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Expectations of Internal Auditors at Work: A Study on e-SPI Information System

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Abstract

In the era of 5.0, information systems are very important in supporting activities across all sectors of organizations. The implementation of these systems varies, including methods such as purchasing, developing, and building, with or without external assistance. In higher education institutions, the implementation holds a great importance as they significantly improve the efficiency of tasks and functions, including those carried out by the Internal Audit Unit (SPI). Among these systems is e-SPI, an independently developed application used to review the entire process of an activity or program, from planning to implementation and reporting. Therefore, this study aimed to assess the effectiveness of e-SPI application in assisting internal audits in higher education institutions. To achieve this objective, an exploratory qualitative approach was employed, encompassing needs analysis, application development design, system implementation, and application ability evaluation to aid internal auditors in conducting supervision. The results showed that the adoption of e-SPI application in higher education institutions enhanced internal supervision processes by introducing and developing new control procedures facilitated by computer technology. The study also identified new risks associated with the information system, highlighting the need for implementing appropriate controls to ensure system security. In conclusion, the utilization of information systems in higher education institutions required internal auditors to adapt and enhance their knowledge and skills in effectively using these systems to conduct internal supervision. It was also observed that e-SPI application proved to be a valuable tool in this scenario, significantly improving the overall efficiency and effectiveness of internal audits.

Keywords: Internal audit, e-SPI, Information systems

1. Introduction

The introduction of information technology and information systems is creating a new era in the world of business and organization. Though these two terms are often used interchangeably, they share the same essence, including the utilization of computer devices, applications, and telecommunications facilities to significantly enhance the performance of organizations, be it profit or non-profit- oriented (Indrajit). The pace of technological development in this era is remarkable and swift, evident in numerous innovations that range from the simplest to the most groundbreaking. An information system is a sophisticated technology that processes, obtains, compiles, stores, and manipulates data in various ways to produce high-quality, accurate, relevant, and timely information. This valuable information finds applications in personal, business, and government contexts, serving as a strategic asset for informed decision-making.

Technology in the recent time has become an indispensable part of any company, government organization, or entity. The advancement of information systems, closely tied to the progress of science, has become an inseparable aspect of life and organizational

management. Organizations need to adapt and overcome challenges posed by the rapid evolution of information systems, a process that requires constant adjustment. Electronic data processing (EDP) through the application of information systems inevitably impacts the auditing process and internal control mechanisms of a company (Tumanggor and Adriansyah, 2020). To address these changes and harness the potential of information technology, the development of an internal audit system becomes crucial (Maulidah and Satyawan, 2021).

The implementation of information systems plays a crucial role in internal audits, offering significant benefits (Fadillah et al., 2021). The impact of technological convergence on the internal control mechanisms of a company underscores the responsibility of auditors in ensuring that management, including the audit committee and board of directors, comprehends the accepted risks and potential obligations transferred to board members (Rogers, 2003). Audits, aided by sophisticated information systems, greatly facilitate the auditing process (Davis, 1989). Consequently, auditors need to enhance their skills and knowledge in utilizing information systems to support their work effectively.

Audits encompass compliance with regulations as well as the evaluation of substance, contributing to the improvement of higher education quality. To conduct successful internal audits, a systematic process and the support of human resource expertise and adequate information systems are vital. In this context, human resources play a pivotal role in implementing internal audit innovations with the aid of information systems. However, the application of information systems in internal audit activities also brings the risk of cyber security threats, which can lead to data breaches, losses, and reputational damage for an organization. This implies that having capable human resources proficient in implementing information systems is essential.

The role of internal auditors extends beyond being mere watchdogs ensuring regulatory compliance. Instead, they serve as collaborators, assisting and supervising management to act in the best interests of all stakeholders. Despite changes in approach, internal auditors continue to fulfill their assurance and consulting duties and functions diligently (Huong et al., 2023).

Higher education, as part of the public sector, relies on information systems to carry out diverse tasks, including supervision. One such institution is the State Islamic University (UIN) of Mahmud Yunus Batusangkar. In the pursuit of supervisory responsibilities, internal auditors at UIN Mahmud Yunus Batusangkar have explored various approaches to develop information systems, including building them in-house, procuring from external sources, or collaborating with other parties.

The Internal Supervisory Unit (SPI) is entrusted with supervisory duties and functions that form an integral part of higher education management. Its primary objective is to ensure that financial management adheres to the relevant laws and regulations (Piagam SPI IAIN Batusangkar, 2017). Within the realm of State Islamic Religious Universities (PTKIN), SPI carries out internal supervision in the higher education environment. This encompasses preventive audits (prevention, supervision, and control) conducted before the preparation of financial and activity accountability reports, as well as post-audits after the implementation of activities and reporting.

The adoption of information systems by SPI for supervision poses both a question and a challenge for internal auditors. The crucial aspect is to ascertain whether these systems will streamline their work or, conversely, complicate their responsibilities. Among the information systems utilized is e-SPI, an independent system developed by UIN Mahmud

Yunus Batusangkar specifically for supervisory tasks. With the implementation of e-SPI, internal auditors gain access to a range of tools that offer different nuances in their work, extending from the review process to other forms of supervision. This presents a contemporary and future challenge for internal auditors, such as determining whether the information system will aid or complicate efforts in fulfilling their duties effectively.

Role Theory

According to Robbins and Judge (2001), a role represents a set of behavior patterns expected from an individual holding a specific position in a social environment. Each role entails a set of rights, obligations, expectations, norms, and behaviors that must be fulfilled by the individual (Arunde and Ilat, 2018). Soekanto (2009) defines the role as a dynamic process related to the position (status) of an individual. When rights and obligations are fulfilled in alignment with a specific position, such individuals are said to be effective in performing their roles. In this context, organizational strategy and structure have been shown to influence roles and perceptions (Bauer and Spencer, 2003). For this study, roles are defined as the expectations of appropriate behavior within a job. There are two types of job behavior, namely 'role perception' and 'role expectation' (Achua and Alabar, 2014). Role perception refers to the understanding of an individual regarding how to behave or the patterns of behavior or function expected of them. On the other hand, role expectation is how others perceive the behavior of an individual in specific situations.

Auditor Internal

Internal audit serves as an independent assessment function within an organization, aimed at evaluating organizational activities and assisting organizational members in effectively carrying out their responsibilities (Tugiman, 2006). Additionally, internal audits provide analysis, assessment, suggestions, and recommendations concerning the activities of the examined organization (Olsen and Olsen, 1967). In the public sector, internal auditors conduct audit activities within organizations or institutions that provide public goods and services (Bastian, 2014). The role and function of internal auditors have become more comprehensive, as they have evolved beyond being mere "watchdogs" overseeing compliance to actively providing services to help the organization achieve its goals through assurance and consulting activities (Alkebsi and Aziz, 2017)

To empower modern internal auditors to offer added value to the organization and promote goal achievement, a change in organizational culture is imperative. The organization should become responsive to all changes that occur. Mardiasmo (2009) and Handayani (2015) explain that the new paradigm of the internal control system significantly departs from the traditional supervision concept. The new paradigm emphasizes auditing and consulting (assurance and consulting) and highlights the effectiveness of risk management through risk-based audits and good governance processes. The success of internal auditors is no longer measured solely by the number of findings but by their ability to assist management in overcoming challenges and serving as early warning providers.

Role of the Internal Auditor

Agency theory focuses on the relationship between interested parties (principals) and agents acting on their behalf (Mardiasmo, 2009). In the corporate context, shareholders (principals) entrust managers (agents) with the responsibility of managing the company. Acting as independent and objective agents, internal auditors help ensure that the actions of management align with the interests of shareholders. This theory addresses conflicts of interest and emphasizes the role of auditors in mitigating potential risks associated with agency relationships. On the other hand, Social System theory, as proposed by Luhmann (1995), examines organizations as complex social systems with various interconnected elements. Internal auditors play a key role in understanding and analyzing the social system within the company, identifying weaknesses, ensuring the proper functioning of internal controls, and contributing to overall process improvement.

Information Technology and Information Systems

The Technology Acceptance Model (TAM), developed to explain user behavior in technology adoption and usage, centers around factors influencing technology acceptance, such as perceived usefulness and ease of use Jensen and Meckling (2019) and Moorthy et al. (2011). Rogers (2003) presents the Technology Innovation Theory, which delves into how technological innovations are introduced, accepted, and disseminated in society. Innovations may encompass new technologies, products, or processes that can transform the business environment or society.

Information Systems Theory explores the design, development, and management of information systems to achieve organizational goals. This theory delves into the interactions among data, people, and technology to generate valuable information. It is an organized set of interconnected elements aimed at collecting, storing, managing, processing, and delivering relevant and useful information to achieve specific goals. In a broader context, information systems encompass technology, people, processes, data, and communications working in synergy to support business or organizational activities (Luhmann, 1995).

The purpose of an information system is to furnish stakeholders with accurate, timely, and relevant information to facilitate informed and effective decision-making. The key elements of an information system encompass:

1. Input: Data or information entered into the system for processing.
2. Process: The stage where data is processed, converted into information, and linked to the required knowledge or results.
3. Output: The result of the processing, delivering processed information to users or other systems.
4. Storage: The repository for storing data and information for current or future use.
5. Control: Mechanisms that manage access, security, and data integrity to ensure system operation.

Various examples of information systems exist, including database management, accounting information, personnel management, online ordering systems, and other supportive systems for work tasks. Information systems play a crucial role in optimizing business processes, enhancing productivity, and facilitating informed decision-making across diverse sectors such as business, government, health, and education, among others.

Moreover, advances in information technology have opened up new possibilities for developing and implementing more sophisticated and innovative information systems.

2. Methodology and Data Collection

This study was conducted using a qualitative approach, employing an explorative method to collect and analyze data through document analysis. The exploratory qualitative approach is a technique for analyzing and discovering novel relationships between current phenomena. Exploratory research is open-ended so that the information gathered can help us better comprehend the theory and achieve the best results.

Researchers will conduct exploratory study on auditee information in order to discover flaws with SPI's supervision implementation. Various challenges encountered during the implementation of supervision will be used as preliminary results to develop action plans and policies to improve the upcoming supervision process. Various suggestions for improvement were received in order to increase the effectiveness and efficiency with which supervision was implemented. The aim was to identify and design information technology requirements to support the supervision process conducted by the Internal Audit Unit. E-SPI application developed in this process was tested and implemented to enhance supervisory duties and functions. The effectiveness of e-SPI application was subsequently evaluated to ascertain its ability to assist internal auditors in fulfilling supervisory responsibilities.

3. Result

The establishment of UIN Mahmud Yunus Batusangkar had historical significance, encompassing three essential aspects, namely 1) Batusangkar as the center of the Pagaruyung kingdom, 2) The city of Batusangkar as a pioneer of higher education development in West Sumatra, and 3) The transformation of the Tarbiyah Faculty from IAIN Imam Bonjol in Batusangkar to STAIN Batusangkar, and eventually to its current status as UIN Mahmud Yunus Batusangkar.

Pagaruyung Kingdom, established in 1347M in Pagaruyung Batusangkar, emerged under the reign of its first king, Adityawarman. Initially influenced by Buddhism, the kingdom eventually adopted Islam in the 14th century due to the spread of Islam in West Sumatra. Historical records showed that by the 16th century, Pagaruyung Kingdom had fully transitioned into an Islamic kingdom under King Sultan Alif.

With the influence of Islam, the government system and social life of the Pagaruyung community were shaped by Islamic teachings. The *"**Tungku Tigo Sajarangan**"* government system emerged, involving the Sultan (Government), *Cadiak Pandai* (Scholars), and *Alim Ulama* (Ulema). Over time, the Pagaruyung Kingdom/Sultanate became a significant center for the development and dissemination of Islamic teachings. Ulema from Pagaruyung was sent to other regions in Indonesia to spread the teachings of Islam, exemplifying the impact of the kingdom on Islamic propagation. The culture of Minangkabau people was also influenced by Islam, as evident in the philosophy of *"**Adat Basandi Syara', Syara' Basandi Kitabullah**"* (ABS-SBK).

The historical significance of the Pagaruyung kingdom, which once encompassed most of West Sumatra, firmly established the city of Batusangkar as a center of Minangkabau culture and the spread of Islam in Indonesia. This rich historical background provided a strong foundation for the establishment and development of UIN Batusangkar, named Mahmud Yunus.

Universities were responsible for managing core academic activities, complemented by non-academic management, including finance, human resources, information technology, procurement of goods and services, and other aspects. The effective functioning of non-academic management relied on adherence to regulations as a guiding reference.

Within the scope of State Islamic Religious Universities, internal supervision was carried out by the SPI. The main task of SPI was to conduct non-academic supervision, upholding principles such as integrity, objectivity, expertise, and confidentiality. The functions of SPI encompassed preventive audits (prevention, supervision, and control) before preparing financial and activity accountability reports, as well as post-audits after implementing activities and reporting. By fulfilling its role and function, SPI contributed to preventing financial losses and safeguarding assets against corruption, negligence, fraud, irregularities, and waste.

Internal supervision served as a valuable tool for higher education leaders in assessing operational activities, ensuring they aligned with targets and objectives set in accordance with the vision and mission of the institution. This type of supervision was distinct from accounting and administrative oversight. Based on its critical role, internal supervision played an essential part in the functioning of a university. Although SPI was not directly involved in academic activities, its focus on non-academic support ensured that academic pursuits aligned seamlessly with the established goals and the overall vision and mission of the institution.

The result was the realization of accountability and transparency in the management of an institution, achieved through orderly financial bookkeeping. This ensured the avoidance of financial losses, the safeguarding of assets, and the adherence to established procedures, thereby increasing stakeholder satisfaction, maintaining quality customer service, and enhancing efficiency and effectiveness. Aside from seeking mistakes, SPI also assists university leaders in supervising and evaluating the management control system to keep the institution on the right track. The findings from SPI were not always negative, as there were also positive outcomes that should be shared as examples for other work units. Furthermore, SPI acted as the first line of defense when external auditors got involved.

Internal supervision was a vital management function in organizing internal control activities in higher education. Furthermore, it provided sufficient assurance regarding the efficiency and effectiveness of operational activities, the reliability of financial reporting, and compliance with established rules, regulations, and policies. The function of internal supervision in overseeing internal control activities was instrumental in accelerating the achievement of Good University Governance (GUG).

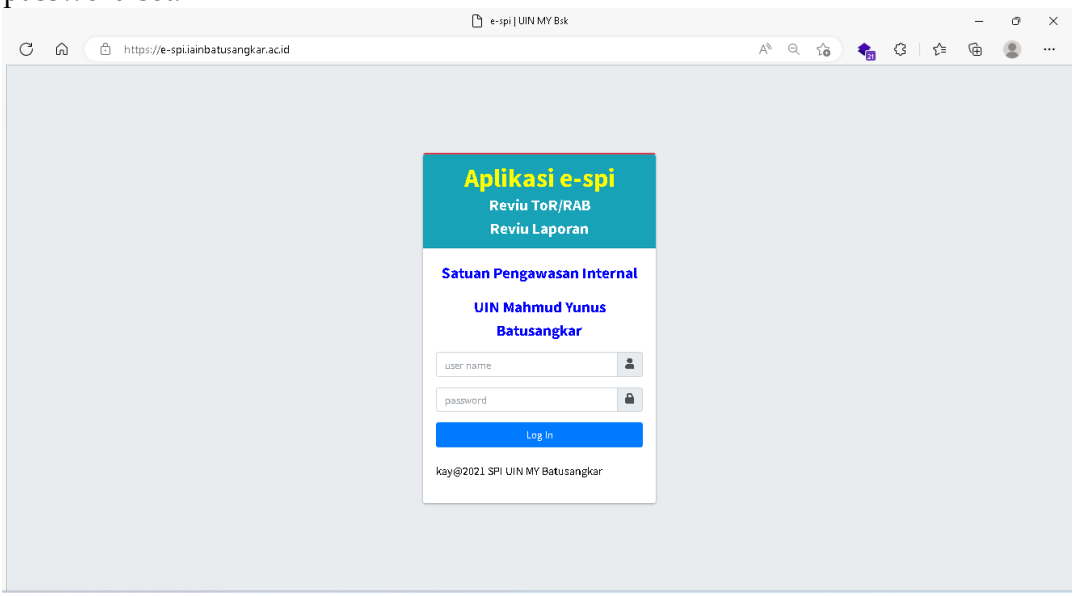
The development of the information system to support supervisory tasks and functions was based on stakeholder interviews, including leaders and application users known as e-SPI. Through e-SPI, leaders could direct the supervision process systematically rather than manually, allowing for direct control over the supervisory activities carried out by SPI.

The Information System, named e-SPI, represented a preventive step taken by SPI to fulfill its supervisory duties and functions. UIN Mahmud Yunus Batusangkar required such preventive audits conducted by SPI to ensure compliance with budget governance rules and

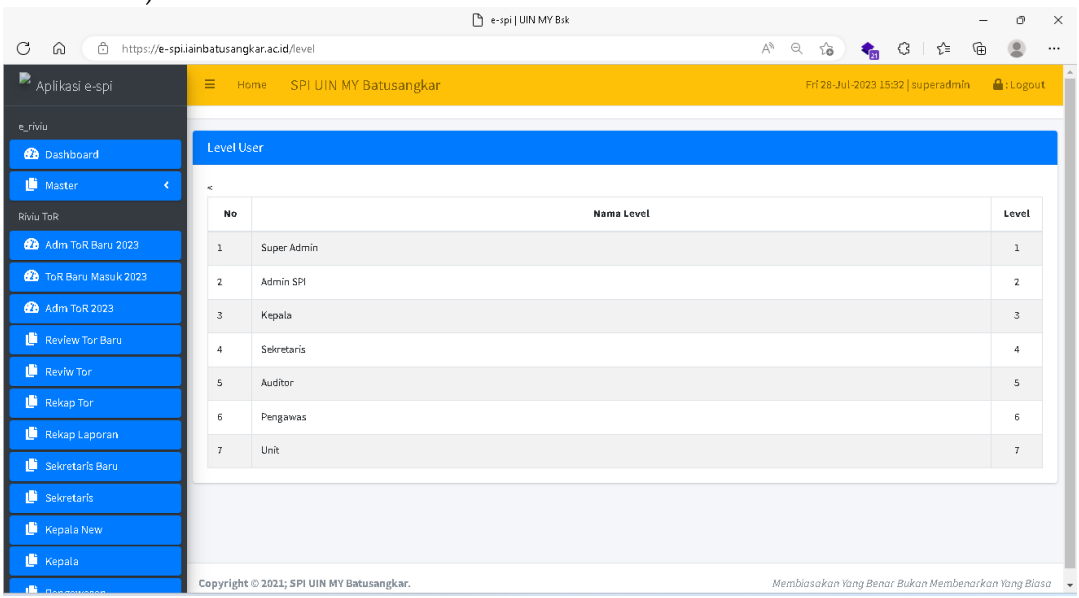
regulations, thereby enhancing the effectiveness and efficiency of utilizing the state budget. This approach ensured that implemented activities aligned with the vision, mission, and established university strategic plan while mitigating strategic, financial, operational, regulatory, and other risks faced by universities.

The following were the development results of e-SPI information system, which assisted internal auditors in carrying out their duties and functions. The display of e-SPI was organized, starting from the login menu used by all users.

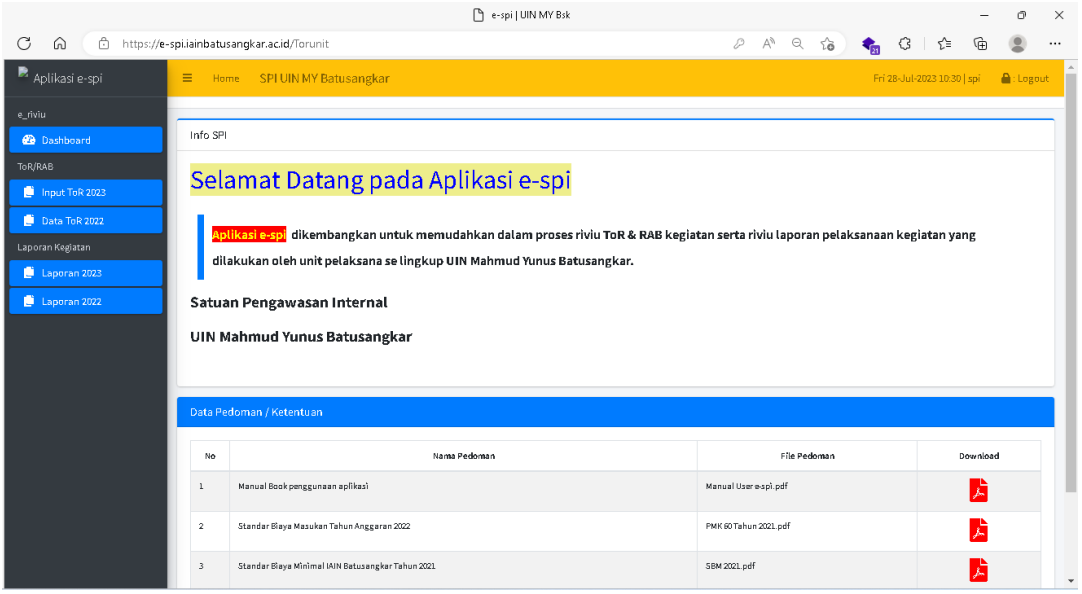
1. The login menu is used for all user levels.
   The system sorts users based on the username entered, and then displays the user levels, namely Implementation, Auditor or Reviewer, SPI Secretary, SPI Head, Administration, Finance, and Supervision.
   Login Menu (e-SPI display for the first login by all users with the username and password set.



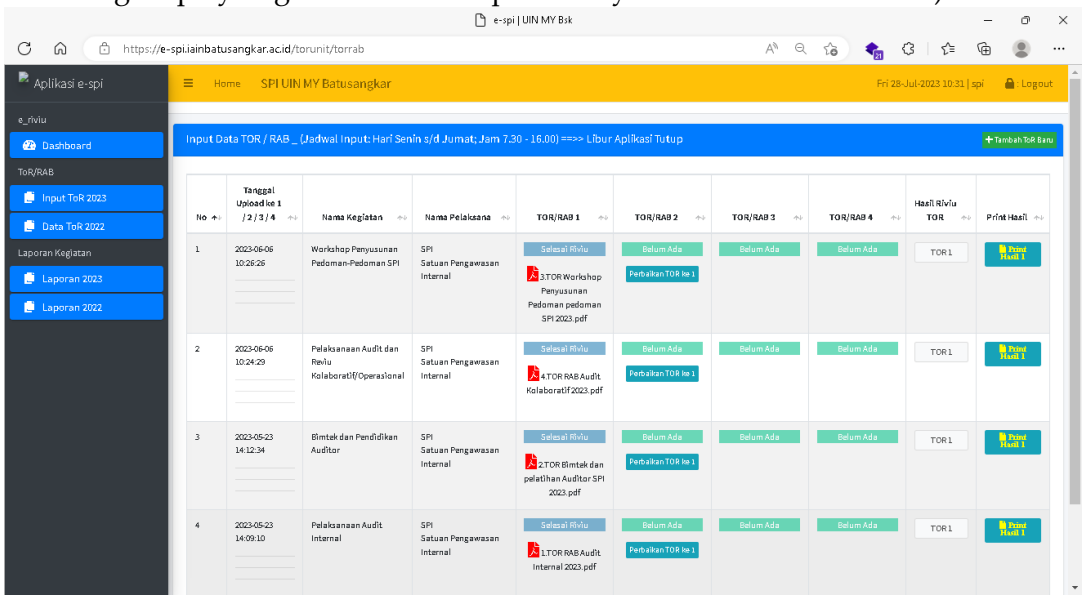
User Level e-SPI users (e-SPI users in faculties, postgraduate programs, institutions, and other units)



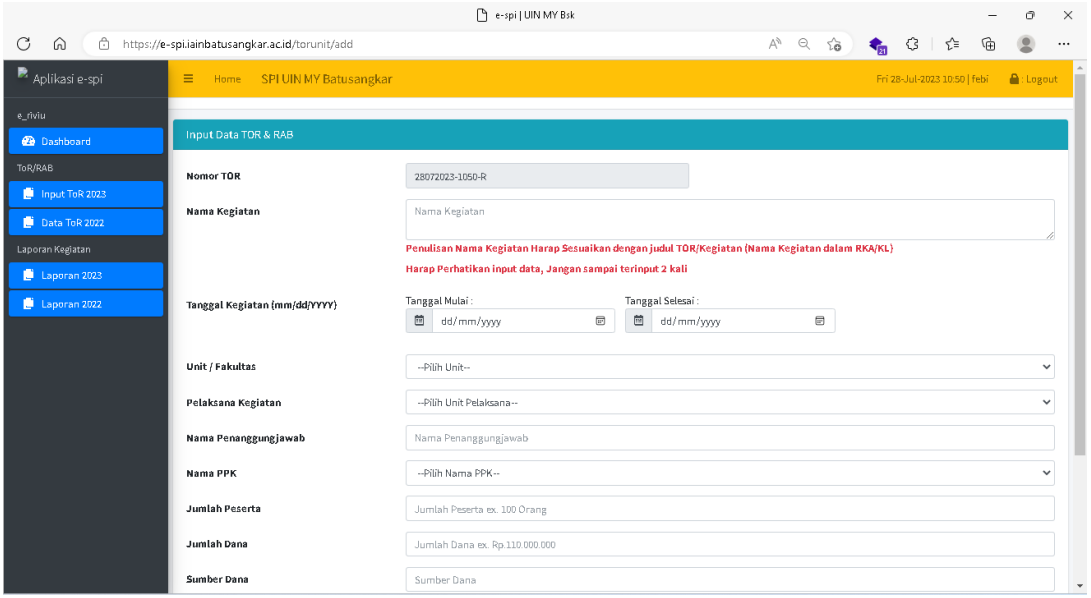
Implementing User Home Menu Display (users will input documents that SPI will review on their respective menu dashboards)



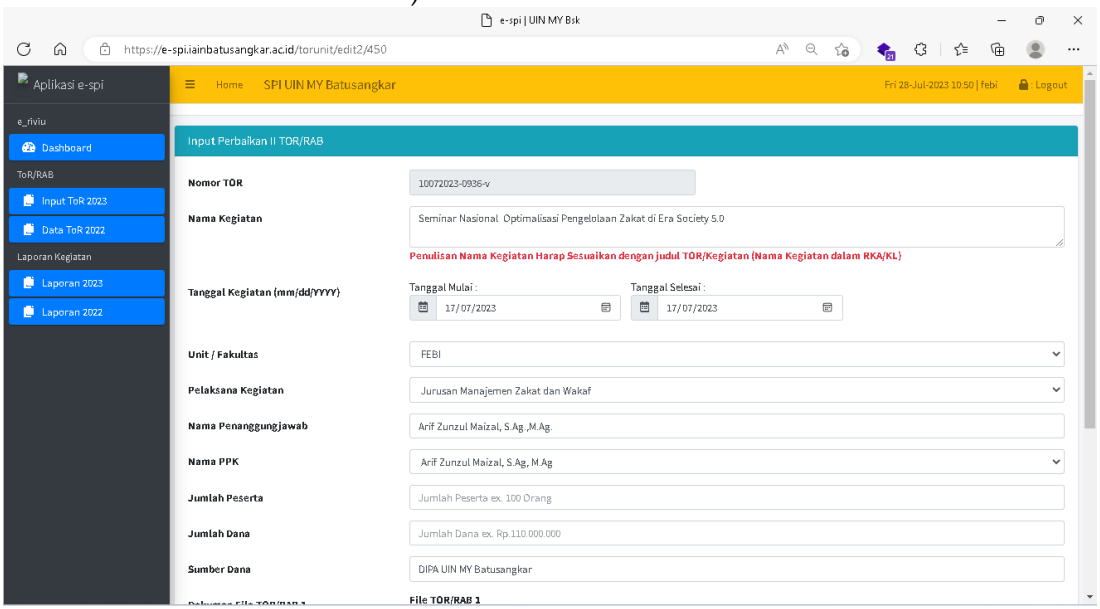
2. Display of document input menu by the user
Main Menu Display ToR Input Data (documents that users have input will look like the following display to go to the review process by internal auditors at SPI)



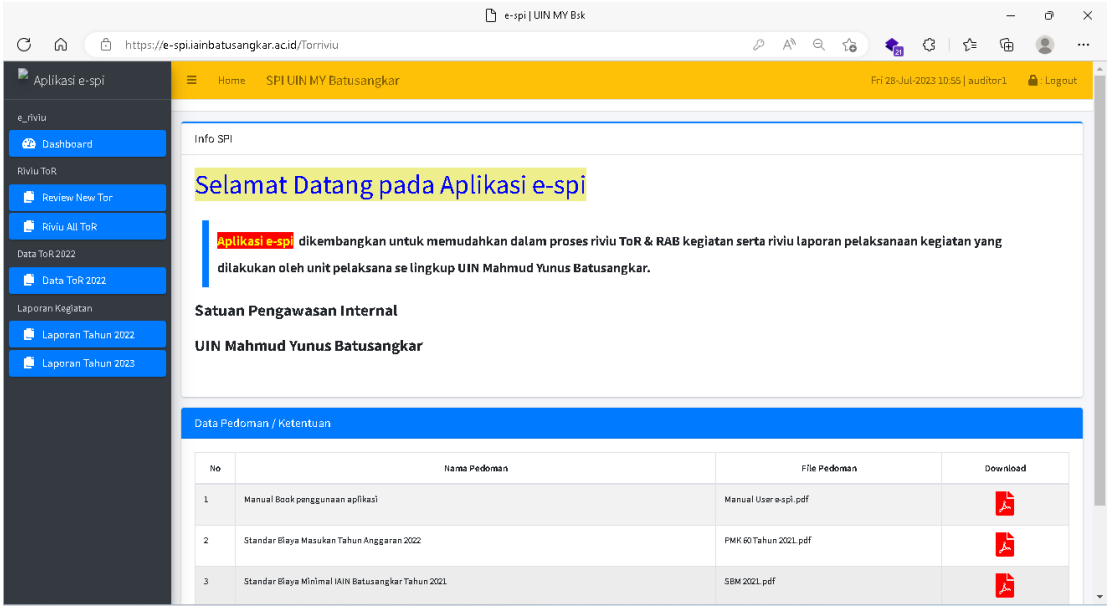
Menu Input new ToR data (is a menu display to input new documents that SPI will review)



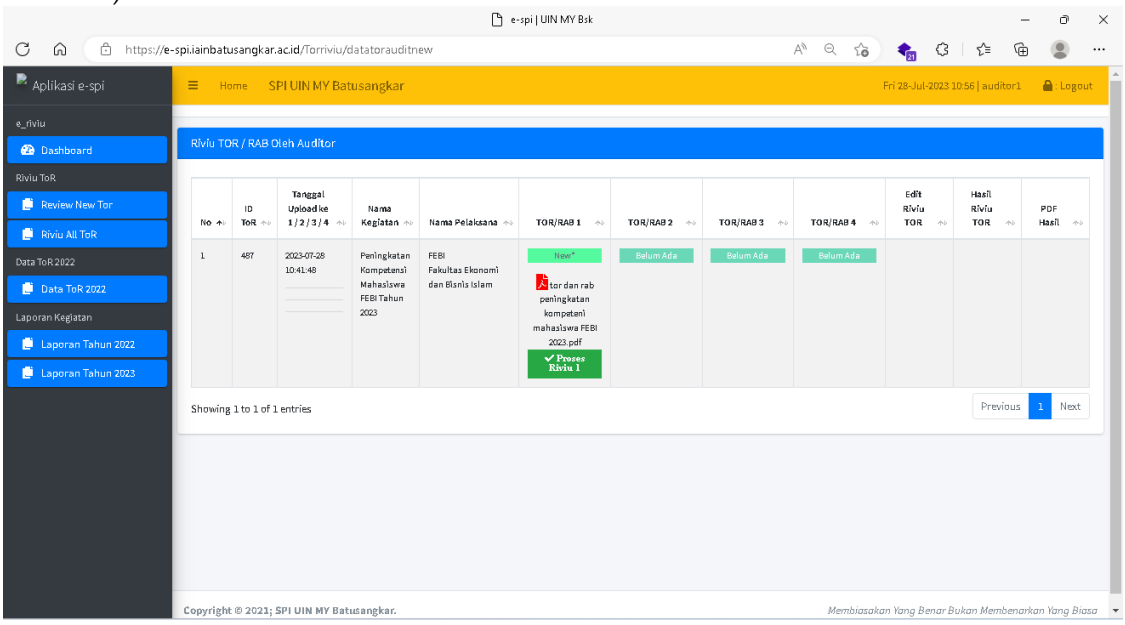
ToR improvement data input menu (is a menu display for inputting improvement documents that SPI will review)



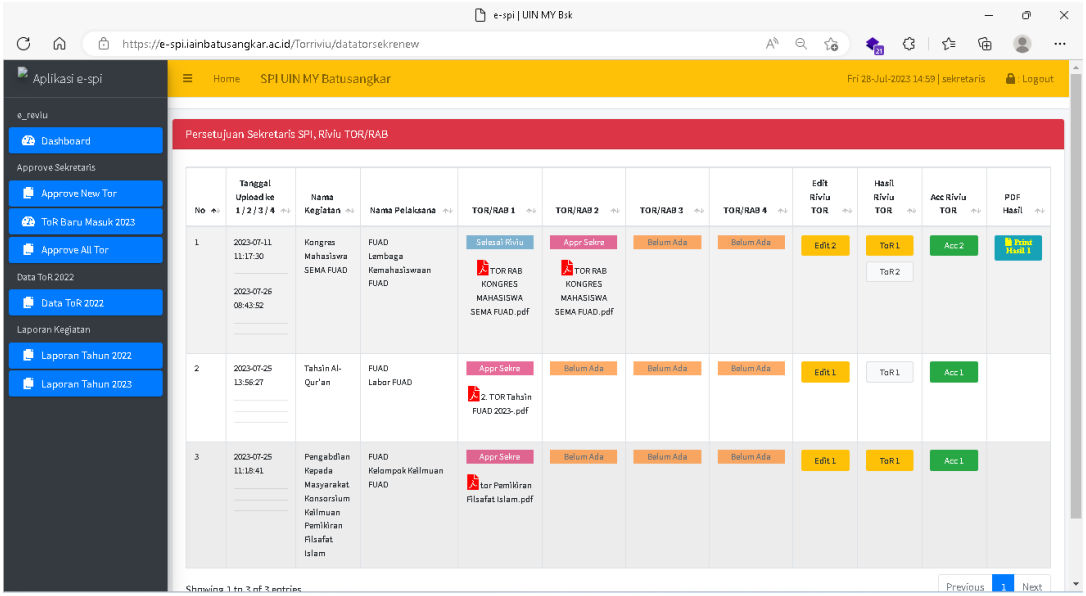
3. E-SPI menu on the dashboard Internal auditors in the review process as a form of supervision carried out using information systems.
   Auditor Menu Display



Auditor menu display (SPI menu that has been in the review process stage by internal auditors)

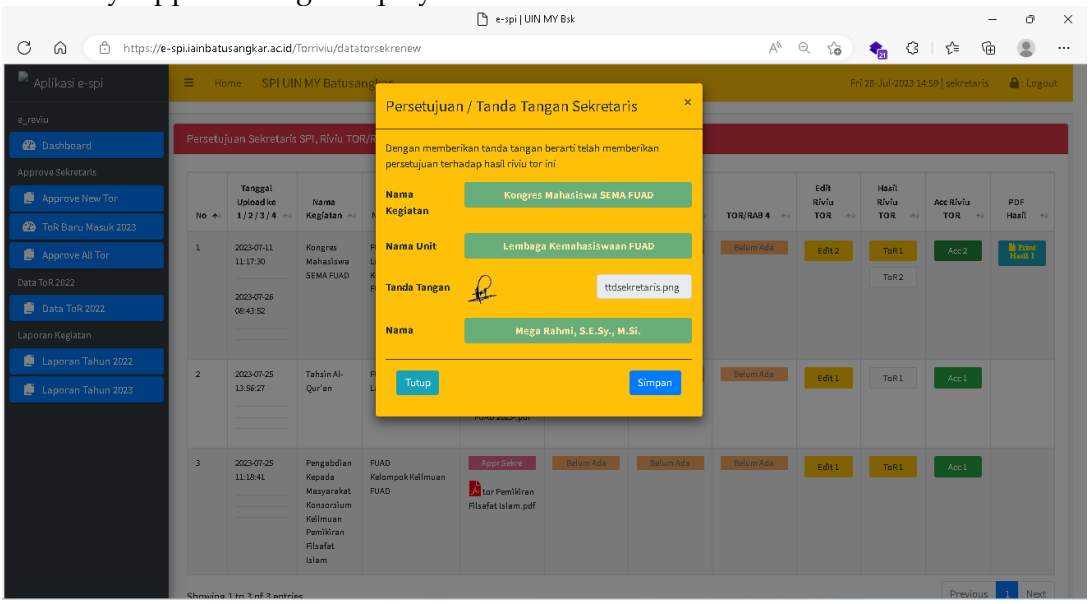


Secretary ToR Data Display (menu of document review results by internal auditors, awaiting verification by SPI secretary)

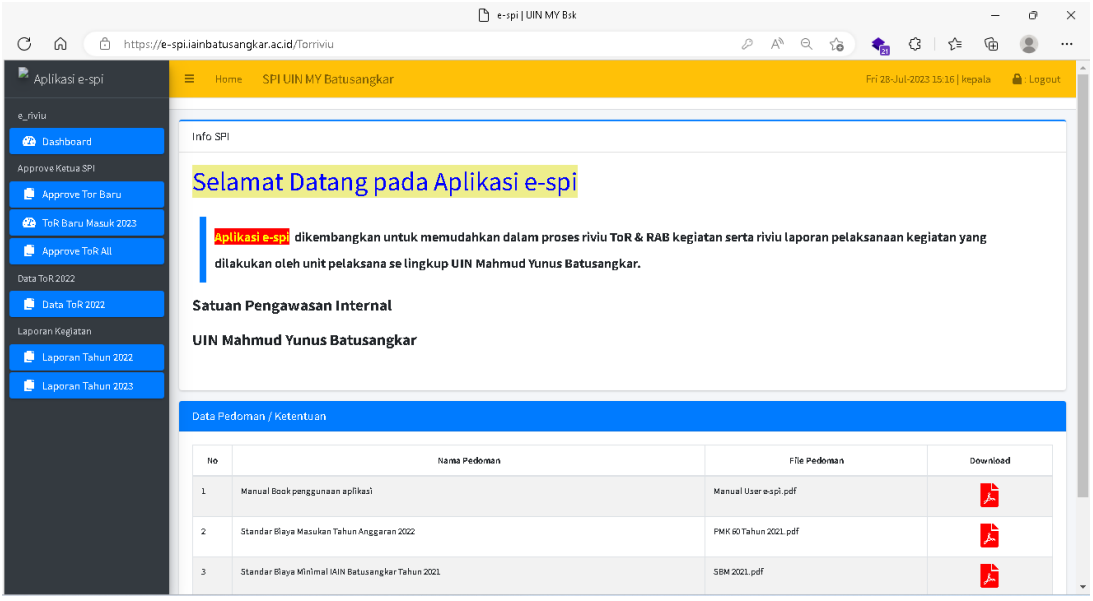


4. Approval menu by the head of SPI as an approval of the results of the supervision review carried out by the internal auditor.

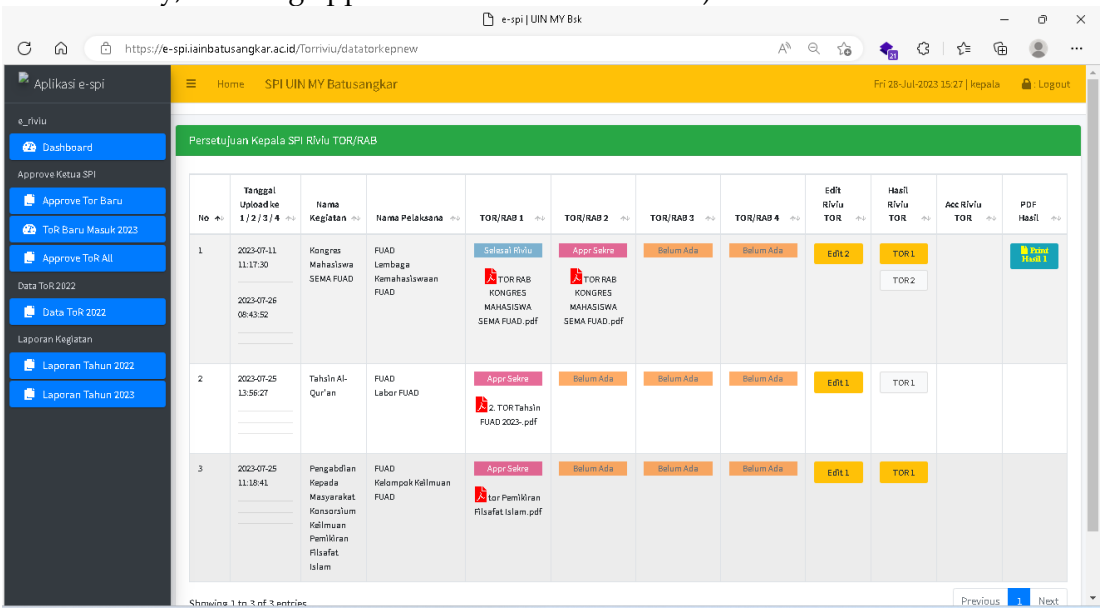
Secretary Approval Page Display



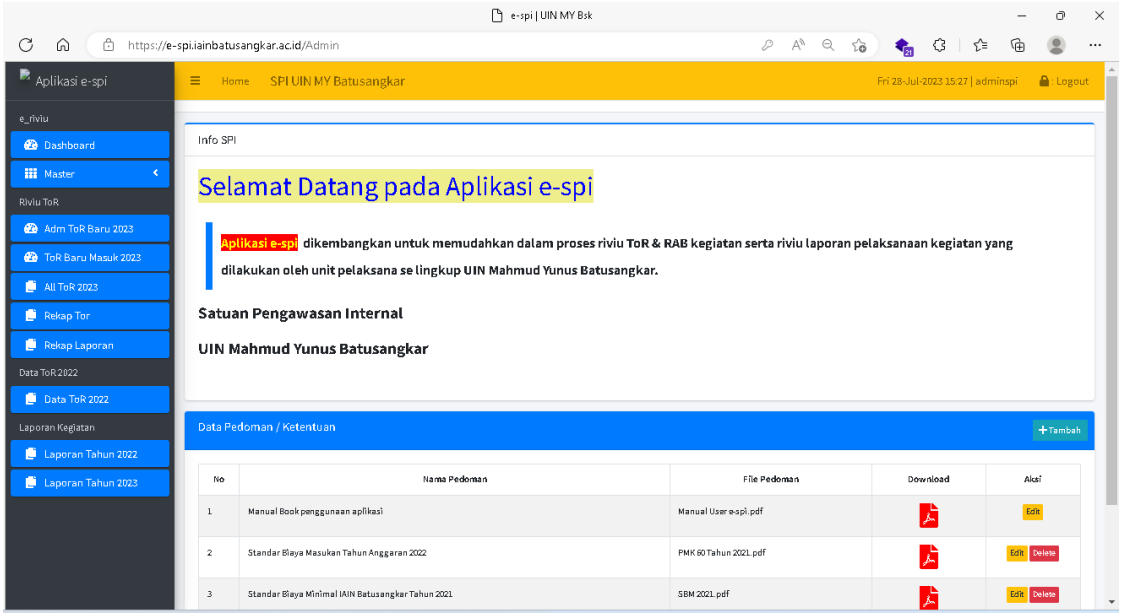
SPI Chair ToR Data Display (e-SPI menu on the special dashboard of the chairman, waiting for the approval process)



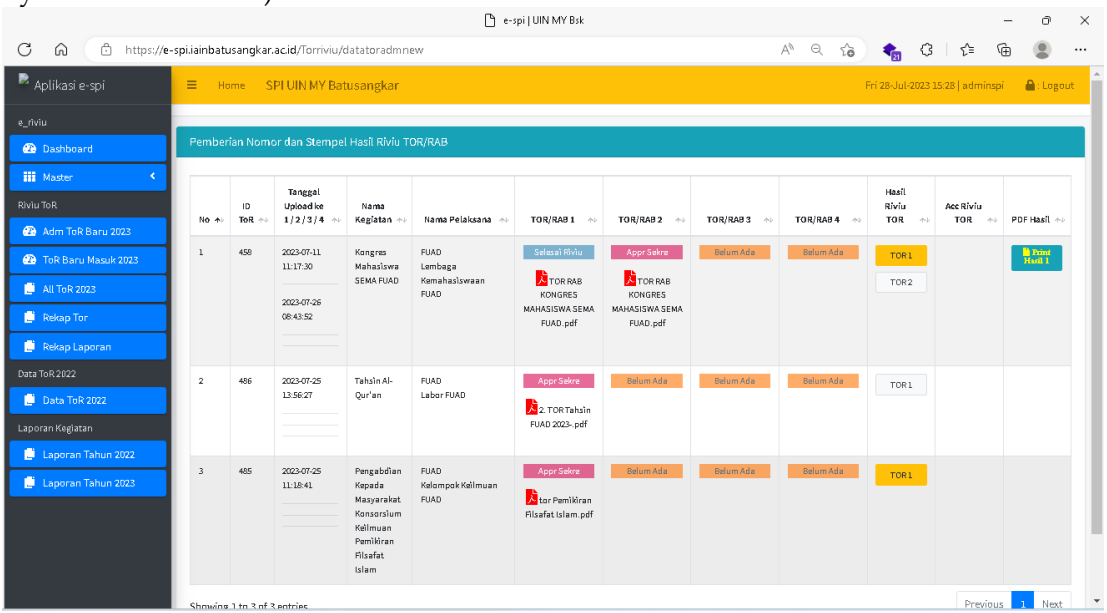
Chairperson Approval Page Display (Review documents that have been verified by the SOI secretary, awaiting approval from the head of SPI)



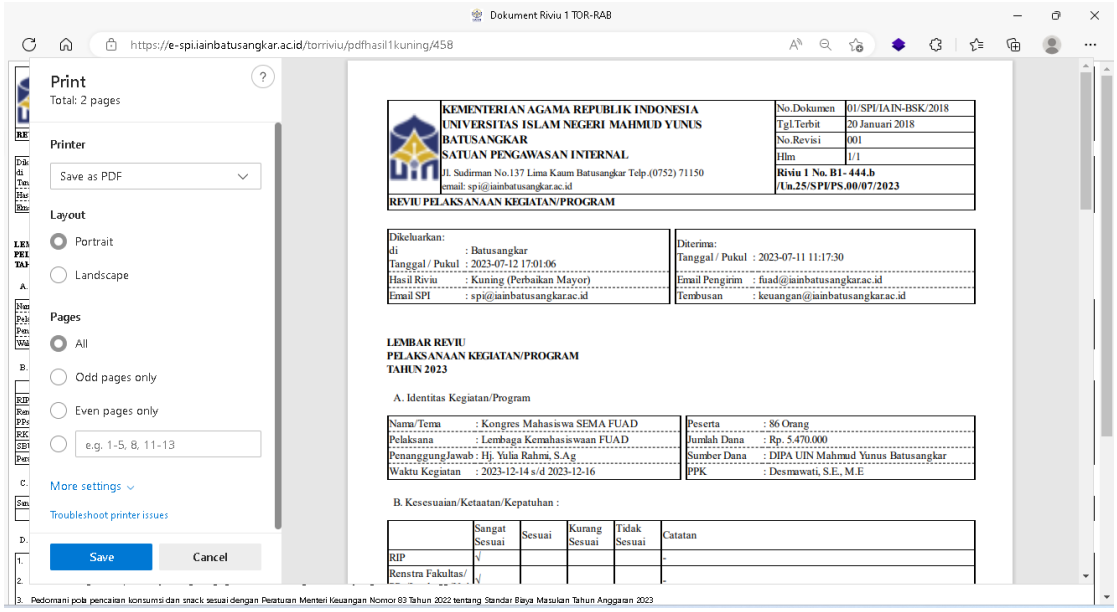
5. The e-SPI menu on the administrative executor, the reviewed document, is ready to be sent back to the user.
   ToR Administration Menu Display



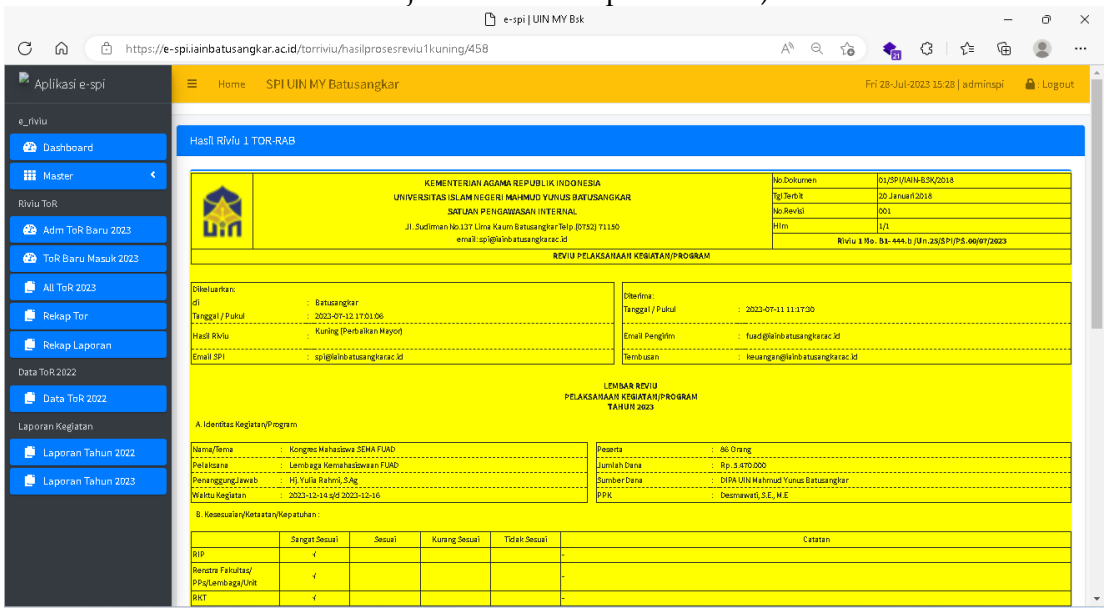
ToR Administration Menu Display (menu on e-SPI administration after being approved by the SPI chairman)



ToR Administration Menu Display (document numbering and other administrative completeness before being sent back to the user)



6. Menu of review results received by users
   Review Results with Yellow Sheet (this means document improvements are needed, which can be in the form of major or minor improvements).



At State Islamic Religious Universities, particularly at UIN Mahmud Yunus Batusangkar, the SPI was entrusted with the role of conducting non-academic supervision. Non-academic areas included finance, human resources, information technology, information systems, procurement of goods and services, and state assets. The leadership directed and expected a pattern of supervision supported by information systems, driven by the unstoppable progress of technology and the broad scope of supervision, which necessitated tools for auditors to perform their duties effectively. According to ACFE report in 2018, the effectiveness of the internal auditor function in conducting supervision posed a challenge (Maulidah and Satyawan, 2021)

In response to those needs and demands, the SPI explored the necessary supervisory system appropriate to the scope of supervision, supported by an adequate work culture. The strong and empowering support from the leadership enabled SPI to design a supervisory

system. Huong et al. (2023) stated that leadership support influenced the implementation of internal audits in higher education. Julian et al. (2021) provided a different view, pointing out that internal auditors experienced pressure from top management in carrying out their duties. Meanwhile, Alkebsi and Aziz (2017) found that top management support significantly influenced the effectiveness of internal control.

The need for innovation in supervision led to the independent development of an information system used by internal auditors to carry out their duties and functions, known as e-SPI. The development of this information system went through stages of refinement and improvement, adapting to the expanding scope of system-based supervision requirements.

E-SPI addressed the work challenges faced by internal auditors by transforming their work patterns from manual to systemized. This transition necessitated an increase in the capacity of human resources for effective supervision. To support internal auditors, who were part of the human resources at SPI, opportunities for enhancing expertise in both auditing and utilizing information technology and information systems needed to be provided. Through this process, internal auditors were prepared to embrace the upcoming challenges, avoiding any culture shock associated with the shift in work patterns.

The use of e-SPI presented new challenges, particularly concerning data security, data synchronization processes, and other potential risks that required immediate attention. It was natural for a new system that altered work patterns to introduce new risks. However, these challenges were addressed through continuous system improvements, aimed at mitigating and avoiding potential risks arising from the use of e-SPI. As Julian et al. (2021) explained, internal auditor failure could lead to audit failure, underscoring the importance of identifying and managing risks that emerged during the supervision process.

E-SPI application effectively addressed the work challenges faced by internal auditors by assisting in conducting supervision, improving work quality, efficiency of results, and time management. Adetoso and Akinselure (2016) emphasized the effectiveness of strengthening internal control in higher education through internal audits, aligning with the assertion of Almodallah (2023) that information technology significantly benefited the internal audit process. E-SPI streamlined the work pattern for internal auditors, enabling them to handle the increasingly broad scope of supervision required by SPI. This ensured the appropriate completion of supervisory planning outlined in the SPI work program.

As the pattern of supervision carried out by internal auditors expanded in the past, preparing SPI internal auditors to remain competent in dealing with advanced and sophisticated information systems became crucial. Aikins (2011) pointed out that the work of internal auditors influenced government financial performance through improved internal control. Moorthy et al. (2011) also stressed the responsibility of internal auditors in ensuring effective management governance. The information system served as a valuable tool for internal auditors in conducting supervision, addressing the challenge of conducting activities in compliance with regulations, contrary to the misconception that supervision served as a barrier, as highlighted by Achua and Alabar (2014). The results emphasized that internal auditors were partners in increasing value rather than being perceived as roadblocks and detectives.

4. Conclusion

In conclusion, the adoption of information systems, specifically e-SPI application in higher education, enhanced the internal control process. The development of the information system introduced new control procedures conducted through computers, which were facilitated by e-SPI application. However, it was important to address the new risks associated with information systems by implementing dedicated controls. Utilizing information systems in higher education required internal auditors to make necessary adjustments, including enhancing their knowledge and skills in utilizing these systems effectively.

The authors are grateful to the Chairman of UIN Mahmud Yunus Batusangkar for the moral and material support provided to SPI, enabling the fulfillment of its duties in line with the planned work program. The authors are also grateful to the dedicated team members for their sincere cooperation and high dedication, regarding thoughts, time, and abilities, which played a vital role in achieving the current milestone collectively.

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