Digital Recruitment: Designing the Use of Opensource ERP System in Optimizing SMEs' Hiring Process

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Abstract: Along with technological developments and the post-COVID-19 pandemic, competition for small and medium enterprises (SMEs) to get the best talent from candidates has intensified. The recruitment process can be expensive and time-consuming, often requiring a lot of trial and error, research and communication. To optimize the recruitment process, especially for small and medium enterprises (SMEs), an Enterprise Resource Planning (ERP) system can be used as a centralized platform to store data and manage different functions. While ERP systems offer many advantages, they can be expensive and require a lot of resources to set up. This study aims to design an open-source ERP system as a solution to the problem of high costs and to optimize the digital recruitment process of the culinary sector of small and medium enterprises (SMEs). This research will involve designing an ERP system using OpenBravo using a block system as a system design prototype. The results of this study will provide insight into the potential of an open-source ERP system to optimize the digital recruitment process for SME business processes in the culinary sector.

1 INTRODUCTION

The culinary sector is a vibrant and ever-evolving industry that is home to a wide variety of small and medium sized enterprises (SMEs) (Fathurrachman et al., 2021). These SMEs are the backbone of the business sector, providing a range of services and products to customers and creating jobs for local communities. Despite the challenges posed by the pandemic, the resilience of these SMEs has been remarkable. One of the key challenges faced by SMEs in the culinary sector is recruitment (Panduwiyasa et al., 2021b). Finding the right staff to fill roles is essential for the success of any business, and SMEs must be able to identify and recruit the appropriate people for the job. This can be a difficult and time-consuming process, but it is essential for the success of any SMEs (Panduwiyasa et al., 2021a).

Digital recruitment has become increasingly popular among employers as it enables them to access a larger pool of potential candidates and communicate with them effectively and efficiently (Chofreh et al., 2016). At the same time, the use of enterprise resource planning (ERP) systems has become increasingly common among small and medium-sized enterprises (SMEs) in the culinary industry (Terminanto et al., 2017). SMEs in the culinary industry are particularly reliant on ERP systems to manage their operations, from inventory management to financials. However, ERP systems can be costly and resource-intensive to set up, making them inaccessible for SMEs. The proposed open-source ERP system will provide a low-cost solution to this problem and enable SMEs to take advantage of the digital recruitment process (Bayu et al., 2019; Erkut, 2018).

2 LITERATURE REVIEW

2.1 Culinary SMEs

According to (Panduwiyasa et al., 2021a), Culinary SMEs (Small and Medium Enterprises) is a group of businesses that specialize in the production of food and beverage products, such as restaurants, catering

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companies, bakeries, and food processing companies. These businesses typically employ fewer than a hundred people and have an annual turnover of less than 100 million rupiahs. Small and medium enterprises (SMEs) in the culinary sector in Indonesia has grown significantly in terms of both the number of businesses and the number of employees (Wu and Chen, 2020). The sector has also become increasingly important for the Indonesian economy, contributing to economic growth, job creation, and poverty reduction (Baker and M.Yusof, 2016).

Culinary SMEs in Indonesia is parted into four major sectors, respectively (Bayu et al., 2019; Rashid et al., 2002; Panduwiyasa, 2022);

1. Traditional Food SMEs
   Traditional street food sector is one of the most important components of the Indonesian culinary sector. This sector is highly competitive and typically consists of small vendors selling snacks, such as satay, bakso (meatball soup), and nasi goreng (fried rice). These vendors are usually family-run businesses, and they are often found in urban areas.
2. Restaurant SMEs
   Restaurant is another important component of the Indonesian culinary sector. This sector is dominated by small and medium-sized restaurants, which offer a variety of cuisines, from traditional Indonesian dishes to international fare. These restaurants are typically family-owned and operated, and they often specialize in a particular type of cuisine.
3. Catering SMEs
   Catering sector is dominated by small and medium-sized companies that provide catering services for events such as weddings, corporate functions, and other special occasions. These companies typically specialize in a particular type of cuisine, and they often offer a wide range of services, from food preparation to event planning.
4. Processed Food SMEs
   Processed Food SMEs is dominated by small and medium-sized companies that process and package food products, such as spices, sauces, and snacks. These companies typically specialize in a particular type of food product, and they often offer a wide range of services, from food processing to packaging.

2.2 Recruitment Process Cycle

Recruiting the right people for culinary SMEs is essential for success. This will ensure that the SME has the right people in the right roles and can achieve its goals (J. G. Antunes and Pinheiro, 2020). The recruitment process in culinary SMEs usually starts with the SME owner or manager outlining the job specifications. According to (Alansaari et al., 2019) there are several steps to fulfill the recruitment process:

Figure 1: This caption has one line so it is centered.

Based to Figure 1, there are seven steps to finish the recruitment process in Human Resource Life Cycle, which can be describe respectively (Alansaari et al., 2019; Elgohary, 9 07):

1. Vacancy
   Job vacancies are the first step of any recruitment process. Vacant positions in culinary SMEs can refer to positions such as chef, cook, wait staff, and other kitchen positions. These positions are often filled by experienced candidates who have the knowledge and skills to help SMEs grow and succeed. The exact requirements for each position may vary depending on the needs of the business.
2. Identification
   It is necessary to identify in the process of managing job vacancies that are opened with the needs of employees sought by SMEs in the recruitment process, including making a list of job descriptions, requirements, certifications, due dates, etc.
3. Advertise and Publication
   After all the requirements and job descriptions have been designed and matched with the SME's business needs, job advertisements or publications are then created on various social media and recruitment channels to attract candidates with the right expertise.
4. Collection
   Once the job advertisement has been created and posted on various social media and recruitment channels, the Small and Medium Enterprise (SME) can begin to review and assess the applications received. In collecting application, it needs

approximately one weeks or based to the number of candidate that SMEs need to accept.

5. Evaluation
   Small and Medium Enterprise (SME) can begin to review and assess the applications received. This includes reviewing resumes, conducting interviews, and conducting background checks. The SMEs should also consider the applicant's qualifications, experience, and skills to ensure they are the right fit for the job. The SME should also take into account the requirements and job descriptions that have been designed and matched with their business needs.
6. Acceptance
   After the selection process is complete, the SME can then make a job offer to the successful candidate. This job offer should include the job title, salary, and any other benefits that may be included.
7. On-Boarding
   SME should also provide the candidate with an overview of the job duties and expectations. Once the job offer is accepted, the SME can then begin the onboarding process for the new employee.

2.3 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a digital enterprise system that facilitates the management of the integration of all departments, processes, and functions within an organization (Özkarabacak et al., 2014; Panduwiyasa et al., 2022). It allows organizations to manage their core business functions, such as financials, inventory, production, human resources, and supply chain, among other activities (Hwang and Min, 2015). ERP systems enable organizations to manage their data in real-time, providing a comprehensive view of the entire business across multiple locations. Furthermore, ERP systems automate processes, reduce manual labor, and improve accuracy and efficiency. ERP systems also provide organizations with the ability to make better decisions, reduce costs, and increase profits (Ruivo et al., 0 05). Additionally, ERP systems allow for greater collaboration among departments and help to improve customer service. ERP systems are an important tool for organizations to manage their data and processes and improve their overall performance (Wier et al., 2007).

2.4 OpenBravo

OpenBravo is an open source enterprise resource planning (ERP) software solution that provides businesses with a comprehensive suite of tools to manage their operations. It is designed to be highly customizable and is used by companies of all sizes, from small businesses to large enterprises (Gómez-Llanez et al., 2020), Main advantages of OpenBravo is its flexibility scalable and open-sources, meaning that it can be used to manage small businesses as well as large enterprises without any cost (Panduwiyasa et al., 2021b). OpenBravo also provides a wide range of customization options, allowing businesses to tailor the system to their specific needs [21]. The latest version of OpenBravo nowadays is the version of 22Q3 or OpenBravo 3.0 (Christianto, 2022).

3 METHODOLOGY

According to (Panduwiyasa et al., 2021a) Quickstart is a comprehensive method to adopting and implementing ERP system that helps businesses quickly and efficiently get up and running with the software, as presented in Figure 2. It is designed to help small and medium businesses maximize their return on investment by reducing the time and effort required to get the most out of their ERP system implementation (Fathurrachman et al., 2021). Originally, the Quickstart methodology was a development method for Open ERP that can be adopted by any other type of ERP system, including OpenBravo. The methodology focuses on four key areas (Panduwiyasa et al., 2021a):

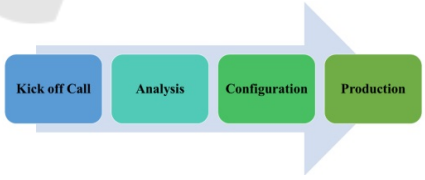

Figure 2: Quickstart Methodology for ERP Development.

1. Kick off Call
   This phase involves a 'call' or preparation between the customer and the implementation team to discuss the project scope and timeline. During this call, the customer and the implementation team will discuss the project objectives, timeline, and any other important details.
2. Analysis
   The analysis of the existing business processes is an important step in the implementation of the

OpenBravo e-recruitment system. This analysis will provide a comprehensive understanding of the needs of Culinary Sector SMEs and allow for the customization of the module to meet their specific requirements. The GAP analysis will also provide insight into the areas of improvement that need to be addressed in order to ensure successful implementation of the system. The results of the analysis will be used to develop a plan of action that will address the identified issues and ensure that the system is implemented effectively and efficiently.

3. Configuration

   The configuration process is a crucial step in the system implementation process. It involves customizing the system to the company's data and needs, as well as migrating data from the previous system. This is followed by training the client to ensure that they are able to use the system correctly. This step is essential to ensure that the system is able to meet the company's requirements and that the client is able to use it effectively.

4. Production

   After the installation, configuration, and testing are complete, the design can be finalized. This involves making any necessary changes to the system to ensure that it meets the specifications of the design. Once this is done, the system can be deployed and used.

In this research, the method process was only carried out up to the configuration stage. Based to the limitation of this research to design e-recruitment system of culinary SMEs, the production phase and system testing of quality assurance were carried out in separate studies.

4 RESULT AND DISCUSSION

4.1 Kick-Off Call

At this stage of the research process, the needs of the study must be identified. This requirement is used to initiate the project implementation. This stage involves Strategic Planning and Goals Determination. Strategic Planning involves the identification of all aspects of the research, as well as the methodology that will be employed. This is important as it allows for the ERP development is able to be conducted in a systematic and efficient manner.

From Table 1, ABM Culinary SMEs (name suppressed) does not yet have a recruitment system that is integrated with the Personnel Department, nor is there an integrated database that can accumulate all candidate data. Since the process of assessing candidate CVs and interview sessions is time-consuming and expensive, all systems must be digitized. Therefore, this research designs the integrated ERP system for e-Recruitment process with OpenBravo 3.0.

Table 1: Strategic Planning of ERP Implementation.

Environment	Development	Basic Concept
In the end-to-end recruitment process of Culinary SMEs Employee, the system is not integrated with each other department, there are no specific information system used in the existing recruitment process except excels and paper-based documents	Develop and customize the ERP system Recruitment and Employee module with OpenBravo 3.0 application	Enterprse Resoure Planning Recruitment, Employee (Onboarding) OpenBravo Tech and Functionality Quickstart Methodology

4.2 Analysis

The Analysis stage of the ABM Culinary SMEs e-recruitment process focuses on the identification of business requirements and needs, as well as on performing a gap analysis and creating use cases and block system diagrams. The output of this stage is presented in the form of a table that contains definitions of the needs of the SMEs, the features that need to be customized in the module to be implemented. Furthermore, the authorization of each user who will use the e-recruitment modules is to be analyzed, and a block system diagram will be used to describe the entire flow of the e-recruitment process.

1. Business Requirement Analysis

   To identify and determine the current business needs and requirements of SMEs can be described as Table 2.

Table 2: Business Requirements of SMEs System ERP.

System	Application	Data/Information	Product
System that able to integrate the information of recruitment process to all responsible employee	ERP System that user friendly and economic	Producing integrated and real-time information to control the end-to-end recruitment process and be able to produce candidate assessment and evaluation reports	Providing a reliable recruitment system to process SME employee candidate selection activities and submit comprehensive reports effectively and efficiently

Based on the results of a business needs analysis of ABM's culinary Small and Medium Enterprises (SMEs), it was identified that the existing system of the SMEs had not implemented any information systems or application programs that could assist in the digitalization of the recruitment process. The SMEs still use conventional processes, including recording data using Excel and paper-based evaluation reporting.

2. Gap Analysis

Gap analysis is an important tool for businesses to identify the difference between their current/existing state and their desired/target state. It is especially important for small and medium-sized enterprises (SMEs) in the culinary sector, as they often lack the resources and expertise to effectively recruit and retain employees. In this research, we can identify the disparity between the two condition as follows of Table 3.

Table 3: Gap Analysis of ERP Implementation.

Activity	Ideal State	Ideal State
Data Collection	The SMEs recruitment system must be digitalized and accept candidate data in form of pdf that sent to ERP website	The current state of the SMEs recruitment system is using physical documents to archive and accept candidate data
Interview Scheduling	The schedule interview can be automated in ERP system and integrated to the candidate' WhatsApp or Email	The process to schedule and determine the interviews is done via telephone, or SMS
CV Screening	CV screening must be simplified by send it to ERP website without physical document	CV screening with physical documents and conventional email sending is time consuming.
Evaluation	Evaluation can be automated by ERP and the threshold score can be set in the ERP system	Evaluation are manually calculated and the selection are ambiguous

3. Use Case Diagram

Based on Figure 3, it is evident how the use case

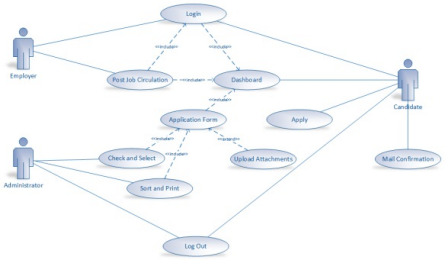

Figure 3: Use Case Diagram of Recruitment and Hiring Activity.

works and the activities that can be completed by the candidate, ERP system admin and employer. The candidate, as a job applicant, is able to log in, open the dashboard and apply to the ERP website by uploading their CV. The employer has the authority to log in, open the dashboard, post jobs and check CVs with admin permission. The admin is able to carry out control activities such as checking candidate data, sorting, report printing, etc.

4. Block System

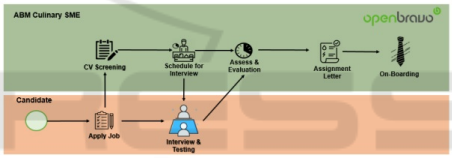

Figure 4: Block System Diagram of Recruitment Process.

Based on Figure 4, the system process starts with candidates submitting job applications to the ERP-based digital recruitment website owned by SMEs. The recruitment/assessment team then screens the CVs or portfolios updated in real-time when the candidate successfully submits an application. After the CV screening process and candidate selection are complete, the Openbravo ERP system is scheduled by the SMEs internal party. This scheduling activity is automatically integrated with the candidate's email. The assessment and assignment process are then carried out by internal parties/recruiters based on the results of interviews and ability tests conducted by both parties. If the candidate is suitable and meets the requirements of business needs with satisfactory results, the recruitment process continues to the acceptance and on-boarding stages.

4.3 Configuration and System Design

The configuration and system design of OpenBravo ERP is based on a three-tier architecture, with a user interface layer, a business logic layer, and a database

layer. The user interface layer provides the graphical user interface (GUI) for the system, while the business logic layer contains the business rules and logic used by the system. The database layer contains the data used by the system. Since configuration of the system is designed to be customizable and extensible, it allows the users to tailor the system to their specific needs.

1. System Architecture Design

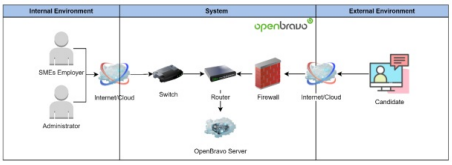

Figure 5: System Architecture.

Based to the Figure 5, during the system configuration and design stage, which is a part of the QuickStart methodology, it was discovered that the OpenBravo ERP system was able to manage the information sent by candidates via the internet, encrypting it with a firewall and storing it on the OpenBravo database server. The system will automatically recapitulate the data based on the OpenBravo template and can be extracted into PDF or Excel format when it is requested by administrators or employees who need to access candidate data for selection and assessment. This process is secure and reliable, profviding an efficient way to manage the data and ensure it is used in an appropriate manner.

2. OpenBravo Database Management System

Figure 6: SDatabase Management in OpenBravo.

Figure 6 illustrates the flow of OpenBravo database and web server management, starting from both candidate and admin users operating OpenBravo ERP through a browser. OpenBravo ERP is a cloud-based system which helps in authenticating and managing the incoming data. This ensures that the latest data regarding changes in structured information from both the candidate and admin/employer sides is always up-to-date and easily accessible. OpenBravo database also has an embedded analytics engine that provide users to analyze data and make better decisions. This engine provides real-time insights into the data stored in the data warehouse which can be used to gain insights into trends and patterns.

5 CONCLUSIONS

ABM Culinary SMEs require an integrated information system that can automate the recruitment process digitally and manage candidate data to reduce costs, time, and effort from the iterative process of selecting, assessing, and adjusting data. From the problems mentioned in the research, it can be concluded that by implementing the Enterprise Resource Planning System, the SMEs can overcome the constraints and business needs of the company by replacing the entire data management process in recruitment activities, which was originally based on paper, into digital form. ERP implementation using OpenBravo for ABM SMEs provides benefits by ensuring the security of candidate data, the suitability of data when processed, and the reliability of the system in processing information during the candidate assessment process tends to increase, evidenced by the system's ability to provide convenience to recruiters with assessment forms that can be tailored to company needs. In the development of the OpenBravo system, the Quickstart methodology was used to shorten the installation time and minimize the complexity of the ERP system, which tends to be unnecessary. The development of an ERP system for SME Recruitment is able to synergize the needs of the application process carried out by internal parties with candidates directly through the same web Recruitment channel, so that SMEs no longer need to create dashboards or rent other platforms to manage data applications made by candidates as external parties of the SMEs.

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