USING IT SUPPORT TICKET MANAGEMENT SYSTEM TO OPTIMIZE INFORMATION TECHNOLOGY SERVICES IN GOVERNMENT

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ABSTRACT

The development of information technology (IT) has changed work patterns in both the business and government sectors. The IT development in the government attempts to improve the quality of public services, transparency, and accountability and meet society's increasing needs. In its implementation, the government invests in suitable IT infrastructure and the growth of human resources as the key success of technology implementation in government. The IT support team is one of the IT human resources required by the government. The team is in charge of ensuring that the IT system runs well and providing technical support. To guarantee optimal performance, the team must be supported by adopting effective IT management. Support ticket management system is critical in this environment. The system enables IT support teams to manage support requests centrally, track the statuses, and respond quickly and accurately. The system also enables the team to review history in order to detect trends and patterns of commonly occurring problems. The system can also be used to track team performance and automate certain routine tasks, such as reporting. Thus, support ticket management system implementation establishes an IT management approach to support digital transformation in government and optimize IT development in increasing public service quality.

Keywords: Government IT development, IT support, Support ticket management

INTRODUCTION

The development of information technology (IT) has changed work patterns in both the business and government sectors (Maulani, Isma, 2023).. If the business sector uses IT to increase efficiency and profit, the government sector uses it to improve the quality of public services, transparency, and accountability. Although they have different goals, both influence each other. The business sector is often a pioneer in adopting new technologies, while the government sector applies them to meet the increasingly complex needs of society. The challenges faced are also different. The business sector is more flexible but faces tough competition, while the government sector is bound by regulations but has a broader impact on society (Ardiansyah, W. M., 2023). Collaboration between the two sectors is key to encouraging innovation and more optimal use of technology.

In order to optimally utilize technology, the government needs to invest in providing adequate Information Technology (IT) infrastructure and developing competent human resources (HR). Reliable IT infrastructure includes extensive communication networks, secure data centers, and strong cybersecurity systems. In addition, the government also needs to provide hardware and software that is in accordance with public service needs (Nugroho, Rossi & Purbokusumo, Yuyun., 2020). On the other hand, developing IT HR is the key to the success of technology implementation in government (Muhammad H. D. & Irfan B. & Tri C. N. & Iswadi A. & Erwing Y., 2024). The government needs to recruit and train employees who have expertise in information technology, and provide opportunities for them to continue to develop themselves, so that the government can ensure that existing technology is utilized effectively and efficiently to improve the quality of public services.

The government needs competent IT human resources (HR), especially software developer team and IT support team in providing electronic services. Software developers play a crucial role in building and developing applications and information systems needed to support various public services (Hilarion H., 2023). Software developers in the government often involve third parties, but many are also carried out by internal teams. Meanwhile, the IT support team is responsible for ensuring the smooth operation of IT systems, providing technical support to users, and carrying out regular system maintenance (Mauliana, Phitsa & Wiguna, Wildan & Permana, Abrian, 2020). With adequate IT HR, the government can create new innovations in public services, increase work efficiency, and reduce human error.

The government is taking a strategic step by establishing an internal IT support team. However, in order for this team to perform optimally, appropriate IT management must be implemented. The implementation of the IT Support Ticket Management System in this context is crucial. With this management system, the IT support team can centrally manage user requests, track the status of each request, and provide fast and accurate responses. The management system also allows the team to analyze historical data of user requests, so that they can identify trends and patterns of problems that often occur. This allows the team to take preventive actions and improve the overall quality of service. In addition, this system can also be used to measure the performance of the IT support team and automate some routine tasks, such as report generation. Thus, the implementation of

the management system creates comprehensive IT management to support digital transformation in government and maximize the development of information technology in improving the quality of public services.

METHODOLOGY

The object of this research is the local government in Bali Province. The local government in Bali Province has carried out a digital transformation that can be seen from various work programs that lead to the use of information technology, one of which is Bali Smart Island (Balipost.com, 2022). Various applications have been developed to realize the use of this technology, for example in 2 Regency Governments in Bali Province, namely the Gianyar Regency Government which manages 46 applications and the Klungkung Regency Government which manages 97 different types of applications (Radarbali.id, 2023).

A system is a collection of integrated elements that work together to achieve a goal. Information systems support the organization's operational, managerial, and strategic functions, and provide external reporting. Effective use of systems allows computers to replace repetitive tasks (Jogianto H.M, 2001). IT Support or IT Helpdesk team is a part or division in an organization that provides support to users of products, services and technologies. This team serves or responds to technical questions from users (R. Rico, 2016). The ticket referred to here is a unique identification code for a disturbance report (also called a problem report) used within an organization to track the detection, reporting, and resolution of several problems (W. D. Suryono, Saptono, Ristu, & W. Wiranto, 2017). Thus, the IT Support ticket management system is an organized system that manages problems reported from users to the support team by creating a unique code called a ticket to resolve existing problems in the user and as a complement to a service function.

The IT Support Ticket Management System in government agencies aims to facilitate recording, tracking, and resolving technical problems in electronic services efficiently. Needs analysis needs to be carried out to be able to realize these goals and provide the right solutions. In this study, needs analysis was conducted through field surveys and interviews with the Regional Government in Bali Province. We also carried out a needs analysis through literature studies on the material of the Electronic-Based

Government System (in Indonesia: Sistem Pemerintahan Berbasis Elektronik, abbreviated as SPBE) which must be implemented by all government agencies in Indonesia. The SPBE is a digital transformation framework in Indonesian governance to improve efficiency, transparency, and accountability of public services. The SPBE integrates various information systems across government agencies by utilizing information technology to support administrative processes, decision-making, and public services in an integrated manner. Materials on the SPBE can be accessed through various official sources, especially from government agencies such as the Ministry of State Apparatus Empowerment and Bureaucratic Reform, which is responsible for the SPBE policies and implementation.

Management of the management of information technology implementation problems, especially the use of applications, by utilizing the IT approach has been carried out in a company that implements ERP. The system implemented, namely the helpdesk ticketing system, provides convenience in the reporting system and handling of IT problems in the company (Effendi, Husnil & Assegaff, Setiawan, 2022). The information system for problem management has even been developed using web-based technology to create a more effective and efficient problem reporting system (Siahaan, Mangapul & Kelvin, 2023). This ticket management system has also been applied to hospital services that are closely related to the community, but this system focuses on handling complaints on services provided by the hospital. The concept of handling management in this service has characteristics of a service process that is similar to public services provided by the government (Alfauzain, Alfauzain et al., 2021). The use of helpdesk ticket management has also been implemented in governments outside the province of Bali, namely DKI Jakarta, but its use is only specific to managing problems in one agency in the local government environment. The results of this application are to support business processes to be better and get accurate and precise information compared to the previous system which was still conventional (Alfian, A. & Dewi, Y. & Fibriany, F. & Rianto, H. & Sari, A., 2020). Based on previous studies, this study will propose the utilization of an IT support ticket management system to manage IT problem reports in local government as a whole, especially local governments in the Province of Bali.

FINDINGS AND DISCUSSION

In this study, we found that local governments in the Province use general applications provided by the Indonesian government nationally. Apart from the applications built by each local government separately for the provision of special services. Generally, the agency that manages the provision of this application is the Communication and Informatics Office. This agency is also tasked with understanding the use and maintenance of applications so that they can provide support services to users or other agencies. We also found that information technology personnel such as technology infrastructure managers, application developers and IT support are provided at this agency. Other agencies may have IT support personnel who specifically manage the use of technology at the agency, but the scope of management is smaller, namely only on user device problems such as personal computers, notebooks, etc. Thus, the IT Support Ticket Management System will be implemented at the Communication and Informatics Office which is an agency that provides technology infrastructure and application management in local governments in the Province of Bali.

We found that in managing problem reports, users in the local government in Bali Province report problems directly to the Communication and Informatics Agency through employees or contacts provided. Therefore, the proposed IT Support Ticket Management System must certainly facilitate this reporting mechanism. However, we also added a direct reporting pattern to this system through a page that provides a problem reporting form to improve time efficiency and report handling. Then for problem handling, reports are distributed to several technical teams in the Communication and Informatics Agency according to the problem content and the duties and functions of each technical team. The distribution pattern is carried out according to the category selected when creating the problem report, so that the categories provided by the system need to contain various scopes of existing IT problems. In addition, the system also needs to provide categories that are not ambiguous and do not overlap between problem handling and solving so that there are no errors in report distribution that can have an impact on delays in problem handling time. In this study, we propose categories according to table 1 below.

Table 1. Categories of IT problem reports in government

Category	Description
System / application	Technical issues such as errors, applications not responding, crashes, bugs and other technical issues related to the application.
Computer networks and WiFi	Connectivity issues such as unable to connect to a Wi-Fi network, local area network (LAN) interference, slow or disconnected internet connection, and network device configuration.
Government institution email	Issues related to official email access, such as forgetting passwords, not being able to send or receive emails, emails going to the spam folder, or incorrect email configuration.
Server / hosting / cloud	Problems related to local servers, website hosting, cloud services, or other server/hosting/cloud issues such as full storage capacity, or cloud service access failure.
Domain name / name of government institution website	Issues related to the management of domains or official local government website names, such as expired domains, changes in domain names/DNS, or inactive domains.
CCTV	Technical issues related to CCTV devices, such as cameras not recording, loss of access to recordings, quality of recorded video, and access to CCTV recordings.
Cyber security	Issues related to cyber threats such as malware, phishing, data leaks, or unauthorized access to local government systems.
Public content / media	Issues related to the management and publication of content/information on official government media, such as websites, applications, or social media.
Others	Other issues outside the above categories.

In handling, the problem reports can be forwarded to other technical teams by sharing report tickets. This action is taken to resolve problems that require collaboration between the IT support team and other technical teams or between technical teams. Follow-up handling of this problem report can be carried out by the team until the problem is resolved, where the problem report ticket is marked with a closed status. The teams are also able to open their previous responses and review the histories in order to detect trends

and patterns of commonly occurring problems. The teams can also utilize the system to automate certain routine tasks, such as generating monthly reports and annual reports. In addition, the team's performance may also be tracked in the system. Figure 1 below shows the flow and stages of handling IT problem reports that we propose.

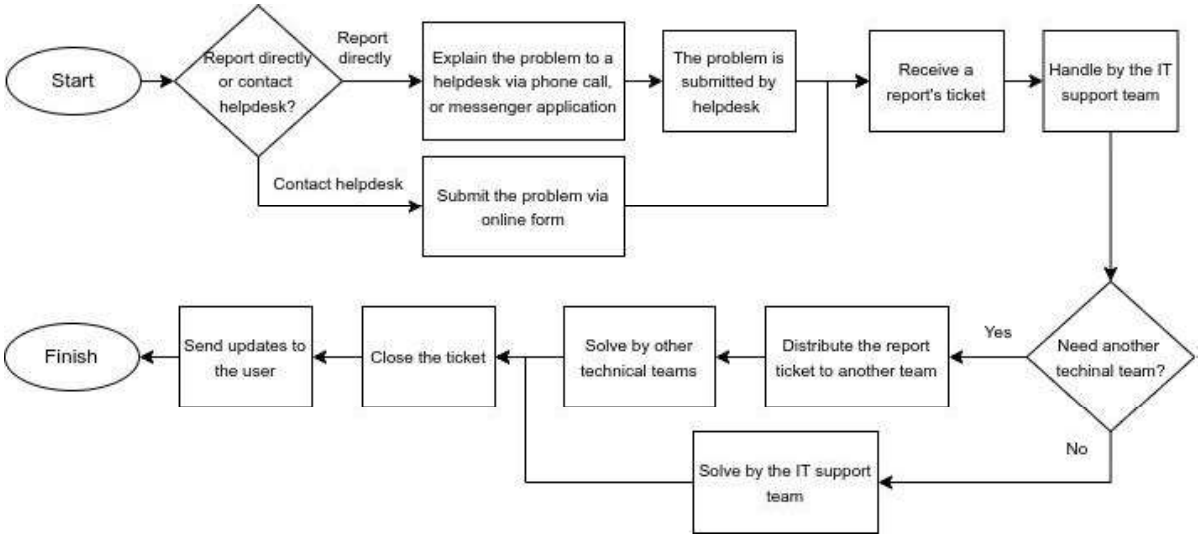

Figure 1. Flow and stages of handling IT problem reports in government

The IT support ticket management system provides a feature for monitoring the status and following up on handling IT problem reports that can be accessed by users independently and easily. This feature is provided on a public page that can be accessed by users anytime and anywhere, so there are no restrictions for users to monitor the handling of reported IT problems. This monitoring is done through a unique ticket number for searching or opening IT problem reports. Figure 2 below visualizes the public page for searching ticket numbers and monitoring reports.

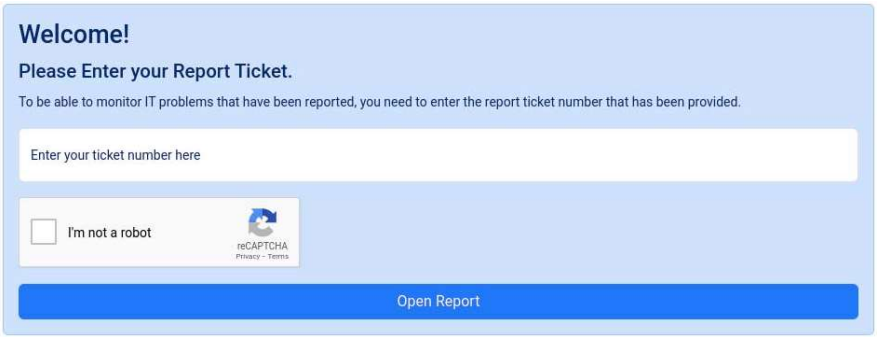

Figure 2. Public page for searching ticket number and monitoring reports

In addition to independent report monitoring through public page access, we can also send follow-up report handling update notifications via email and the user's mobile

phone number included in the creation of the IT problem report. However, the government certainly needs to prepare a budget for the use of the SMS Delivery service to be able to implement the update notification service to the user's mobile phone number, even the use of the WhatsApp Delivery service for update notifications to the user's WhatsApp account.

CONCLUSIONS AND SUGGESTIONS

Based on this study, management of IT problems with the implementation of IT support ticket management system is expected to support service and operational activities in the implementation and development of technology in local governments, especially in the Province of Bali. The needs analysis is also designed based on field surveys and in accordance with expectations from digitalization in general so that it can facilitate implementation without reducing the benefits of utilizing technology and electronic / digital services. The implementation of this management system creates comprehensive IT management to support digital transformation in government and maximize the development of information technology in improving the quality of public services.

The management of IT problem reports can be improved by providing user satisfaction assessments after ticket resolution is also recommended to measure service quality and obtain constructive feedback. In addition, management can also be improved by utilizing automation, such as the implementation of artificial intelligence (AI) systems to automatically answer similar or previously handled problems. By using an AI-based virtual assistant, users can immediately receive solutions from a continuously updated knowledge database without having to wait for a manual response. This not only reduces user waiting time but also allows the IT team to focus more on complex problems that require special handling. In addition, the integration of machine learning features allows the system to continuously learn from user patterns and feedback, so that the solutions provided are increasingly relevant and accurate. This implementation also supports automatic documentation, which helps create a neater and more structured problem archive for future analysis and evaluation.

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