strong agreement (very satisfied). For current research, likert were utilized instead of usual SUS 0-100 scale to gave the respondent ease of access. A total of five respondents from the organization participated in completing the SUS questionnaire. The list of SUS statements is presented in the table 1 below.

TABLE 1 System Usability Scale Question

No	SUS Question
1	I think that I would like to use this system frequently.
2	I find the system unnecessarily complex.
3	I think the system is easy to use.
4	I think that I would need the support of a technical person to be able to use this system.
5	I find the various functions in this system are well integrated.
6	I think there is too much inconsistency in this system.
7	I imagine that most people would learn to use this system very quickly.
8	I find the system very cumbersome to use.
9	I feel very confident using the system.
10	I needed to learn a lot of things before I could get going with this system.

IV. RESULT AND DISCUSSION

A. Communication

The communication process was conducted by interviewing representatives of the organization as the system owners. The interviews were held in two sessions using a semi-structured interview method to explore the required content and features deemed essential for the website. Based on the interview results, several key requirements were identified, including:

1. The website must be able to present the organizational profile in a concise and informative manner.
2. A news or activity documentation page is required, which can be easily updated without technical expertise.
3. The organization prefers a simple menu structure to ensure users do not experience confusion while navigating the website.
4. A gallery feature is needed to display documentation of activities.
5. The administrator has no IT background; therefore, the system must be manageable without complex technical procedures.

The list of requirements was reconfirmed with the interviewees to ensure no critical information was overlooked. All requirements were approved and subsequently used as the foundation for the next development phase.

B. Planning

Based on the requirements that had been gathered, resource estimation and implementation scheduling were conducted. The development duration was estimated to be four weeks, with the following breakdown:

TABLE 2 Planning

Phase	Activity Description
Communication	Conducting interviews and compiling the list of requirements
Modelling	Designing the navigation structure and layout interface
Construction	Performing coding and developing the initial content
Deployment	System installation, admin training, and initial evaluation

At this stage, a representative from the organization was also appointed as the main point of contact throughout the development process.

C. Modelling

The requirements analysis process resulted in the following system specifications:

1. The main menu structure consists of: Home, History of Organization, Homepage for every division, News
2. The backend system uses a WordPress-based CMS, as it is considered the most suitable for non-technical users.
3. The visual template was selected based on responsiveness and simplicity of navigation.

The results of the analysis were then translated into a simple wireframe to illustrate the navigation flow and content layout. This wireframe was approved by the organization before proceeding to the implementation stage.

D. Construction

At this stage, the development process was carried out based on the approved design. All primary pages were successfully created along with the required features. The example result of the construction phase is presented in the figure 2 below.

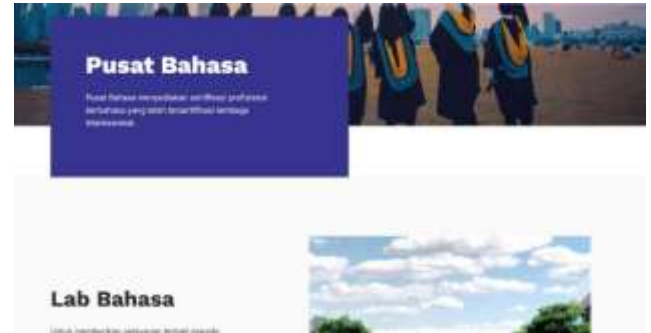


Figure 2. Example of the Finished Page

E. Deployment

At this stage, the completed system was deployed to the organization's domain and configured to be publicly accessible. In addition, a brief training session was conducted for the administrator to introduce the main features and demonstrate how to update content such as news and gallery items.

The users reported that the content management workflow was generally easy to understand; however, further adjustments were suggested regarding the consistency of terminology used in the dashboard to better align with non-technical users' familiarity.

F. System Usability Scale

The system was evaluated using the System Usability Scale (SUS) method to measure the level of usability from the users' perspective. In this study, the SUS instrument was simplified by applying a five-point Likert scale for each statement.

A total of 10 standard SUS statements were distributed to five respondents from the organization who had used the system for one week. The questionnaire results were calculated by averaging all responses without converting the scores into the original 0–100 SUS format. The results can be seen in figure 3 below

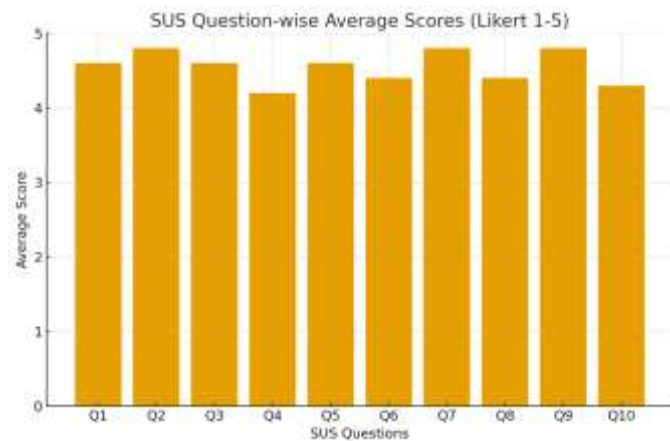


Figure 3. Result of SUS

The results of the SUS evaluation reflect a strong level of usability, as shown by consistently high scores across most statements. Users indicated a strong willingness to continue using the system, with Question 1 (“I would like to use this system frequently”) receiving an average score of 4.6, suggesting long-term adoption potential. The system was not perceived as difficult or confusing, as reflected by the 4.8 score for Question 2 (reverse item on complexity) and 4.6 for Question 3 (“The system is easy to use”). Confidence in usability was further supported by the 4.8 score for Question 7 (“I imagine most people would learn to use this system very quickly”) and 4.8 for Question 9 (“I feel very confident using the system”).

However, a slightly lower score of 4.2 in Question 4 (reverse item on needing technical support) and 4.3 in Question 10 (reverse item on needing to learn many things beforehand) indicate that some users still felt the need for minor guidance during initial interaction. System consistency also received a moderate 4.4 in Question 6 (reverse item on inconsistency), aligning with user feedback regarding terminology discrepancies on the dashboard. Despite these minor issues, Question 5 (“Various functions are well integrated”) scored 4.6, and Question 8 (reverse item on cumbersome use) received 4.4, confirming that the overall workflow remains smooth and manageable.

The evaluation yielded an overall average score of 4.6 out of 5, indicating that the majority of users found the system easy to use, although it has not yet reached a state of perfection. Several points of feedback were recorded, including:

1. Some terminology on the dashboard was still displayed in English, suggesting that full localization into Bahasa Indonesia would improve consistency.
2. A search feature had not yet been implemented on the news page, which was perceived to reduce efficiency when retrieving specific information.

Nevertheless, all respondents stated that they were willing to continue using the system, indicating that it had achieved an acceptable level of usability.

V. CONCLUSION

This study successfully carried out the design and implementation of an organizational website using a Content Management System (CMS) approach. Through the communication phase, the primary requirements were clearly identified, particularly the need for a content management system that is simple, easily updatable, and operable without technical expertise.

The system development followed the Waterfall model, beginning with planning, modelling, and followed by implementation and deployment. The system was successfully operated by the organization’s administrator after a brief training session.

The usability assessment using the System Usability Scale (SUS) with a five-point Likert scale yielded an average score of 4.6, indicating that the system achieved a good level of usability and was considered acceptable for use. However, further improvements were recommended, such as refining dashboard terminology and adding a search feature.

Despite achieving its objectives, this study has several limitations that should be acknowledged. First, the evaluation of the system was conducted using a relatively small number of respondents, limited only to internal members of the organization. As a result, the findings may not fully represent the usability perception of a broader or more diverse user group. Additionally, the assessment focused solely on usability aspects through the System Usability Scale (SUS), without examining other important factors such as performance, accessibility, or long-term content scalability. Furthermore, the implementation was constrained to a single type of organization, which limits the generalizability of the results to different institutional contexts. These limitations highlight the need for further studies involving larger respondent groups, cross-organizational testing, and multi-dimensional evaluation frameworks.

In conclusion, the use of CMS proved to be an effective solution for providing digital infrastructure to organizations that require independent content management without advanced technical skills. Future development may incorporate interface personalization, multi-admin support, and integration with internal communication systems.

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