JURTEKSI (Jurnal Teknologi dan Sistem Informasi) ISSN 2407-1811 (Print)
Vol. X No 4, September 2024, hlm. 629 – 636 ISSN 2550-0201 (Online)
DOI: http://dx.doi.org/10.33330/jurteksi.v10i4.3192
Available online at http://jurnal.stmikroyal.ac.id/index.php/jurteksi

ASSESSING EFFECTIVENESS JEMBER REGENCY EDUCATION DEPARTMENT WEBSITE USING COBIT FRAMEWORK

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Abstract: In the digital era of transformation, educational websites serve as vital platforms for transparently disseminating information to stakeholders. This study evaluates the effectiveness of the Jember Regency Education Department website using the COBIT 5 framework. This study aims to enhance the effectiveness and usability of the Department of Education website in Jember Regency by aligning it with stakeholders' evolving needs through comprehensive evaluation and targeted recommendations. Employing a qualitative descriptive approach, the research identifies challenges such as mobile optimization issues, slow loading times, security vulnerabilities, and content relevance concerns. Despite commendable accessibility, these challenges significantly impact user experience and website credibility. The findings underscore the urgent need for website optimization, improved security measures, and continuous content updates. This research provides actionable recommendations to align the website with IT governance standards, offering a roadmap for enhancement. Furthermore, the MEA Capability Results highlight discrepancies between the current scores and expected standards, indicating the necessity for comprehensive alignment with COBIT 5 guidelines to optimize website functionality and better meet user expectations.

Keywords: COBIT 5 framework; Jember Regency Department of Education; website effectiveness

Abstrak: Pada era transformasi digital, situs web pendidikan menjadi platform penting untuk menyebarkan informasi secara transparan kepada para pemangku kepentingan. Studi ini mengevaluasi efektivitas situs web Dinas Pendidikan Kabupaten Jember menggunakan kerangka kerja COBIT 5. Studi ini bertujuan untuk meningkatkan efektivitas dan kegunaan situs web Dinas Pendidikan di Kabupaten Jember dengan menyelaraskannya dengan kebutuhan yang berkembang dari para pemangku kepentingan melalui evaluasi komprehensif dan rekomendasi yang ditargetkan. Dengan pendekatan deskriptif kualitatif, penelitian ini mengidentifikasi tantangan seperti masalah optimasi seluler, waktu muat yang lambat, kerentanan keamanan, dan kekhawatiran tentang relevansi konten. Meskipun aksesibilitasnya baik, tantangan-tantangan ini secara signifikan memengaruhi pengalaman pengguna dan kredibilitas situs web. Temuan ini menegaskan perlunya pengoptimalan situs web, peningkatan langkah-langkah keamanan, dan pembaruan konten yang berkelanjutan. Penelitian ini memberikan rekomendasi yang dapat dilaksanakan untuk menyelaraskan situs web dengan standar tata kelola TI, menawarkan panduan untuk peningkatan. Selain itu, hasil Kemampuan MEA menyoroti perbedaan antara skor saat ini dan standar yang diharapkan, menandakan kebutuhan akan penyesuaian yang komprehensif dengan pedoman COBIT 5 untuk mengoptimalkan fungsionalitas situs web dan memenuhi harapan pengguna dengan lebih baik.

Kata kunci: Dinas Pendidikan Kabupaten Jember; efektivitas website; kerangka kerja COBIT 5

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INTRODUCTION

In the midst of rapid globalization and digitalization, technology has emerged as a critical determinant reshaping the paradigms of daily life, work mechanisms, and social interactions. In the local context of Jember Regency, technology has been implemented as a crucial component in various governmental initiatives, particularly within the realm of education services. In line with the government's commitment to enhance transparency, accountability, and rapid information dissemination, every governmental institution is expected to develop information systems capable of providing accurate, timely, and precise information to the public [1], [2]. The Department of Education in Jember Regency launched an official website as a reliable source for educational informationand interactive engagement among stakeholders, demonstrating its commitment to transparent and responsive educational governance in the digital era.

Two primary issues were identified that hinder the effect iveness of the official website of the Department of Education in Jember Regency, based on the initial findings of the research survey. Firstly, accessibility constraints emer ged as a significant obstacle faced by the community, particularly in rural areas or regions with limited internet connectivity. Secondly, the slow response time and loading speed of the website also pose a serious problem affecting user experience. The potential decline in the website's effectiveness as a communication platform underscores the urgent need for action. Improving accessibility and optimizing response time are critical priorities to enhance its utilization by the community [3], [4].

The results of previous research depict various findings related to the effectiveness of system and website usage. [5] highlights the ease of use of Point of Sale (POS) information systems, which can be efficiently utilized by inventory and transaction managers [5]. Meanwhile, [6] demonstrates that COBIT 5 is effective in evaluating the overall performance of a website [6]. However, [7] focuses on discrepancies in certain parts of the e-Court system, indicating shortcomings in its effectiveness [7]. Furthermore, [8] discovers the suitability of aggregator clusters in implementing Sandbox Regulation based on five stages, showcasing the potential of COBIT 5 in IT management [8]. Nevertheless, [9] reveal low user satisfaction levels with the PLN Mobile application, indicating usability shortcomings [9]. Previous studies also emphasize usability aspects, as revealed by [10] investigation into the Time Excelindo website. Although the website has acceptable usability, recommendations for improvement are still necessary to enhance its quality [10]. Similarly, [11] demonstrates good effectiveness and user satisfaction with the e-Rapor application in facilitating the management of final learning outcome reports for students [11]. However, previous research testing results, as conveyed by [12], [13], [14], [15], [16], indicate pervasive deficiencies in the effectiveness of system usage, highlighting the importance of efforts to improve the overall user experience [12], [13], [14], [15], [16].

COBIT 5, developed by ISACA, offers a systematic approach to achieve organizational objectives through effective IT governance [17]. IT provides structured guidance in identifying and prioritizing issues related to website accessibility and performance [18]. Aiding in formulating strategies for enhancement

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[19]. COBIT 5 is crucial for assessing IT governance and infrastructure maturity [20], [21]. Aligning performance with management expectations, and facilitating per formance evaluation [22], [23]. It's utilized for auditing information security go vernance, offering a comprehensive approach to IT infrastructure and governance management [20], [24]. Additionally, COBIT 5's continuous improve ment and performance measurement com ponents assist in establishing KPIs and metrics for progress monitoring, enabling a structured approach to IT governance and enhancing stakeholder satisfaction [25].

The central research questions revolve around evaluating the Department of Education website in Jember Regency using the COBIT 5 framework and proposing actionable recommendations bas ed on the assessment findings. This research aims to provide precise answers and detailed suggestions for improvement, ensuring the website meets stakeholders' evolving needs. The purpose of this study is to enhance the effectiveness and usability of the website by aligning it with the requirements of its stakeholders through comprehensive evaluation and targeted recommendations.

METHOD

The research methodology is a qualitative descriptive approach, selected to deepen the understanding of the Jember Regency Department of Education website's effectiveness within the COBIT 5 framework. Data collection involves literature studies, document analysis, and in-depth interviews with stakeholders. Literature studies gather information related to IT governance, COBIT 5, and website management best practices. Document analysis evaluates the website's structure, content, responsiveness, and security. In-depth interviews include two website managers and five users, aiming to gather direct perspectives on challenges and expectations. Thematic analysis will be conducted to identify key findings and recommendations for improvement. The COBIT 5 MEA domain will be used to measure effectiveness, monitoring performance and compliance with standards. Strict measures will be taken to safeguard interview data and respondents' privacy, ensuring ethical research conduct.

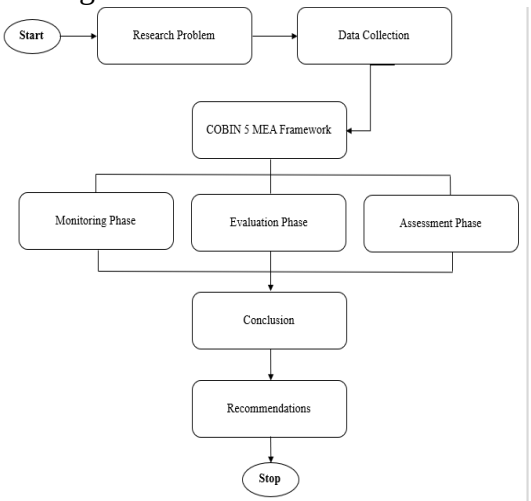

Image 1. Research Design

RESULT AND DISCUSSION

The assessment of the Jember Regency Education Office website's effectiveness through the COBIT 5 MEA framework focuses on Monitoring, Evaluation, and Assessment. In the Monitoring phase, indicators such as Accessibility, Responsiveness, Security, and Content are examined. Accessibility is ensured through compatibility tests using BrowserStack, Responsiveness via load time analysis using Google PageSpeed Insights, Security through vulnerability

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scanning using OWASP ZAP, and Content quality based on relevance and timeliness. In Evaluation, metrics like Meeting User Needs, Compliance with COBIT 5 Standards, and Effectiveness of Management Strategies are assessed, utilizing user satisfaction surveys, compliance audits, and analysis of management procedures. Lastly, in Assessment, Privacy Policies, Data Security, and Legal Aspects are reviewed, OneTrust and Nessus utilized for audits and vulnerability scanning.

From the COBIT 5 MEA Framework assessment, the Education Department website in Jember Regency shows strengths and areas for improvement in Monitoring, Evaluation, and Assessment. Accessibility is commendable, but mobile optimization and responsiveness need enhancement. Security vulnerabilities require immediate action, and outdated content needs updating. User satisfaction in Evaluation is moderately satisfactory, prompting improvements. Inconsistencies in COBIT 5 standards compliance need realignment, and current management strategies require enhancement. In the Assessment phase, partial compliance with privacy policies and inadequate data protection measures pose security risks. Partial adherence to legal aspects suggests the need for comprehensive review. Detailed assessment results are presented in Table 1.

Table 1. Assessment Results Based on COBIT 5 MEA Framework

MEA Framework	Indicator	Specific Testing Conducted	Result
Monitoring Phase	Accessibility	Cross-browser and cross-device compatibility	Generally accessible, issues with mobile display
	Responsiveness	Load time analysis	Desktop: 2.5 seconds, Mobile: 5 seconds
	Security	Vulnerability scanning and security audit	Many vulnerabilities detected
	Content	Content quality and relevance analysis	Outdated content affecting user experience
Evaluation Phase	User Requirement Fulfillment	User satisfaction survey	Moderately effective in meeting user needs
	Compliance with COBIT 5 Standards	Evaluation of compliance with COBIT 5 standards	Inconsistent compliance with COBIT 5 standards
	Management Strategy Effectiveness	Current strategy effectiveness analysis	Current strategy effectiveness is moderate
Assessment Phase	Privacy Policy Compliance	Compliance check of privacy policy	Partial compliance with privacy policy
	Data Security	Data protection and encryption assessment	Inadequate security protocols
	Legal Aspects Relevant to Website Operations	Legal compliance review	Partial compliance with legal requirements

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Table 2. COBIT 5 Capability Model Result

MEA Framework	Indicator	Capability Model Result	Description
Monitoring Phase	Accessibility	2 - Managed Process	The process is actively managed and monitored for continuous improvement.
	Responsiveness	1 - Performed Process	The process is in place but needs refinement to address inconsistencies and vulnerabilities.
	Security	1 - Performed Process	The process is in place but needs refinement to address inconsistencies and vulnerabilities.
	Content	2 - Managed Process	The process is actively managed and monitored for continuous improvement.
Evaluation Phase	User Requirement Fulfillment	3 - Established Process	The process is formalized, consistently applied, and integral to organizational operations.
	Compliance with COBIT 5 Standards	1 - Performed Process	The process is in place but needs refinement to address inconsistencies and vulnerabilities.
	Management Strategy Effectiveness	2 - Managed Process	The process is actively managed and monitored for continuous improvement.
Assessment Phase	Privacy Policy Compliance	1 - Performed Process	The process is in place but needs refinement to address inconsistencies and vulnerabilities.
	Data Security	2 - Managed Process	The process is actively managed and monitored for continuous improvement.
	Legal Aspects Relevant to Website Operations	1 - Performed Process	The process is in place but needs refinement to address inconsistencies and vulnerabilities.

The acquired data is transformed into a capability model following COBIT 5 guidelines, categorizing numerical data into specific capability levels: Level 4 (Predictable Process) for scores between 3.50 to 4.00, Level 3 (Established Process) for scores between 2.50 to 3.50, Level 2 (Managed Process) for scores between 1.50 to 2.50, and Level 1 (Performed Process) for scores between 0.50 to 1.50. The assessment of the Jember Regency Education Office website using the COBIT 5 Capability Model reveals varying maturity levels across different domains, suggesting areas for improvement. Cumulative test results are averaged and compared to identify areas needing attention. The MEA Capability Results indicate discrepancies across Monitoring, Evaluation, and Assessment phases, with scores of 1.5 for Monitoring, 2 for Evaluation, and 1.5 for Assessment, highlighting areas for enhancement. These findings emphasize the need for better

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alignment with COBIT 5 guidelines to optimize website functionality. Detailed results can be found in Image 2.

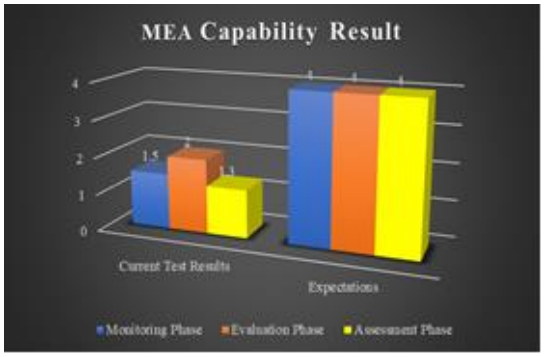

Image 2. Overall MEA Capability Result

The research findings indicate that evaluating the effectiveness using the COBIT 5 MEA framework provides a comprehensive understanding of the website's strengths and weaknesses. The assessment identifies several areas for improvement, including enhancing accessibility and responsiveness, addressing security vulnerabilities, and updating outdated content [3], [4]. The significant results of this deficiency discovery are also expected to address the existing gaps [12], [13], [14], [15], [16]. Furthermore, the study confirms the significant role of the COBIT 5 framework in measuring and improving the management of information systems, including educational government websites [17], [18], [19]. This research highlights implementing of COBIT 5 is crucial for shaping effective strategies in educational governance.

CONCLUSION

The evaluation of the Jember Regency Department of Education website using the COBIT 5 MEA framework indicates significant challenges, with scores for the Monitoring, Evaluation, and Assessment phases falling below expectations. Scores of 1.5 for Monitoring, 2 for Evaluation, and 1.5 for Assessment highlight areas needing improvement, such as mobile optimization, slow loading times, security vulnerabilities, and content quality. Recommendations include prioritizing mobile optimization, addressing security concerns, and ensuring consistent content updates to maintain alignment with COBIT 5 standards.

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