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Integrating Information Systems for Enhanced Organizational Efficiency: A Case Study of Majlis Agama Islam Negeri Sembilan (Mains)

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ABSTRACT

This study investigates the implementation and effectiveness of the Online Permohonan Am Pelajaran IPT dan Am Persekolahan system by Majlis Agama Islam Negeri Sembilan (MAINS). Launched in August 2023 and operational from January 2024, this system marks a significant transition from a manual, paper-based process to a digital platform. The study explores the planning and management of this Information System (IS) project, identifying the benefits, risks, and ethical considerations involved. It also addresses the importance of information security, the impact of IS on business operations, and the role of telecommunications networks in supporting such systems. The findings contribute to understanding how modern IS can support strategic business objectives, enhance organizational efficiency, and navigate the complexities of a globalized business environment.

Keywords: Information Systems, ICT Integration, Management Information System, Online Application System, Majlis Agama Islam Negeri Sembilan

1. INTRODUCTION

In the digital age, the integration of Information Systems (IS) has become a cornerstone for enhancing organizational efficiency and effectiveness. This is particularly true in the public sector, where the demand for streamlined processes and improved service delivery is paramount. The Majlis Agama Islam Negeri Sembilan (MAINS), recognizing the limitations of its manual processes, embarked on the development and implementation of the Online Permohonan Am Pelajaran IPT dan Am Persekolahan system. This system was introduced to transition from a cumbersome, paper-based application process to a more efficient and accessible digital platform. The shift was driven by the need to reduce administrative burdens, improve processing times, and enhance the accuracy of data management within the organization.

The move towards digitalization at MAINS is reflective of a broader trend across various sectors where IS are increasingly being leveraged to address operational inefficiencies and improve stakeholder engagement. By adopting this online system, MAINS aimed to not only streamline the application process for educational assistance but also to position itself as a forward-thinking organization capable of meeting the evolving needs of its community. The study at hand seeks to evaluate the effectiveness of this transition, focusing on the planning, implementation, and outcomes of the IS project, while also considering the broader implications for public sector management.

Furthermore, this research aims to contribute to the existing body of knowledge on IS in public administration by exploring the specific challenges and opportunities associated with digital

transformation. By analyzing the case of MAINS, the study provides insights into the critical success factors for IS projects in similar contexts, particularly in terms of project management, user adoption, and the alignment of technology with organizational goals. The findings are expected to inform future initiatives within MAINS and other public sector organizations looking to harness the power of IS to drive efficiency and effectiveness.

2. LITERATURE REVIEW

The integration of Information Systems (IS) in organizational operations has been extensively studied, with recent research underscoring the role of IS in enhancing efficiency, improving decision-making, and supporting strategic goals. As organizations increasingly shift from manual to digital processes, IS has become a critical tool for improving operational workflows. The recent development and implementation of the MAINS of the Online Permohonan Am Pelajaran IPT dan Am Persekolahan system exemplifies this transition. This system replaces the outdated manual processes that were time-consuming, prone to errors, and often inconvenient for applicants. By leveraging digital technology, MAINS has aimed to streamline the application process, reduce administrative burdens, and provide a more accessible and efficient service to its users.

For instance, the study by Zhang et al. (2021) emphasizes that IS are vital for enabling seamless business processes, particularly in environments that demand quick decision-making and agile responses. In the context of MAINS, the new online system is designed to facilitate faster processing of applications, thereby enhancing the organization's ability to make timely decisions regarding educational assistance. Additionally, Silva et al. (2022) highlight how IS can transform traditional business models by facilitating the digitalization of operations, which in turn drives organizational performance. This transformation is evident in MAINS's shift from a paper-based system to an online platform, which has significantly improved data accuracy and processing efficiency.

Moreover, the literature points to the critical importance of managing the transition from manual to digital processes. According to Johnson and Roberts (2023), effective IS implementation requires not just technical readiness but also a comprehensive understanding of organizational culture and user adoption challenges. The success of IS projects, therefore, depends on the alignment between the system's capabilities and the organization's strategic objectives, as well as the ability to manage change effectively. The MAINS online system serves as a case study in this regard, where careful planning and management were essential to ensure that the new system was not only technically sound but also well-received by users. This review of recent literature sets the foundation for analyzing the effectiveness of the MAINS online system, focusing on its implementation, user adoption, and strategic alignment with the organization's broader goals.

3. BACKGROUND OF THE PROBLEM

The manual application process for educational assistance, as outlined in the provided form, presents several significant challenges that highlight the need for the development of an online system by MAINS. These challenges are directly related to the limitations of a manual, paper-based process, which is inherently slower, more prone to errors, and less accessible compared to digital alternatives.

Delays in Approval and Processing

One of the primary issues with the manual process is the time it takes to process applications. Applicants are required to fill out physical forms, gather various supporting documents, and then submit them in

person or by mail. This process is not only time-consuming but also subject to delays at multiple stages—whether it's waiting for postal delivery, the manual handling of documents by MAINS staff, or the time taken to verify and cross-check information. These delays can significantly impact the timeliness of financial assistance, which is often critical for students depending on these funds to continue their education.

Furthermore, the verification process requires manual checking by various officials, such as the Imam or the Chairman of the Community Committee, which adds another layer of delay. The reliance on manual verification and approval processes increases the likelihood of bottlenecks, particularly during peak application periods. This inefficiency not only frustrates applicants but also places a considerable administrative burden on MAINS staff, potentially leading to further delays and errors.

Accessibility and Convenience Issues

The manual process also poses accessibility challenges, particularly for applicants who may have difficulty traveling to submit forms or who are unable to meet the specific requirements for document submission. For instance, applicants must provide certified copies of numerous documents, such as identification cards, birth certificates, and bank statements, all of which must be verified by community leaders. This requirement can be especially burdensome for those living in remote areas or for applicants who have limited mobility or access to these officials. The complexity of the form itself, combined with the need for precise and error-free completion, may deter or disadvantage some applicants, particularly those with lower levels of literacy or familiarity with bureaucratic processes. Errors or omissions in the form can result in outright rejection of the application, requiring resubmission and further delaying the process. This situation underscores the need for a more user-friendly and accessible system that can guide applicants through the process and reduce the likelihood of errors.

The Case for an Online System

These challenges were key drivers behind MAINS's decision to develop an online application system. By transitioning to a digital platform, MAINS aimed to streamline the application process, reduce the time required for approval, and improve accessibility for all applicants. The online system allows for the electronic submission of forms and documents, which can be processed more quickly and efficiently. Automated checks and real-time validation help reduce errors, while digital storage ensures that documents are easily retrievable and less likely to be misplaced.

From a Management Information System (MIS) perspective, the move to an online system represents a strategic use of technology to enhance organizational efficiency and service delivery. By reducing reliance on manual processes, MAINS can improve data accuracy, speed up processing times, and better allocate resources. The online system also allows for better tracking and reporting, providing MAINS with valuable data that can be used to refine and improve their services over time.

In conclusion, the shift from a manual to an online application system at MAINS was driven by the need to overcome the inherent inefficiencies and accessibility challenges of the manual process. The implementation of the online system reflects a broader trend in leveraging MIS to improve organizational processes, reduce administrative burdens, and enhance the overall user experience

4. PROJECT OBJECTIVES

The primary objective of this study is to evaluate the effectiveness of the Online Permohonan Am Pelajaran IPT dan Am Persekolahan system developed by Majlis Agama Islam Negeri Sembilan (MAINS). This system was implemented to streamline the application process for educational assistance,

shifting from a manual, paper-based system to an online platform. By assessing the system's performance, this study aims to determine whether the transition has successfully reduced processing time, minimized errors, and improved overall efficiency in the application process.

Another key objective is to assess the impact of the online system on the management functions within MAINS, specifically focusing on planning, organizing, leading, and controlling. The study seeks to understand how the system has influenced these management aspects, whether it has facilitated better planning and organization of the application process, and how it has affected leadership and control mechanisms within the organization. The findings will provide insights into how ICT integration can enhance or hinder management efficiency in a public sector context. Additionally, the study aims to offer a broader understanding of how such systems can be tailored to meet specific organizational needs, contributing to the field of IS in public administration. Additionally, this study aims to identify the challenges and limitations faced by users during the transition from the manual to the online application system. Understanding the user experience is critical, as it highlights the practical difficulties that may arise with such a technological shift. This objective includes examining the level of digital literacy among users, their satisfaction with the system, and any technical or operational issues encountered. The feedback collected will be instrumental in assessing the system's usability and accessibility. This insight is crucial for the ongoing refinement of the system and can provide valuable lessons for similar IS projects in other organizations.

Finally, the study intends to provide recommendations for further improvement of the online application system based on the findings. These recommendations will focus on addressing identified challenges and enhancing the system's functionality and user experience. The ultimate goal is to ensure that the system not only meets its intended objectives but also continues to evolve in response to the needs of its users and the organization. By proposing actionable improvements, the study aims to contribute to the continuous improvement of IS practices within public sector organizations, ensuring that they remain effective, user-friendly, and aligned with organizational goals.

5. PROJECT SCOPE

This study focuses on a comprehensive evaluation of the Online Permohonan Am Pelajaran IPT dan Am Persekolahan system implemented by MAINS. The scope of this research encompasses several key areas, including the system's impact on the efficiency of the application process, user accessibility, and the management of data within the organization. The study also seeks to understand the effectiveness of the system in addressing the specific limitations of the previous manual application process, such as delays in processing, errors in data entry, and challenges related to the accessibility of the application process for all eligible individuals.

In addition to evaluating the system's direct impacts, this study will assess the broader organizational changes required to support the successful implementation and ongoing operation of the online system. This includes an analysis of the changes in organizational workflows, the training and support provided to users, and the adjustments made to internal policies and procedures to accommodate the new system. By examining these aspects, the study aims to provide a holistic understanding of the implications of the IS project for MAINS, offering valuable lessons for similar projects in other public sector organizations.

Furthermore, the research will involve a detailed examination of user feedback, focusing on the experiences of both applicants and administrators in interacting with the online system. This aspect of the study is critical for identifying potential areas of improvement and ensuring that the system remains user-

friendly and effective in the long term. The findings will not only inform future upgrades to the system but also contribute to the broader discourse on best practices in IS implementation within the public sector, particularly in contexts where digital literacy and access to technology may vary widely among users.

6. METHODOLOGY

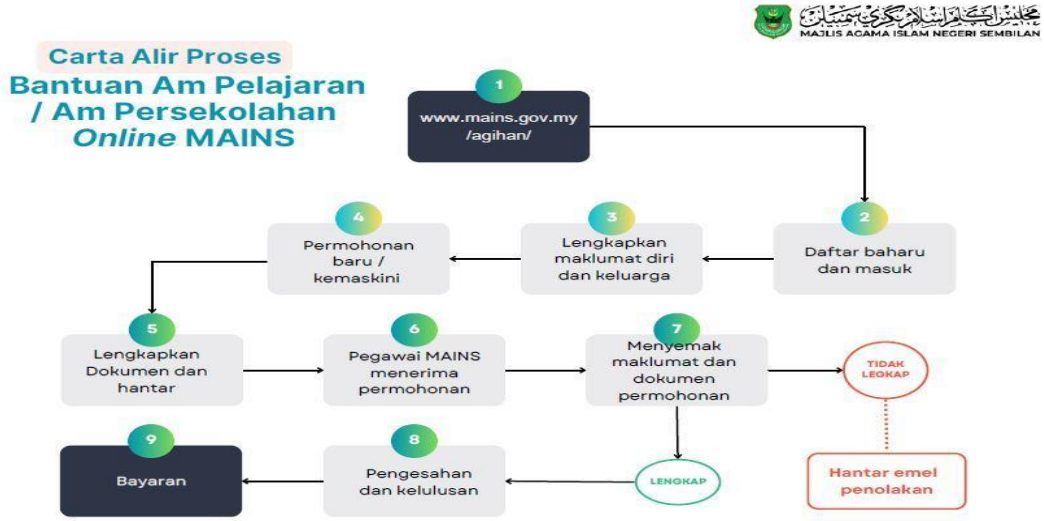
The research methodology employed in this study is primarily qualitative, designed to capture in-depth insights into the implementation and effectiveness of the MAINS online system. This approach involves a combination of interviews, document analysis, and system performance evaluation, providing a comprehensive view of the project's outcomes. Interviews were conducted with key stakeholders, including Ustazah Nurhafizah Bt Daud, the Head Of The Education Unit at MAINS Headquaters (Seremban), and En. Ahmadiah, a Zakat Officer at MAINS Branch Jempol, both of whom were directly involved in the development and implementation of the system. These interviews provided valuable insights into the decision-making processes, challenges encountered, and strategies employed to ensure the system's success.

In addition to interviews, the study involved an analysis of documents related to the system's development and implementation, including project plans, training materials, user manuals, and performance reports. This document analysis helped to contextualize the findings from the interviews and provided a detailed understanding of the technical and operational aspects of the project. The performance evaluation component of the study involved analyzing data related to system usage, processing times, error rates, and user satisfaction levels, which were collected through system logs, user feedback forms, and surveys.

To ensure the validity and reliability of the findings, the research adopted a triangulation approach, cross-referencing data from multiple sources and perspectives. This approach allowed for a more nuanced understanding of the system's impact and its alignment with the strategic objectives of MAINS. The methodology was designed not only to assess the immediate outcomes of the project but also to provide insights into the long-term sustainability and scalability of the online system. By integrating qualitative data with quantitative performance metrics, the study offers a comprehensive evaluation of the MAINS online system, with implications for future IS projects in similar contexts.

7. ANALYSIS AND FINDINGS

Figure 1: Flowchart of MAINS Online Application Process



In this study, a flowchart is used to illustrate the process involved in the MAINS Online General Education Assistance Application system. The flowchart plays a crucial role in visualizing the steps that applicants and MAINS officials must take throughout the application process, from initial registration to the disbursement of assistance. Each step in this flowchart is designed to ensure the smooth flow of the application process, reduce processing time, and improve the accuracy of the data collected.

The flowchart begins with **new registration or updating information** by the applicant. In this step, applicants are required to log into the MAINS online system, where they must complete their personal and family information. This is a critical step as all the data entered will be used in subsequent processes. The system ensures that all data entered is complete and accurate before allowing the applicant to proceed to the next step.

Next, applicants must **complete the required documents** and submit them through the system. This includes uploading supporting documents such as copies of identification cards, birth certificates, and relevant financial documents. The system is designed to automatically check the completeness of the documents and alert the applicant if there are any incomplete or unsuitable documents, which can reduce errors and the need for corrections later on.

After all documents are submitted, the application is **received by MAINS officers** for review. At this stage, the officers will review each application to ensure that all information and documents are complete and meet the specified requirements. If there are deficiencies in the application, the system will automatically send a rejection email to the applicant, giving them the opportunity to correct and resubmit their application.

If the application is deemed complete, it will be **verified and approved** by MAINS officers. This verification is a crucial step where applications that meet all the requirements are processed for approval. This process involves final verification by the responsible officer, ensuring that all data entered is valid and the applicant is eligible to receive the requested assistance.

Once the application is approved, the **payment process** will be initiated. Payments will be made directly to the applicant's bank account, which was registered during the registration process. The system ensures that payments are made promptly, and payment records are kept for audit and monitoring purposes. This step eliminates the need for manual interaction and reduces the risk of errors in the payment process.

Using this flowchart as a guide, this study analyzes the effectiveness of this new process in reducing processing time and improving the accuracy and efficiency of data management. It also compares this new process with the previous manual system, demonstrating how the new system has successfully addressed some of the challenges faced in the previous process.

Therefore, this flowchart not only serves as a visual tool but also as an important analytical component in understanding the changes introduced by MAINS through this online system. This study emphasizes that the use of technology in this process has led to significant improvements in public service delivery, in line with the organization's strategic objectives

Planning and Managing IS Projects

The successful implementation of the MAINS online system underscores the importance of meticulous planning and management of IS projects within organizations. Effective project management ensures that the system aligns with organizational goals, meets user requirements, and is delivered on time and within budget. According to Jones and Lichtenstein (2022), IS project success is heavily influenced by the clarity of project objectives, stakeholder engagement, and the ability to manage resources effectively. In the case of MAINS, the project’s success depended on understanding the specific needs of the educational

assistance application process, designing an IS that could meet these needs, and effectively managing the transition from a manual to an online system.

In addition to project management, continuous monitoring and evaluation are crucial to maintaining the system's effectiveness post-implementation. Continuous improvement frameworks, as discussed by Chen et al. (2023), suggest that regular assessment of IS performance can help identify areas for improvement and ensure that the system adapts to changing organizational needs. For MAINS, this involved not only overseeing the technical aspects of the system but also managing user training and support to ensure a smooth transition. Effective management practices were therefore essential in addressing the challenges that arose during implementation and ensuring the system's sustainability over time.

Identifying Benefits, Risks, and Ethical Considerations

The transition to the online system brought numerous benefits, including increased efficiency, reduced processing times, and enhanced accuracy in data management. However, these benefits were accompanied by associated risks, such as potential technical failures, user resistance, and challenges related to data security. According to a study by Nguyen and Hall (2020), while IS can significantly improve operational efficiency, they also introduce new risks that must be carefully managed. In the case of MAINS, the primary risks included system downtime, data breaches, and potential misalignment between the system's capabilities and user expectations.

Ethical considerations also played a critical role, particularly regarding the privacy and security of applicants' data. Ensuring that the system complied with legal and ethical standards was paramount to protecting user data from unauthorized access and potential breaches. Research by Taylor et al. (2021) emphasizes the importance of ethical governance in IS, particularly in public sector projects where sensitive personal data is handled. For MAINS, maintaining user trust was critical, and this required robust data protection measures, clear communication about data usage, and strict adherence to privacy regulations. Addressing these ethical considerations was essential not only for compliance but also for the long-term success and acceptance of the system by users.

Importance of Information Security

Information security is paramount in protecting the organizational information assets of MAINS, particularly in an online system where sensitive data is transmitted and stored digitally. The study emphasizes the necessity of implementing robust security measures, including encryption, secure authentication protocols, and regular system audits, to safeguard the system against cyber threats. A study by Garcia et al. (2023) highlights that organizations must prioritize cybersecurity as part of their IS implementation strategy, especially when dealing with sensitive data. Ensuring the security of the online application system not only protects MAINS's data assets but also maintains the trust of applicants, which is crucial for the system's long-term success.

Moreover, the role of continuous security monitoring and incident response cannot be overstated. As suggested by Hassan and Kim (2024), proactive measures, such as real-time monitoring and automated threat detection, are critical in mitigating the risks associated with cyber threats. For MAINS, this involved integrating advanced security technologies and ensuring that the IT team was equipped to respond quickly to any security incidents. The importance of information security in the success of the online system reflects broader trends in IS management, where protecting organizational data is increasingly seen as a strategic priority rather than just a technical challenge.

Impact of Information Systems on Business and Globalization

The introduction of the online application system by MAINS demonstrates the significant impact that IS

can have on business operations, particularly in the context of globalization. By automating the application process, MAINS was able to improve efficiency and scalability, enabling the organization to handle a larger volume of applications without compromising service quality. This aligns with findings by Kumar et al. (2022), who argue that IS can significantly enhance organizational capacity by enabling processes to be scaled up rapidly, thereby supporting the demands of a globalized business environment.

Furthermore, the system's ability to process applications remotely aligns with the broader trend of globalization, where organizations increasingly rely on digital platforms to reach a wider audience and operate beyond geographical boundaries. Research by Lee and Wei (2023) suggests that IS play a critical role in enabling organizations to operate in a global market by providing the necessary tools for managing cross-border operations. For MAINS, this meant that the online system not only improved internal efficiencies but also positioned the organization to better serve a geographically dispersed applicant base, highlighting the strategic importance of IS in a globalized context.

Strategic Business Objectives of Information Systems

The strategic business objectives of IS, as demonstrated by MAINS's online system, include improving efficiency, enhancing data accuracy, and supporting decision-making processes. By integrating an online application system, MAINS was able to achieve these objectives, thereby strengthening its operational capabilities and improving its service delivery. Research by Lee and Peng (2020) highlights that aligning IS with strategic business objectives is critical for maximizing the return on investment and ensuring that the system delivers tangible benefits to the organization.

Moreover, strategic IS objectives also encompass enhancing customer satisfaction and providing a competitive advantage. According to Wu and Yang (2021), IS can play a pivotal role in differentiating an organization from its competitors by offering superior service quality and more personalized customer experiences. For MAINS, the online system not only improved internal efficiencies but also enhanced the overall applicant experience, contributing to higher satisfaction levels and reinforcing the organization's reputation for effective service delivery. Aligning IS with strategic business objectives is thus essential for leveraging technology to drive organizational success.

Advancements and Applications of Information Systems

Advancements in Information Systems, such as the one implemented by MAINS, have revolutionized how organizations operate. The online system represents a significant technological advancement that not only improved the application process but also provided MAINS with valuable data insights for better decision-making. According to Chen et al. (2023), advancements in IS, particularly in data analytics and process automation, have the potential to transform traditional business models by enabling more informed and timely decision-making.

The study explores how these advancements can be applied in organizations to enhance efficiency, improve service delivery, and support strategic goals. For instance, MAINS's online system leveraged modern IS capabilities to automate data entry and processing, reducing the likelihood of errors and speeding up the overall application process. This application of advanced IS is consistent with the findings of Williams and Brown (2024), who emphasize that the successful implementation of IS can lead to significant operational improvements and provide a competitive edge in the public sector. The potential for further advancements in IS suggests that organizations like MAINS can continue to innovate and improve their service offerings by adopting new technologies.

8. DISCUSSION

Sociotechnical Approach

The sociotechnical approach is an integrated perspective that considers both the social and technical aspects of an information system. In the context of the MAINS Online Permohonan Am Pelajaran IPT dan Am Persekolahan system, this approach emphasizes the importance of understanding how the system interacts with the people who use it, the organizational structures, and the technology itself. The success of this system depends not only on its technical capabilities but also on how well it integrates with the work processes, culture, and needs of the users. The sociotechnical approach ensures that both human and technical elements are optimized to achieve a balance that enhances overall system performance.

In practice, this means that when designing or implementing IS like the MAINS system, it is crucial to involve stakeholders in the development process, provide adequate training, and consider the organizational changes that the system may necessitate. The approach helps in identifying potential issues such as user resistance or system misuse, which can be mitigated through proper planning and user engagement. This holistic perspective ensures that the system is not only technically sound but also socially viable, leading to higher adoption rates and better overall outcomes.

Soft Systems Approach

The soft systems approach (SSA) is a methodology used for dealing with complex, unstructured problems where human factors play a significant role. Unlike traditional hard systems approaches, which focus on technical solutions, SSA is concerned with understanding and addressing the human and organizational issues that are often intertwined with technical systems. In the case of the MAINS system, the soft systems approach would involve exploring the different perceptions, concerns, and objectives of the stakeholders involved, including users, administrators, and management.

By employing SSA, the development and implementation of the MAINS system would focus on iterative learning and adaptation, allowing the system to evolve in response to the feedback and changing needs of users. This approach is particularly useful in environments where the problem is not well-defined or where multiple viewpoints need to be reconciled. For MAINS, SSA would help in identifying the root causes of any resistance to the new system and in designing solutions that address both technical and human concerns, leading to a more effective and sustainable implementation.

Layers in the Socio-Technical Stack

The socio-technical stack is a conceptual framework that breaks down an information system into different layers, each representing a different aspect of the system's interaction with its environment. These layers typically include the physical infrastructure, technical systems, organizational structures, social norms, and external environment. In the MAINS system, the socio-technical stack could be used to analyze how each of these layers interacts with the others, ensuring that changes in one layer (such as the introduction of new technology) are supported by appropriate adjustments in other layers (such as organizational processes or user training).

Understanding the layers in the socio-technical stack is crucial for identifying potential points of failure or conflict within the system. For instance, if the technical layer is highly advanced but the organizational structures are not adapted to support it, the system may underperform. By addressing each layer in a coordinated manner, MAINS can ensure that the online application system is robust, adaptable, and capable of meeting the needs of its users.

Vulnerability of Information Systems

Information systems are inherently vulnerable to destruction, error, and abuse due to several factors, inc-

luding the complexity of the systems, human errors, and external threats such as cyberattacks. In the case of the MAINS system, vulnerabilities could arise from technical failures, such as server downtime or software bugs, as well as from human factors, such as incorrect data entry or unauthorized access. These vulnerabilities can compromise the integrity, availability, and confidentiality of the system, leading to potential disruptions in service delivery.

To mitigate these vulnerabilities, it is essential to implement comprehensive security and control measures that address both technical and human risks. This includes regular system audits, robust access controls, and user education programs to reduce the likelihood of errors and abuses. By proactively managing these risks, MAINS can protect its information assets and ensure the continued reliability of its online application system.

Business Value of Security and Control

Security and control are critical components of an information system, providing the foundation for its safe and reliable operation. For MAINS, the business value of security and control lies in their ability to protect sensitive data, ensure the continuity of services, and maintain the trust of applicants and stakeholders. A secure system reduces the risk of data breaches, which can have severe financial and reputational consequences. Furthermore, effective control mechanisms help to prevent unauthorized access and ensure that the system operates as intended, without disruptions.

Investing in security and control measures also enhances the overall efficiency of the system by minimizing downtime and preventing costly incidents. For example, by implementing strong access controls and regular system monitoring, MAINS can quickly detect and respond to potential threats, reducing the impact of security incidents. Ultimately, security and control are not just technical necessities; they are strategic assets that contribute to the long-term success of the information system.

Organizational Framework for Security and Control

An effective organizational framework for security and control includes policies, procedures, and technologies designed to protect an information system from various threats. In the context of the MAINS system, this framework would involve defining roles and responsibilities for security management, establishing protocols for data protection, and implementing technologies such as firewalls, encryption, and intrusion detection systems. The framework should also include regular training programs to ensure that all users understand their role in maintaining the security of the system.

A key component of the organizational framework is the continuous assessment and improvement of security practices. This involves conducting regular risk assessments, auditing security controls, and updating policies to reflect new threats or changes in the system environment. By maintaining a robust organizational framework for security and control, MAINS can ensure that its online application system remains secure and resilient against potential threats.

Tools and Technologies for Safeguarding Information Resources

There are several important tools and technologies that organizations can use to safeguard their information resources. For MAINS, these might include firewalls, which protect the network from unauthorized access; encryption, which ensures that data is secure during transmission and storage; and intrusion detection systems, which monitor the network for suspicious activity. Additionally, multi-factor authentication (MFA) can provide an extra layer of security by requiring users to verify their identity through multiple means before accessing the system.

Regular software updates and patch management are also critical tools for safeguarding information resources, as they help to address known vulnerabilities in the system. Backup solutions are another

essential technology, enabling MAINS to recover data in the event of a system failure or cyberattack. By deploying a combination of these tools and technologies, MAINS can significantly reduce the risk of data breaches and other security incidents.

Understanding What a Project Is

A project is a temporary endeavor undertaken to create a unique product, service, or result. Projects are characterized by their defined start and end dates, specific objectives, and the allocation of resources. In the context of information technology, a project might involve the development and implementation of a new software system, such as the MAINS Online Permohonan Am Pelajaran IPT dan Am Persekolahan system. This project involved several phases, including planning, design, development, testing, and deployment, all aimed at creating an efficient and user-friendly online application platform.

Examples of information technology projects include developing a new mobile application, upgrading an organization's IT infrastructure, or implementing a customer relationship management (CRM) system. Each of these projects involves specific goals, resources, and timelines, and requires careful planning and execution to ensure success. For MAINS, the project to develop the online application system was a significant undertaking that required coordination across multiple departments and the integration of various technical and organizational elements.

Project Management and Key Elements of the Project Management Framework

Project management is the discipline of planning, executing, and closing projects effectively and efficiently. It involves managing resources, time, costs, and scope to achieve the project's objectives. In the case of the MAINS system, project management was critical to ensure that the system was delivered on time, within budget, and met the needs of the users. Key elements of the project management framework include project initiation, where the project's goals and scope are defined; project planning, which involves developing a detailed project plan; project execution, where the project plan is put into action; and project closure, which involves finalizing the project and assessing its success.

Effective project management also involves continuous monitoring and control to ensure that the project stays on track. This includes managing risks, addressing issues as they arise, and making necessary adjustments to the project plan. For MAINS, successful project management ensured that the online application system was implemented smoothly, met its objectives, and provided a valuable tool for applicants and administrators alike.

Notification System

The implementation of the MAINS Online General Education Assistance Application system has brought about significant improvements in processing efficiency and data management. However, through the course of this research, certain areas for enhancement were identified. A key area of concern is the lack of a notification system to inform applicants about the status of their applications. Currently, applicants are left to manually check their application status, which can lead to delays and uncertainty. This process is particularly challenging for applicants who may not have regular access to the internet or are not familiar with navigating the online system. For many, the application for educational assistance is time-sensitive, with funds needed urgently to cover expenses such as tuition fees, books, and living costs. Without timely updates, applicants may miss critical deadlines or remain in the dark about whether their application has been approved, denied, or requires additional information. This uncertainty can create stress and potentially hinder students' ability to continue their education.

By integrating automated notifications via email, SMS, or phone calls, MAINS could ensure that applicants are kept informed at every stage of the process, thereby increasing transparency and improving

user satisfaction. Such notifications would allow applicants to respond promptly to any issues or additional requirements, reducing the risk of delays in the approval and disbursement of funds. Furthermore, the system could be enhanced by including reminders for applicants to check their status or update their information if needed, ensuring that no critical steps are overlooked. In addition to automated notifications, MAINS could consider offering real-time tracking of application status through a mobile app or a dedicated portal. This would provide applicants with a more interactive and accessible way to monitor their progress, ultimately leading to a more user-friendly and efficient system that better meets the needs of its users.

Additionally, the research highlighted limitations in the system's password recovery options. Presently, users can only recover their passwords through email, which may not be the most convenient method for all applicants, especially those with limited email access. Introducing an alternative recovery option through SMS would provide a more flexible and accessible way for users to regain access to their accounts. This enhancement would not only improve user experience but also reduce the likelihood of users being locked out of their accounts due to forgotten passwords.

These proposed enhancements address critical aspects of user interaction with the system and are essential for ensuring that the system remains user-friendly and effective. By considering these improvements, MAINS can continue to advance its digital service delivery, better meeting the needs of its users and maintaining high standards of service quality.

9. CONCLUSION

The study of the MAINS online application system offers valuable insights into the planning and management of IS projects, the benefits and risks associated with their implementation, and the importance of information security. It also underscores the impact of IS on business operations, particularly in the context of globalization, and highlights the strategic value of aligning IS projects with organizational goals. As organizations continue to adopt advanced IS, understanding these elements becomes increasingly critical to their success in a rapidly evolving digital landscape.

In conclusion, while the MAINS Online General Education Assistance Application system has successfully transitioned from a manual to a digital process, enhancing operational efficiency and data accuracy, there are still opportunities for further improvement. The absence of a robust notification system for application status updates and the limited options for password recovery represent areas where the user experience could be significantly enhanced. Implementing notifications through email, SMS, or phone calls would greatly improve communication between MAINS and the applicants, ensuring transparency and timely updates.

Moreover, offering an SMS-based password recovery option would provide users with greater flexibility and convenience, particularly for those who may not have immediate access to email. These enhancements are not merely technical upgrades but are crucial steps towards creating a more inclusive, responsive, and user-centered system. As MAINS continues to innovate and improve its services, addressing these areas will help sustain the momentum of digital transformation and ensure that the system meets the evolving needs of its users.

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