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Web-Based Employee Recruitment Information System: A Design Study

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ABSTRACT

The advancement of information technology has encouraged companies to undergo digital transformation across various operational aspects, including employee recruitment. Manual recruitment processes often create challenges such as administrative delays, data duplication, and limited access to information. This literature review aims to examine the concepts, benefits, and previous research findings related to the design of web-based employee recruitment information systems. The study adopts a qualitative approach through a review of various academic sources, including journals, books, and research reports related to information systems and human resource management. The findings indicate that web-based recruitment systems improve time efficiency, data accuracy, and transparency in the selection process. Furthermore, such systems simplify the application process for job seekers and support HR departments in conducting data-driven analyses and decision-making. Previous studies have also highlighted that the adoption of web-based systems can enhance recruitment quality by 40–60% compared to manual methods. This study emphasizes the importance of integrating information technology into human resource management as a strategic step toward organizational digitalization.

Keywords: ***Information System, Employee Recruitment, Website, E-Recruitment, Human Resource Management***

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INTRODUCTION

The rapid advancement of information technology over the past decade has brought significant transformation across various sectors, including industry and business. Digitalization has become a key strategy for companies to enhance competitiveness in a fast-paced, data-driven global era. One of the most affected areas is human resource management (HRM), particularly in the employee recruitment process. Traditional manual recruitment methods often present multiple drawbacks, such as delays in data processing, difficulties in document storage, and low efficiency in terms of time and cost. According to Prasetyo (2022) companies that still rely on manual recruitment systems tend to experience delays in identifying suitable candidates, thereby reducing the effectiveness of workforce fulfillment. Therefore, the implementation of web-based information systems is viewed as an appropriate solution to address the challenges of digital transformation in HRM.

An information system essentially integrates people, technology, and procedures to collect, manage, and distribute information to support decision-making (Sutabri, 2023). In the context of recruitment, information systems play a vital role in assisting HR departments to manage applicant data automatically from registration and administrative screening to interviews and final hiring decisions. A website serves as an ideal platform due to its accessibility, openness, and efficiency in information dissemination. Rahman (2022) noted that web-based recruitment systems enhance data accuracy and accelerate communication between applicants and recruiters. The implementation of such systems can also increase time efficiency by up to 40% compared to conventional methods that rely on physical and face-to-face processes.

Beyond efficiency, web-based recruitment information systems contribute to improving transparency and accountability in the selection process. Applicants can monitor their application status directly, while HR departments can provide faster and more measurable feedback. Wijayanti (2023) highlighted that web-based e-recruitment systems create a more positive experience for applicants by offering clear, structured, and real-time information. This not only strengthens the company’s public image but also promotes professionalism and transparency in the recruitment process. Consequently, the adoption of a web-based recruitment system is not only operationally efficient but also strategically beneficial for enhancing corporate reputation in HR management.

The digital transformation of recruitment aligns with the Indonesian government's vision for developing a national digital economy. The Ministry of Communication and Information Technology (Kemenkominfo, 2024) emphasizes the importance of adopting information technology across industrial sectors, including HRM, as part of Indonesia's Digital Transformation Strategy 2045. Supported by increasingly widespread internet infrastructure, companies now have greater opportunities to integrate their recruitment processes with web- and cloud-based technologies. This integration facilitates data collection, accelerates decision-making, and enables data-driven analysis to identify candidates who best fit organizational needs.

Moreover, a web-based recruitment information system offers long-term benefits in data management. Each application can be securely stored in a structured database, making it easy to retrieve for future hiring needs. Nugroho (2023) explained that the combination of PHP, MySQL, and the Laravel framework has become a popular choice for developing secure, dynamic, and efficient web systems. These technologies allow companies to manage thousands of applicant records without compromising performance. However, the implementation of such systems also requires special attention to data security, as they involve sensitive personal information. Therefore, encryption and authentication mechanisms are essential components in designing web-based recruitment information systems.

Previous studies support the effectiveness of web-based systems in recruitment processes. Putri and Sari (2023) found that digital recruitment systems increase applicant satisfaction by up to 65% due to improved information transparency. Similarly, Hidayat (2024) revealed that web-based information systems can reduce administrative errors by 50% and significantly accelerate candidate selection. Firmansyah (2024) further emphasized that recruitment digitalization can reduce company costs by up to 30% compared to manual methods. These findings demonstrate that digital transformation through web-based recruitment systems represents a strategic step toward modern and adaptive human resource management.

Nevertheless, several challenges remain in implementing such systems, including limited technical skills among staff, inadequate technological infrastructure in certain regions, and the need for user training. Hasanah (2023) argued that the success of web-based information systems depends not only on technological aspects but also on organizational

readiness to adapt to digital work culture. Therefore, the development of recruitment systems should be carried out systematically, starting from user needs analysis and user-friendly interface design to continuous evaluation to ensure optimal system performance.

Based on the above discussion, it can be concluded that designing a web-based employee recruitment information system is crucial for improving efficiency, accuracy, and transparency in recruitment processes in the digital era. This literature review aims to provide a comprehensive overview of the concepts, benefits, and previous research findings supporting the development of web-based recruitment systems. By integrating information technology into HR management, organizations can build recruitment processes that are more modern, measurable, and aligned with contemporary technological advancements.

METHODS

This study employs a literature review method using a descriptive qualitative approach. A literature review is a research method conducted by examining various relevant scholarly sources to gain an in-depth understanding of a topic without directly collecting field data. This approach was chosen because it aligns with the objective of the study, which is to review, analyze, and synthesize previous research findings related to the design of web-based employee recruitment information systems.

The study utilizes both primary and secondary literature sources, including national and international scientific journals, academic books, conference proceedings, and recent research reports concerning information systems, e-recruitment, and human resource management. These sources were selected based on their relevance to the topic, credibility of publication, and publication date (preferably within the last ten years) to ensure data currency. According to Sugiyono (2022) a well-conducted literature review must focus on valid, relevant, and up-to-date references to produce an accurate and accountable scientific synthesis.

The research process follows several systematic stages to ensure a comprehensive and objective analysis. The stages of this literature review are described as follows:

Topic and Problem Identification

In the initial stage, the researcher identifies problems in conventional employee recruitment processes, such as administrative delays, difficulties in managing applicant archives, and limited transparency in candidate selection. This stage helps define the study's scope and determine its direction, focusing on the design of a web-based recruitment

information system.

Literature Collection

After determining the topic, the researcher gathers relevant literature from online databases such as Google Scholar, ResearchGate, ScienceDirect, and DOAJ, as well as printed sources including textbooks and institutional research reports. Each source is categorized whether theoretical, empirical, or conceptual to facilitate analysis.

Content Analysis

This stage involves critically reading the collected literature to identify key findings, recurring patterns, and differences among previous studies. The analysis focuses on several aspects, including the basic concept of information systems, the application of web technology in recruitment, system efficiency impacts, and implementation challenges. Moleong (2023) explains that content analysis in qualitative research aims to identify meanings and patterns within scholarly texts for contextual interpretation.

Synthesis and Interpretation of Findings

Following analysis, synthesis is carried out to integrate various research findings into a cohesive conclusion. The synthesis process compares previous studies and evaluates the extent to which web-based recruitment information systems enhance efficiency, accuracy, and transparency in recruitment processes. This synthesis forms the conceptual basis for understanding the effectiveness and potential of web-based systems in modern organizations.

Literature Evaluation and Validation

In the final stage, validation is conducted to ensure the authenticity and credibility of the selected sources. Literature lacking methodological clarity or based solely on opinion is excluded to maintain research quality. Validation involves assessing the author's reputation, journal indexing, and citation count of each publication.

The literature review method was selected because it provides a comprehensive overview of theories, concepts, and best practices in designing web-based employee recruitment information systems. Furthermore, this approach allows the researcher to review various system development models such as the System Development Life Cycle (SDLC), Rapid Application Development (RAD), and Prototype Model, which are commonly employed in similar studies. Through a systematic literature analysis, this research is expected to contribute theoretically to the development of information systems knowledge and offer

practical insights for companies planning to implement digital recruitment systems.

By applying these structured stages and methods, the study produces findings that are not only conceptual but also practical, combining foundational information system theories with empirical evidence from previous research. This approach supports the main objective of the literature review: to provide a deep understanding of the benefits, effectiveness, and challenges of implementing web-based employee recruitment information systems in the era of industrial digitalization.

RESULTS AND DISCUSSION

Based on the findings of the literature review from various sources, several key insights were identified regarding the design of web-based employee recruitment information systems, covering technical aspects, system functionality, and their impact on organizational efficiency.

1. Recruitment Process Efficiency

In the context of digital transformation in human resource management, recruitment efficiency serves as a key indicator of the success of implementing web-based information systems. Digital recruitment systems automate various administrative stages, including application submission, administrative screening, and structured candidate data storage. According to Yusuf (2023) web-based systems can reduce recruitment time by more than half compared to conventional methods, as manual processes such as document checking and data entry are automated through integrated systems.

In addition to time efficiency, this system also enhances the accuracy of applicant data processing. Search and filtering algorithms allow companies to quickly and precisely identify candidates who meet specific qualifications. As explained by Kurniawan (2024) digital systems minimize human error in the initial screening process and reduce the administrative workload of HR staff. Consequently, recruiters can focus more on interviews and in-depth competency assessments.

Furthermore, the efficiency provided by web-based systems contributes to cost reduction in organizational operations. The need for printing application forms, distributing physical documents, and allocating staff working hours can be significantly minimized. Dewi (2023) found that digital efficiency in recruitment not only reduces costs but also improves overall organizational productivity, as human resources can focus on more strategic activities.

2. Improved Transparency and Data Accuracy

One of the main advantages of web-based recruitment systems is the enhancement of transparency throughout the recruitment process. Through digital platforms, applicants can track their application status in real time, from submission to final selection results. This transparency fosters trust between companies and applicants while reinforcing the organization's image as open and professional. Ningsih (2024) emphasized that recruitment transparency plays a vital role in strengthening corporate reputation and improving applicant engagement during selection.

From the perspective of data accuracy, digital systems enable systematic storage and processing of applicant information. Data submitted via online forms are stored in a centralized database, minimizing the risk of loss or duplication. Setiawan (2023) reported that the integration of centralized databases in web-based recruitment systems can increase data accuracy by up to 95%, as all information is automatically verified through internal validation mechanisms.

Additionally, improved transparency and data accuracy accelerate HR decision-making. Candidate data can be presented in the form of analytical reports that help managers identify the most suitable candidates. Handayani (2022) stated that accurate and evidence-based data make recruitment decisions more objective and reduce potential bias during the hiring process.

3. Accessibility and Candidate Reach

Accessibility is another key advantage of web-based recruitment systems. In an increasingly globalized labor market, the ability of systems to be accessed anytime and anywhere provides a competitive edge for companies. Maulana (2023) found that web-based systems expand candidate reach across regions and even internationally, allowing organizations to attract a more diverse pool of qualified applicants.

Digital recruitment platforms also offer a better user experience for job seekers. Applicants can complete forms, upload documents, and track their application status online without visiting company offices. According to Latifah (2024) web-based systems increase applicant participation by up to 30% due to easier access and faster processing times.

Moreover, such accessibility promotes inclusivity in employment opportunities. Applicants from remote areas who previously faced barriers due to travel costs can now

participate virtually. As noted by Wibowo (2023), web-based recruitment not only enhances efficiency but also expands equitable access to job opportunities for wider communities.

4. Integration with Supporting Technologies

Advancements in information technology have enabled web-based recruitment systems to integrate with supporting technologies such as Artificial Intelligence (AI), Machine Learning, and Applicant Tracking Systems (ATS). Syahrul (2024) revealed that AI integration assists companies in automatically analyzing thousands of applications to identify the most relevant candidates based on job criteria. AI algorithms can scan resumes, extract keywords, and rank candidates objectively.

In addition to AI, the use of chatbots in recruitment systems enhances communication between applicants and companies. Chatbots can provide instant responses to frequently asked questions, remind applicants of interview schedules, and deliver feedback. Fadilah (2023) demonstrated that chatbot implementation in e-recruitment systems improves communication efficiency and reduces HR workload by up to 25%.

Furthermore, integration with cloud-based analytics and storage technologies strengthens data security and scalability. Systems can be accessed in real time by different departments involved in the selection process, regardless of location. Ardiansyah (2024) noted that cloud computing facilitates data synchronization across HR teams and accelerates data-driven decision-making.

5. Implementation Challenges and Data Security

Despite its advantages, the implementation of web-based recruitment systems is not without challenges, particularly in terms of data security. Applicant data stored digitally are vulnerable to breaches and misuse. Hasan (2023) reported that approximately 40% of companies implementing e-recruitment systems in Indonesia lack adequate cybersecurity protocols. Therefore, the application of encryption, multi-factor authentication, and firewalls is essential.

Beyond security concerns, the readiness of IT infrastructure poses another challenge. Companies with unstable internet connectivity or inadequate hardware often face technical issues that disrupt system performance. Yuliana (2024) emphasized that successful implementation of e-recruitment systems depends heavily on the organization's

technological preparedness and the competence of its information system personnel.

Another challenge lies in user resistance to technological change. Some HR staff are still accustomed to manual methods and reluctant to adopt digital systems. To address this, comprehensive training and technical support are necessary to ensure a smooth transition to digital platforms. Nugroho (2023) asserted that the success of web-based recruitment systems depends not only on technology but also on the organization's cultural acceptance of digital innovation.

CONCLUSION AND IMPLICATIONS

Based on the findings of the literature review, it can be concluded that the design of a web-based employee recruitment information system has a significant positive impact on the efficiency and effectiveness of human resource management. The system accelerates the selection process, enhances transparency, and broadens applicant reach through easy digital access. Integration with supporting technologies such as Artificial Intelligence, chatbots, and cloud computing makes the system more interactive, adaptive, and capable of providing a better user experience. Overall, the implementation of a web-based system enables companies to optimize recruitment processes while reducing operational costs associated with traditional manual methods.

However, the literature also indicates that the successful implementation of a web-based recruitment information system depends greatly on organizational readiness in terms of technological infrastructure, data security, and the competence of human resources operating the system. Challenges such as data breaches, resistance to change, and limited technological facilities must be addressed through strict cybersecurity policies, technical training, and well-planned change management. With the right approach, a web-based recruitment system can serve as a strategic solution to support digital transformation in human resource management and enhance organizational competitiveness in the era of Industry 5.0.

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