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# ANALYSIS OF THE IMPLEMENTATION OF SAKTI ON BILL SETTLEMENT PERFORMANCE (CASE STUDY AT BMKG)

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**ABSTRACT**

*The full implementation of the SAKTI system across all Ministries/Institutions in 2022—following its pilot testing since 2015—is part of the realization of the Integrated Financial Management System concept. This research aims to assess the relationship between the implementation of the SAKTI system and bill settlement performance, which is a component of the budget execution performance assessment (IKPA), through a case study at BMKG. The study was conducted using the Human-Organization-Technology Fit (HOT-Fit) Model framework to evaluate the success of SAKTI. A qualitative research method was employed, with data collected through interviews and questionnaires distributed to respondents who are users of the SAKTI commitment and payment modules. The results of this study show that the implementation of SAKTI is directly associated with improvements in bill settlement performance. These improvements include increased efficiency in the time required to complete the billing process, enhanced data accuracy through system integration across related modules, improved collaboration among involved teams, and more secure data handling and usage. Overall, SAKTI supports faster, more accurate, and more efficient bill settlement, thereby contributing to better performance in government agency budget implementation—despite ongoing technical challenges and system instability, particularly during maintenance periods and high-usage times.*

***KEYWORDS*** *SAKTI, bill settlement performance, budget execution performance, IKPA*



## INTRODUCTION

Approaching the 2022 fiscal year, work units from various Ministries/Institutions were actively transitioning from multiple financial applications to an integrated system—namely, the implementation of the *Sistem Aplikasi Keuangan Tingkat Instansi* (*SAKTI*), as regulated in Minister of Finance Regulation Number 171/PMK.05/2021 concerning the Implementation of the *SAKTI* System (Kapur, 2018; Khan et al., 2020; Sihite et al., 2023).

According to Minister of Finance Regulation Number 171/PMK.05/2021, the *SAKTI* system is designed to integrate the processes of planning and budgeting, implementation, and accountability for state revenue and expenditure budgets in government agencies, as part of the state financial management system. The *SAKTI* system consolidates previously separate applications into one unified system, as illustrated in Figure 1 (Tian et al., 2020).


**Figure 1. Comparison of the SAKTI System with Previous Applications**
Source: SITP Directorate (2021)

The implementation of the *SAKTI* system is one form of applying the Integrated Financial Management System concept (*Integrated Financial Management Information System* or *IFMIS*), which responds to the growing demand for more modern financial management. The development of *IFMIS* is inevitable, in line with the evolution of the times and advancements in information technology. In general, *IFMIS* functions as an information system that records financial transactions to produce summary financial information (Hanafiah et al., 2019). Through the implementation of the *SAKTI* system, it is expected that better state financial governance can be achieved through increasingly practical, efficient, and transparent processes in budget preparation, activity implementation, and result reporting (Agarwal & Bhakuni, 2024; Krishna et al., 2022).

The implementation of the *SAKTI* system began with *SAKTI* piloting, as outlined in Minister of Finance Regulation Number 223/PMK.05/2015. *SAKTI* piloting was conducted before the system was implemented across all work units in State Ministries/Institutions. This piloting served as an effort to test *SAKTI* on a limited scale in order to gather valuable feedback for continuous improvement. In its initial phase, *SAKTI* piloting was conducted in work units within the Ministry of Finance and subsequently expanded to several work units in other State Ministries/Institutions (Hakim, 2024; Medina-Garrido, Biedma-Ferrer, & Ramos-Rodríguez, 2023; Medina-Garrido & Biedma-Ferrer, 2023).

As the system developed, the *SAKTI* system underwent several adjustments and updates, both technically and in terms of policy. In 2021, the Minister of Finance issued Regulation Number 171/PMK.05/2021, which stipulated that the implementation of the *SAKTI* system would begin for planning, budgeting, implementation, and accountability of the *APBN* for the 2022 Fiscal Year across all Ministries/Institutions (Russo et al., 2021; Sheppard, 2017). This was marked by the initial use of the Budgeting Module in the *SAKTI* system for preparing the *Rencana Kerja dan Anggaran Kementerian/Lembaga* (*RKA K/L*) for the 2022 Fiscal Year in 2021, replacing the previously used *RKAKL DIPA* application (Medina-Garrido, Biedma-Ferrer, & Bogren, 2023; Zebra et al., 2023).

On the other hand, the budget implementation performance of Ministries/Institutions has been regularly assessed since 2014 through what is known as *IKPA* (DJPb, 2021). Based on the Regulation of the Director General of Treasury Number PER-5/PB/2022, *IKPA* or *Indikator Kinerja Pelaksanaan Anggaran* refers to indicators established by the Ministry of Finance as *BUN* to measure the quality of budget implementation performance in State

Ministries/Institutions. These indicators evaluate the quality of budget planning implementation, budget execution, and the outcomes of budget implementation.

In 2022, to provide a clearer picture of budget implementation performance at the work unit level, several changes were made to the *IKPA* assessment process. These changes were enacted through the issuance of Regulation of the Directorate General of Treasury Number PER-5/PB/2022, which outlines the technical guidelines for assessing the *IKPA* of State Ministries/Institutions in 2022.

IKPA Tahun 2021 (PER-4/PB/2021)

| Aspek | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. Aspek Kesesuaian Antara Perencanaan dengan Pelaksanaan Anggaran | | 2. Aspek Kepatuhan Terhadap Peraturan Perundang-undangan di Bidang Pelaksanaan Anggaran | | 3. Aspek Efektifitas Pelaksanaan Anggaran | | 4. Aspek Efisiensi Pelaksanaan Anggaran | |
| **Indikator** | **Bobot** | **Indikator** | **Bobot** | **Indikator** | **Bobot** | **Indikator** | **Bobot** |
| a. Revisi DIPA | 5% | d. Data kontrak | 10% | h. Penyerapan Anggaran | 15% | l. Kesalahan SPM | 5% |
| b. Deviasi Halaman III | 5% | e. Pengelolaan UP dan TUP | 8% | i. Penyelesaian Tagihan | 10% | m. Perencanaan Kas | 5% |
| c. Pagu Minus | 5% | f. LPJ Bendahara | 5% | j. Capaian Output | 17% | | |
| | | g. Dispensasi SPM | 5% | k. Retur SP2D | 5% | | |

IKPA Tahun 2022 (PER-5/PB/2022)

| Aspek | | | | | |
|---|---|---|---|---|---|
| 1. Aspek Kualitas Perencanaan Anggaran | | 2. Aspek Kualitas Pelaksanaan Anggaran | | 3. Aspek Kualitas Hasil Pelaksanaan Anggaran | |
| **Indikator** | **Bobot** | **Indikator** | **Bobot** | **Indikator** | **Bobot** |
| a. Revisi DIPA | 10% | c. Penyerapan Anggaran | 20% | h. Capaian Output | 25% |
| b. Deviasi Halaman III DIPA | 10% | d. Data kontrak | 10% | | |
| | | e. Penyelesaian Tagihan | 10% | | |
| | | f. Pengelolaan UP dan TUP | 10% | | |
| | | g. Dispensasi SPM | 5% | | |

**Figure 2. Comparison of Aspects and Indicators in the 2021 and 2022 IKPA Assessment**
Source: DJPb (2021 and 2022)

Based on Figure 2 above, the Director General of Treasury Regulation Number PER-5/PB/2022 categorizes the budget implementation performance assessment into several aspects, namely:

1. **The quality aspect of budget planning** focuses on the conformity between budget implementation and what is planned and stipulated in the *DIPA*. This aspect consists of two indicators: *DIPA Revision* and *DIPA Page III Deviation*.
2. **The quality aspect of budget implementation** examines the ability of work units to realize the budget set in the *DIPA*. This aspect is divided into five indicators: budget absorption, contractual expenditure, bill settlement, *UP* and *TUP* management, and *SPM* dispensation.
3. **The quality aspect of budget implementation results** assesses the ability of work units to achieve the output specified in the *DIPA*. This aspect has one indicator: *output achievement*.

There are different aspects and indicators in the *IKPA* assessment for the 2021 period. According to Directorate General of Treasury Regulation Number PER-4/PB/2021, in 2021, *IKPA* was assessed from four dimensions: the dimension of conformity between planning and budget implementation, the dimension of compliance with statutory regulations in the field of budget implementation, the dimension of effectiveness of budget implementation, and the dimension of efficiency of budget implementation. In the *IKPA* assessments in these two periods, the *bill settlement* indicator remains a part of the *IKPA* assessment. With the implementation of the *SAKTI* system, it is hoped that it will positively influence budget implementation performance, especially on the *bill settlement* indicator.

Referring to Law Number 31 of 2009, the *Meteorology, Climatology, and Geophysics Agency* (*BMKG*) is a government agency responsible for meteorology, climatology, and geophysics. As a government agency, *BMKG* is part of the process of fully implementing the

*SAKTI* system in 2022, starting with the preparation of the Work Plan and Budget for State Ministries/Institutions (*RKA-K/L*) for the 2022 Fiscal Year using the *SAKTI* system in 2021. Additionally, work units within *BMKG* began preparing officials and employees as operators, approvers, and validators of the *SAKTI* system by attending related training.

Based on *BMKG* Regulation Number 1 of 2022, *BMKG* has a work unit consisting of 5 *MKG* Regional Centers and 182 work units in the form of Meteorology, Climatology, and Geophysics Stations. Additionally, there are 3 work units in the form of the Global Atmospheric Observation Station, 4 independent work units, and 1 central work unit. Overall, *BMKG* has 195 work units, which, based on Minister of Finance Regulation Number 62 of 2023, are line organizational units of Ministries/Agencies or Regional Government organizational units that carry out Ministry/Agency activities and have authority and responsibility for budget use. The geographical spread of *BMKG* work units across Indonesia, along with the number of treasury officials as users of the *SAKTI* system, many of whom come from non-financial management backgrounds, means that the implementation of the *SAKTI* system at *BMKG* has unique characteristics.

The full implementation of the *SAKTI* system is still relatively new, so evaluation is needed to determine the system's effectiveness in various aspects. As a mandatory system that must be used by every government agency in financial management—ranging from budget preparation and implementation to the preparation of accrual-based financial reports—the successful implementation of the *SAKTI* system is essential as mandated by the *State Treasury Law* Number 1 of 2004.

The resources required for the implementation of the *SAKTI* system across all work units of Ministries/Agencies throughout Indonesia, approximately 24,000 work units, are substantial, necessitating large costs that may not be economical (Hanafiah et al., 2019). At *BMKG*, there are 195 work units spread across Indonesia, and issues arise, such as the availability of computer infrastructure and internet networks needed to access the *SAKTI* system. Of the 195 *BMKG* work units, this means that over 200 individuals will actively use the *SAKTI* system. However, available human resources, particularly in technical implementation work units with a financial management background, are very limited. For example, at the *Deli Serdang Geophysics Station*, of the 13 employees, 12 have primary responsibilities as Meteorology, Climatology, and Geophysics Observers, requiring the appointment of a financial manager from one of these employees to take on additional financial management duties.

Judging from the performance assessment via *IKPA* at *BMKG*, especially concerning the *bill settlement* indicator, *BMKG*'s performance score increased from 97.37 in 2020 to 98.31 in 2021. However, it declined in the first year of implementing the *SAKTI* system, specifically in 2022, to 97.99. Although this value is still considered good, it is important to determine whether the implementation of the *SAKTI* system influenced the decline in performance.

The success of implementing an information system can be measured from several aspects. According to Yusof et al. (2008), people, organizations, and technology are key elements of an information system, and their impact is assessed through net benefits. In the case of the *SAKTI* system, the human aspect can be evaluated by user engagement, including their knowledge, the adequacy of training attended, alignment with expectations, and user satisfaction. The organizational aspect can be assessed by the structure and environment of the

organization implementing the system, including support from various parties and improvements in internal communication. The technological aspect is indicated by the system's quality, the quality of the information produced, and the quality of services provided, including ease of access, system reliability, availability of guidance, and completeness of information and services during system failures.

Ultimately, the goal of implementing the system is to provide benefits for the individuals and organizations that operate it. In the case of the *SAKTI* system, its benefits can be assessed by improvements in the performance of Ministries/Institutions in managing their budgets, as reflected in the *IKPA* values achieved. Therefore, a thorough evaluation of the *SAKTI* system's first year of full implementation in 2022 must be conducted, particularly by testing the factors that influence its success, comparing best practices for implementing *IFMIS* using the measurement model developed by Yusof et al. (2008), specifically the Human-Organization-Technology Fit (*HOT-Fit*) Model.

There has been significant research related to information systems in the public sector, particularly regarding the *SAKTI* system. Several studies prior to 2022 focused on samples from the Ministry of Finance. Other research focuses on the preparation of financial reports both at the work unit and central government levels. This research differs from previous studies by using samples outside the Ministry of Finance and was conducted after the first year of full implementation of the *SAKTI* system.

This research aims to assess the impact of implementing the *SAKTI* system, particularly within work units at *BMKG*, in supporting public sector governance in the financial sector, especially the financial management process of government agencies managing *APBN* funds. This study also seeks to examine the relationship between the full implementation of the *SAKTI* system at *BMKG* and budget implementation performance, particularly in the quality aspect of budget implementation related to the *bill settlement* indicator.

In a broader context, this research contributes to the development of *IFMIS* in Indonesia by providing input and recommendations regarding the analysis of *SAKTI* system implementation results. These findings aim to support the further development of all *IFMIS* components by adopting the latest technological elements. For *BMKG* as a government institution, this research contributes to evaluating and improving its budget implementation performance, particularly in the quality aspect of budget implementation.

## RESEARCH METHOD

This research employs qualitative methods using a case study strategy to gain a more detailed understanding of the effectiveness of implementing the *SAKTI* system. In policy research, Creswell (2018) provides conceptual clarification by defining qualitative research as an investigative process that aims to understand social or humanitarian problems through the application of various methodological traditions in inquiry.

Researchers conduct research in natural settings, constructing rich and holistic images, analyzing language, and reporting in-depth perspectives from informants. Furthermore, Creswell and Creswell (2018) explained that qualitative research is a method for investigating and understanding the meaning that individuals or groups assign to a social or humanitarian problem. Questions and processes that arise, data obtained in the context of participants, inductive data analysis that moves from specific themes to broad themes, and the researcher's

interpretation of the data's meaning are all part of the research process. The final written report is structured in a customizable manner.

This type of inquiry is supported by those who value inductive methods of inquiry, the emphasis on personal meaning, and the importance of reporting situational complexity. Solving problems that arise in the social environment is one of the main objectives of qualitative research. Moreover, the findings of this research are intended to advance knowledge in the field of scientific study and offer methods or answers to the research challenges. This goal can only be achieved by using scientific procedures that align with the principles of the chosen research methodology. Furthermore, this research was conducted to evaluate the impact of implementing the *SAKTI* system on work units at *BMKG* in supporting public sector governance in the financial sector.

Evaluation scenarios in a case usually describe situations where a deeper understanding of a subject is required before important decisions or actions can be taken (Ellet, 2018). The research population consisted of *SAKTI* users in work units at *BMKG*. The sample selection design used is a non-probability design with a purposive sampling technique, which means selecting specific individuals who can provide the desired information, either because they are the only ones with that information or because they meet certain criteria set by the researchers (Sekaran & Bougie, 2016). The sample in this research consists of *SAKTI* users who utilize the commitment, payment, and treasurer modules either as operators, validators, or approvers, with the consideration that these users have the authority and influence the performance of budget implementation for the *Bill Settlement* indicator through intensive use of *SAKTI*.

The data collected in this research consists of primary and secondary data. Primary data is collected directly and then analyzed to find solutions to the problems being studied (Sekaran & Bougie, 2016). Primary data can be obtained through various processes, including interviews, observation, administering questionnaires, and experiments. In this research, primary data was obtained through interviews and administering questionnaires to the sample. Meanwhile, secondary data is already available, such as related regulations and performance indicator values for *Bill Settlement* in *BMKG* work units in the years before and after the implementation of the *SAKTI* system.

Data collection in this research was carried out by conducting interviews with respondents to obtain information regarding the issues raised in the study. An interview is a conversation with a specific purpose between two or more people (Sekaran & Bougie, 2016). Interviews can be conducted with individuals or groups, structured or unstructured, and can take place face-to-face, by telephone, or online. The interviews in this research were semi-structured. Semi-structured interviews combine both structured and unstructured interview approaches (George, 2023). Ruslin et al. (2022) concluded that there are two main reasons for using semi-structured interviews in qualitative research. First, semi-structured interviews allow researchers to obtain more in-depth information compared to structured interviews.

Second, they offer flexibility and ease of adaptation. Questions in the interview were categorized according to the research variables, which are based on the *HOT-Fit* model and assessed using the measuring tools or indicators proposed by Yusof et al. (2008), grouped into human, organizational, technological, and net benefits dimensions. These questions were also based on the development of the *HOT-Fit* model measuring tool (Tawar & Salma, 2022), with

several adjustments related to the relevance of implementing the *SAKTI* system to the *bill settlement* performance.

## RESULT AND DISCUSSION

### 1. Participant Characteristics

This research focuses on the effect of implementing *SAKTI* on bill settlement. To achieve this aim, the intended respondents and participants in the interviews for this research are *SAKTI* users for modules related to bill settlement. The questionnaire was created online and distributed via WhatsApp groups consisting of *SAKTI* users or by sending messages directly to *SAKTI* users at *BMKG*. From the distribution of the questionnaire, answers were obtained from 73 respondents, consisting of 42 men and 31 women. Of the 73 respondents, 23 held functional positions in the financial sector, comprising 16 administrators and 7 analysts. Another 23 respondents held functional positions outside the financial sector, 9 served as structural officials, and 19 others worked as general executives. The graph of the job composition of the respondents is depicted in Figure 3.

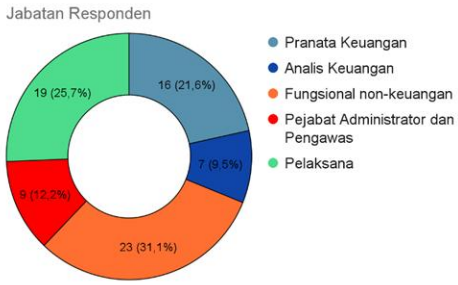


**Figure 3. Position Composition of Questionnaire Respondents**

The questionnaire respondents in this study hold various roles in *SAKTI*, namely operator, validator, and approver. Operators are responsible for recording contract and payment data in *SAKTI*, while validators are tasked with testing and reviewing the data recorded by operators. The approver has the authority to approve the data recorded by operators that has already been validated (Ministry of Finance, 2021). Of the 73 respondents who answered, 45 acted as operators for both the commitment and payment modules. Nine respondents acted as validators, and 19 others acted as approvers in their respective *Satker*. A list of the composition of the roles of questionnaire respondents is presented in Table 1.

**Table 1. Composition of Respondent Roles in SAKTI**

| Role | Role Description | Amount |
|---|---|---|
| Operator | Data recording into SAKTI | 45 |
| Validator | Testing/research on data recording | 9 |
| Approver | Consent to the recording of approved data | 19 |

Source: Questionnaire data, processed by the author

The interview participants were selected from work units based on the bill settlement indicator values for the *IKPA* assessment from 2020 to 2023. *Satker* A was chosen because it had the largest number of contractual bills. The value of the *Satker* A bill settlement indicator

has tended to remain consistent from before the implementation of *SAKTI* in 2020 until after its implementation in 2022. Other *Satkers* were selected based on changes in the value of the bill settlement indicator after the first year of *SAKTI* implementation, namely in 2022. A list of *Satkers* and the values of their bill settlement indicators are presented in Table 2.

**Table 2. List of Participating Work Units and Bill Settlement Indicator Values for 2020 to 2023**

| Name of Participant Working Unit | Indicator Value Bill Settlement | | | |
|---|---|---|---|---|
| | **2020** | **2021** | **2022*** | **2023** |
| A | 96,52 | 98,83 | 97,77 | 99,49 |
| B | 75 | 66,67 | 100 | 98,72 |
| C | 100 | 92,31 | 0 | 100 |
| D | 100 | 100 | 100 | 0 |

Source: OM-SPAN Ministry of Finance, processed by the author

## 2. HOT-Fit Model Analysis

The *HOT-Fit* Model analysis uses three main elements: humans, organization, and technology, and examines the suitability of the relationships between these three elements as an important factor in identifying processes and information needs in a system. In the process of collecting data through questionnaires and interviews for this research, the questions were grouped and adjusted to indicators related to these elements. A list of variables and indicators based on the main elements in the *HOT-Fit* Model framework is presented in Table 3.

**Table 3. List of Variables and Indicators in the HOT-Fit Model framework**

| Main Elements | Variable | Indicator |
|---|---|---|
| *Technology* | System Quality | *ease of use, ease of learning, response time, system flexibility, usefulness, availability, reliability* And *security* |
| | Information Quality | *timeliness, relevancy, legibility, reliability, completeness, consistency, accuracy* And *availability* |
| | Service Quality | *assurances* And *quick responsiveness* |
| *Human* | System Usage | *motivation to use, knowledge/expertise, training* And *expectation/belief* |
| | User Satisfaction | *overall satisfaction, enjoyment* And *percieved usefulness* |
| *Organization* | Organizational structure | *nature, communication,* And *leadership, top management support, and staff sponsorship* |
| | Organizational Environment | *inter-organizational relationship* And *communication* |

Source: Yusof et. Al. (2008) edited by the author

### 1) Technology

Studies on information systems are often related to the performance of the system (Yusof et al., 2008). Therefore, the success of implementing an information system will be influenced by the technology that supports the performance of the information system. The *HOT-Fit* Model analysis uses technological factors as one of the key components that support the

success of information systems, dividing it into three variables: *System Quality*, *Information Quality*, and *Service Quality*.

**a. System Quality**

System quality is a measurement of the characteristics of an information system, particularly its capabilities and the visuals of the system itself (Tawar & Salma, 2022). Several indicators used to measure system quality variables include ease of use, ease of learning, response time, system flexibility, usefulness, availability, reliability, and security. Based on the results of the interviews, participants expressed that the ease of using *SAKTI*, especially for those familiar with the previous system, is facilitated by training or guides often found on video-sharing sites such as YouTube.

*SAKTI* was considered quite user-friendly. Participants stated that the system interface is simple, but new users may need time to adapt. This statement aligns with the analysis of questionnaire data, which shows that the majority of respondents agree that *SAKTI* is user-friendly and easy to use. This is evidenced by an average score of 4.30 out of 5 on the Likert scale, with the dominant responses being "Agree" and "Strongly Agree". Specifically, for modules related to bill settlement, similar opinions were expressed, with an average score of 4.23 out of 5 on the Likert scale. This indicates that the majority of respondents felt that the modules related to bill settlement in the *SAKTI* system were quite user-friendly and easy to use.

An understanding of *SAKTI* can be gained through its user guide, although no direct guidance is available within the application itself. The guide is available in the form of paper modules, video tutorials, and training from *KPPN* and related agencies. Ease of learning also specifically applies to the modules related to bill settlement, namely the commitment module and payment module. Given current developments, the *SAKTI* guide needs to be updated to include solutions to technical problems. The results of questionnaire data analysis show that the majority of respondents, with an average score of 4.36 out of 5 on the Likert scale, agree that the *SAKTI* system provides a user guide. Particularly for modules related to bill settlement, the majority of respondents felt that the *SAKTI* usage guide, especially for the modules related to bill settlement, was easy to understand. This is reflected by an average score of 4.33 out of 5 on the Likert scale, with the dominant responses being "Agree" and "Strongly Agree", although some respondents gave neutral responses.

As a web-based system, *SAKTI*'s response speed depends on internet speed and the number of simultaneous users. Participants specifically mentioned *SAKTI*'s response time when used at the beginning of the month and towards the end of the fiscal year. At the beginning of the month, *SAKTI* is often used simultaneously by many users, especially for financial reporting and treasurer accountability. At the end of the year, there is a decrease in speed due to the high number of users in the payment settlement process. Compared with the results of the questionnaire data analysis, respondents felt that the *SAKTI* system was quite fast and responsive, both in general and when creating bill settlement documents, with average scores of 4.03 and 4.08 on the Likert scale. However, some respondents disagreed with the statement regarding *SAKTI*'s speed and response, giving a score of 1.

Conditions that reduce *SAKTI* performance encourage policy flexibility during high levels of usage. For instance, participants mentioned the extension of *SAKTI*'s operational time to approve bill settlements beyond regular working hours. Another example of flexibility was highlighted by respondents who stated that developers make system updates based on user

input. The results of questionnaire data analysis show that *SAKTI* is generally considered to meet user needs in the bill settlement process and is flexible to adjust. With an average score of 4.33 out of 5 on the Likert scale, most respondents agreed that *SAKTI* met their needs in the bill settlement process. Similarly, an average score of 4.30 out of 5 on the Likert scale indicates that the majority of respondents agree that *SAKTI* can be adapted to user needs.

Participants assessed that *SAKTI* made the bill settlement process easier. Compared to the previous system, *SAKTI* is considered better, particularly in the data transfer process, which no longer requires manual file transfers. Additionally, participants mentioned that the application update process runs automatically without users having to install it manually. The results of the questionnaire data analysis show that the majority of respondents agree that the *SAKTI* function makes the bill settlement process easier, with responses concentrated in high scores and an average score of 4.44 out of 5 on the Likert scale. This is consistent with respondents' responses regarding *SAKTI* being better than the previous system, which received an average score of 4.42 out of 5 on the Likert scale. However, some responses indicated low scores, suggesting that there is still room for improvement.

The use of *SAKTI* on mobile devices is considered one of the advantages of *SAKTI* compared to the previous system. Participants expressed that *SAKTI* can be used at any time, as long as there is an internet connection and mobile devices such as smartphones and laptops. The average score from the questionnaire data analysis shows similar results, with an average of 4.40 out of 5 on the Likert scale, indicating that the majority of respondents agree that *SAKTI* is easily accessible via mobile devices, with the dominant responses being "Agree" and "Strongly Agree".

The problem of frequent disruptions to *SAKTI* was mentioned several times. Participants stated that disruptions were caused by *SAKTI* updates and by high usage towards the end of the year. The results of questionnaire data analysis show that responses were mostly neutral, with an average score of 3.23 out of 5 on the Likert scale and a median score of 3, indicating that respondents had varying experiences with disruptions or errors in the *SAKTI* system. This can also be seen as a concern regarding system stability.

In terms of system security, participants noted the use of different passwords and that passwords must be changed periodically to ensure *SAKTI* access security from unauthorized use. Another security feature related to *SAKTI* is the *OTP* for the approval process, which participants said was quite helpful for securing *SAKTI* usage according to their authority. The average score from questionnaire data analysis indicates that the majority of respondents agree that the *SAKTI* system guarantees data confidentiality by using a unique password for each user. This is reflected in the results of the questionnaire data analysis, which shows an average score of 4.49 out of 5 on the Likert scale. The participants' statements were then summarized and compared with the statements for each indicator related to the system quality variable, as presented in Table 4.

**Table 4. Hasi l Measurement of System Quality Variables in the Technological Dimension**

| Indicator | Statement | Findings |
|---|---|---|
| *Ease of use* | The SAKTI system is user friendly and easy to use | SAKTI is easy to use, especially for users who are familiar with the previous system, as well as for users who have received training or independent learning |

| | | |
|---|---|---|
| *Ease of learning* | The SAKTI system provides a user guide | SAKTI provides various guides in file form, but they are not available in the SAKTI system itself |
| *Response time* | The SAKTI system runs fast and responsive | SAKTI has a response speed that depends on internet speed and the number of uses at the same time |
| *System flexibility* | The SAKTI system can be operated mobile to make it easier for users to run it at any time | SAKTI provides flexibility in mobile usage, in addition there is policy flexibility when disruptions and high usage occur |
| *Usefulness* | The SAKTI system has functions that make it easier and better than the previous system | SAKTI makes the bill settlement process easier and better in terms of data transfer |
| *Availability* | The SAKTI system can be easily accessed | SAKTI can be accessed anywhere with the support of mobile devices and internet networks |
| *Reliability* | The SAKTI system rarely experiences problems or errors | SAKTI experienced problems, especially during system updates and high usage towards the end of the year |
| *Security* | The SAKTI system guarantees data confidentiality by using a different password for each user | SAKTI has a password that must be changed periodically, apart from that there is an OTP feature to carry out approvals |

**b. Quality of Information**

Information quality in assessing the success of an information system is a variable used to measure the quality of the output produced by the information system (Delone & McLean, 2003). The output is usually in the form of reports. Several indicators used to measure information quality variables include timeliness, relevancy, legibility, reliability, completeness, consistency, accuracy, and availability. Based on the interview results, participants revealed that *SAKTI*'s timeliness was still considered quite good, even though it depended on network stability and internet speed. High traffic, such as at the end of the month or the end of the year, remains an obstacle that causes slow access and processing. The results of the questionnaire data analysis obtained an average score of 4.18 out of 5 on the Likert scale. Although the majority of respondents were satisfied with *SAKTI*'s responsiveness, some respondents gave low responses, indicating an unsatisfactory experience regarding *SAKTI*'s responsiveness.

Participants stated that *SAKTI* was relevant to the tasks and information needed by each user, specifically regarding bill settlement. Participants also assessed that the division of modules was appropriate and relevant. This aligns with the results of questionnaire data analysis, where the majority of respondents strongly agreed that the division of modules in the *SAKTI* system is relevant to the tasks of each user. This is reflected in the high average of 4.51 out of 5 on the Likert scale, with dominant responses in the "Agree" and "Strongly Agree" categories.

The statement regarding *SAKTI* producing information that is easy to understand was expressed by participants in interviews, especially regarding reports generated by *SAKTI*, which are similar to those produced by the previous system, differing only in the electronic signature.

Another participant stated that any misunderstandings could be communicated to *KPPN*. The results of the questionnaire data analysis indicate that the majority agree that the information produced by *SAKTI* is easy to understand, with an average score of 4.38 out of 5 on the Likert scale, indicating a positive response to this statement.

The information produced by *SAKTI* is considered reliable and accurate according to the data entered. Compared to the previous system, *SAKTI* is considered more stable and has minimal errors. One participant added that output errors in *SAKTI* occurred due to input errors from the operator, resulting in invalid information. Participants also expressed the need to carefully re-check their inputs to ensure more reliable output. The results of the questionnaire data analysis show a high level of confidence that the information produced by *SAKTI* is reliable and accurate, as shown by the respondents' responses, which obtained an average score of 4.40 out of 5 on the Likert scale, with dominant answers in the "Agree" and "Strongly Agree" categories.

*SAKTI*, as an integrated system of various modules, is considered to produce complete and detailed information as regulated by the Ministry of Finance. The information produced is complete for the specific needs of users. The average value from the questionnaire data analysis shows that the majority of respondents agree or strongly agree that *SAKTI* provides complete and detailed information. In response to the statement regarding the completeness and detail of the information produced by *SAKTI*, the average score was 4.38 out of 5 on the Likert scale, with dominant responses in the "Agree" and "Strongly Agree" categories.

Participants expressed that *SAKTI* maintains consistency in the use of language, uniformity of data, and processes applied. Consistency in language use, according to participants, makes it easier to understand the information displayed. The respondents' assessment of the consistency of the language used by *SAKTI* shows an average score of 4.51 out of 5 on the Likert scale, with the dominant answers in the "Strongly Agree" category. This demonstrates that users strongly agree that the language used by *SAKTI* is consistent.

In terms of information accuracy, participants stated that *SAKTI* had produced and presented accurate information. The accuracy of the information produced by *SAKTI* depends on input from the user. Misinformation is usually caused by human error. This statement aligns with the results of the questionnaire data analysis, which shows an average value of 4.45 out of 5 on the Likert scale, with dominant answers in the "Agree" and "Strongly Agree" categories. This indicates that the majority of users consider *SAKTI* to be very reliable in producing valid and accurate data.

*SAKTI* is also considered to have information availability that can be easily accessed. The availability of this information is adjusted to the user's authority and the modules managed by the user. The availability of *SAKTI* is also assessed by the ease of accessing *SAKTI* anytime and anywhere, using mobile devices. The high average of 4.42 out of 5 on the Likert scale from the questionnaire data analysis shows that the majority of respondents "Agree" or "Strongly Agree" that the *SAKTI* system makes it easier to access information. Participant statements from interviews and questionnaires related to the information quality variable were then summarized and compared with the statements for each indicator, as presented in Table 5.

**Table 5. Results Measurement of Information Quality Variables in the Technology Dimension**

| Indicator | Statement | Findings |
|---|---|---|

| | | |
|---|---|---|
| *Timeliness* | The SAKTI system responds to user commands in a timely manner | SAKTI's response to user commands is quite fast but depends on internet speed |
| *Relevancy* | The SAKTI system is divided into modules that are relevant to each user's tasks | SAKTI is considered relevant to each user's tasks |
| *Legibility* | The SAKTI system produces information that is easy to understand | The information produced by SAKTI is easy to understand |
| *Reliability* | The SAKTI system provides reliable and precise information according to the data entered | The information produced by SAKTI corresponds to the data entered, Participant B stated that the error occurred due to an input error from the user himself |
| *Completeness* | The SAKTI system provides complete and detailed information | The information produced by SAKTI is complete and detailed, Participant A stated that the information produced by SAKTI depends on the policies of the Ministry of Finance |
| *Consistency* | The SAKTI system uses consistent language | The information produced by SAKTI uses consistent language |
| *Accuracy* | The SAKTI system produces valid and accurate data | The information produced by SAKTI is valid and accurate |
| *Availability* | The SAKTI system makes it easy for users to access information | The information produced by SAKTI is easy to access according to the user's authority |

**2) Quality of Service**

Service quality is related to the ability of information system developers to respond to obstacles experienced by users. Several indicators that can be used to measure service quality include: assurances and quick responsiveness. Based on the results of interviews with participants, it was found that the *SAKTI* service provider, namely the Ministry of Finance, provides clear information if *SAKTI* experiences problems and is undergoing maintenance. Information related to these obstacles is conveyed through notifications on the *SAKTI* page when users log in to *SAKTI*. In addition, this information is also disseminated by *KPPN* through messaging applications such as WhatsApp. Participants added that the information provided was quite clear and complete, as it also included details regarding the duration of the updates or maintenance. Compared with the results of the questionnaire data analysis, which showed an average value of 4.15 out of 5 on the Likert scale with a minimum value of 1, it can be interpreted that the majority of respondents agree with the statement that *SAKTI* provides clear information if it experiences problems or is undergoing maintenance. However, the minimum value of 1 indicates that a small number of respondents either did not agree or did not receive clear information.

In response to complaints regarding issues with *SAKTI*, participants stated that several channels were available. Complaints could be submitted through the *KPPN* Customer Service Officer and via the *HAI DJPb* online service. The *HAI DJPb* service is delivered via email, and according to participants, the response from this service is quite fast—usually within a day after the complaint has been made. If the response is unclear, further questions can be asked

via email. At the end of the complaint process, *HAI DJPb* sends out a satisfaction survey regarding their services as a form of evaluation.

The results of the questionnaire data analysis show that the majority of respondents have a positive perception of the services provided by developers, reflected in an average score of 4.21 out of 5 on the Likert scale. Although the majority of respondents answered in the "Agree" and "Strongly Agree" categories, there were still some who gave lower responses, indicating that there may be respondents with differing perceptions. Participant statements from interviews and questionnaires related to service quality variables were then compared with the statements for each indicator, as summarized in Table 6.

**Table 6. Results Measurement of Service Quality Variables in the Technology Dimension**

| Indicator | Statement | Findings |
|---|---|---|
| *Assurances* | The SAKTI System Developer provides clear information if SAKTI experiences problems or is under maintenance by the management | There is information and a guaranteed update period if SAKTI experiences problems or is during a maintenance period |
| *Quick responsiveness* | SAKTI System Developers provide excellent, focused and accurate service | There are several complaint channels and services online and offline and SAKTI developers respond quickly |

**3) Human**

The *HOT-Fit* Model analysis treats system use as one of the factors supporting the success of an information system, dividing it into two main elements: system use and user satisfaction (Yusof et al., 2008). Several indicators used to measure system use include motivation to use, knowledge/skills, training, and expectations or beliefs. Meanwhile, indicators used to measure user satisfaction are perceived usefulness, overall satisfaction, and perceived enjoyment.

**a. System Use**

Yusof et al. (2008) stated that system use is related to the frequency and breadth of functions of an information system. Additionally, actual system use is a measure of the success of information systems used voluntarily. Several indicators that can be used to measure system quality include motivation to use, knowledge/expertise, training, and expectation/belief. Based on the results of the interviews, all participants expressed their understanding that *SAKTI* is a mandatory system that must be used by all government agencies since 2022, so the initial motivation for using *SAKTI* was driven by work needs and the obligation to implement it. This aligns with the results of the questionnaire data analysis, where the majority of respondents understand and accept that *SAKTI* is a mandatory system, as reflected by the high average score of 4.62 out of 5 on the Likert scale, with the dominant responses being "Agree" and "Strongly Agree."

As a mandatory system, participants accept and use *SAKTI*, even though they have to undergo a learning and retraining process to adapt to the new system. Participants also expressed confidence in their abilities as *SAKTI* users. This confidence was based on their educational background, experience in financial management, and the training they attended. Based on the analysis of questionnaire data, consistent results were obtained. Most respondents felt that they had sufficient skills to use *SAKTI*, including modules related to bill settlement.

This is shown by the average values of 4.47 and 4.48 out of 5 on the Likert scale, with dominant responses in the "Agree" and "Strongly Agree" categories.

The expertise possessed by *SAKTI* users and participants is supported by training organized by *KPPN* or related institutions. Training at the start of implementing *SAKTI* was considered quite good; however, with frequent system updates, additional training or direct consultation with *KPPN* is often required. Regarding the bill settlement process, participants revealed that there was special training for the officials involved, namely *PPSPM*, in using modules related to bill settlement.

Compared with the results of the analysis of questionnaire data, the majority of respondents stated that they had attended training in the use of *SAKTI*, reflected in an average score of 4.27 out of 5 on the Likert scale. Specifically for modules related to bill settlement, the average score was 4.23 out of 5. Most respondents also felt that the training provided was sufficient to increase their knowledge and competence, as reflected in the average score of 4.12 out of 5 on the Likert scale. Although the majority of respondents answered in the "Agree" and "Strongly Agree" categories, some respondents gave low scores, indicating that some had either not received training or considered the training not relevant enough, suggesting that improvements are needed.

Participants in interviews expressed high expectations for *SAKTI* to support the bill settlement process and financial management in general. Although most stated that their expectations were met, there were still several aspects that needed improvement, such as system stability. Disruptions may occur when *SAKTI* is undergoing updates or maintenance. However, participants noted that there had been an improvement in *SAKTI*'s stability compared to when it was initially implemented. Participants also stated that *SAKTI* was better than the previous system, especially in terms of the bill settlement process.

Based on the results of questionnaire data analysis, of the three questions related to user expectations, the majority of respondents felt that their expectations of *SAKTI* in supporting bill settlement performance were met, with an average score of 4.45 out of 5 on the Likert scale. They also rated *SAKTI* better than the previous system, with an average score of 4.41 out of 5 on the Likert scale. Overall, the majority of respondents assessed that *SAKTI* met their expectations, as reflected in the average score of 4.29 out of 5 on the Likert scale, with the dominant responses being "Agree" and "Strongly Agree." However, a small number of respondents expressed disagreement. The summary of the results from questionnaire and interview data analysis to measure system use variables, based on the indicators of motivation to use, knowledge/expertise, training, and expectation/belief, is presented in Table 7.

**Table 7. Results Of Measuring System Use Variables In The Human Dimension**

| Indicator | Statement | Findings |
|---|---|---|
| *Motivation to use* | Users understand and accept that the SAKTI system is a mandatory system | Users accept SAKTI as a mandatory system through learning and retraining |
| *Knowledge/ expertise* | Users have membership to use the SAKTI system | Users believe in their ability to use SAKTI |
| *Training* | Users take part in training regarding the use of the SAKTI system | Users have undergone training at the start of using SAKTI, specifically for modules related to the bill settlement process. |

| Indicator | Statement | Findings |
|---|---|---|
| | | Some respondents felt that training still needed to be improved |
| *Expectation/ belief* | The user's expectations of the SAKTI system as a whole are appropriate | Users rate SAKTI as better than the previous system, but expect SAKTI to be more stable |

**b. User Satisfaction**

User satisfaction is subjective because it depends on whose satisfaction is measured. In this study, participants were *SAKTI* users for modules related to the bill settlement process. Several indicators that can be used to measure system quality include: overall satisfaction, enjoyment, and perceived usefulness. Based on the results of the interviews, participants expressed their overall satisfaction with *SAKTI*. Participants highly appreciated *SAKTI* as an integrated system that facilitates the overall financial management process, especially the bill settlement process. Compared with the analysis of questionnaire data, the majority of respondents were satisfied with *SAKTI* as a whole, as shown by an average score of 4.27 out of 5 on the Likert scale and the dominance of answers in the "Agree" and "Strongly Agree" categories. However, some respondents still expressed disagreement regarding their satisfaction with *SAKTI*.

Even though the participants felt supported and comfortable using *SAKTI*, they did not explicitly express their pleasure. *SAKTI* is considered to have a simple and easy-to-understand interface, but participants were more focused on how *SAKTI* provides practical benefits in terms of integration and supporting bill settlement performance. Compared with the analysis of questionnaire data, the majority of respondents felt that the appearance of *SAKTI* was quite good, with an average score of 4.37 out of 5 on the Likert scale and the dominance of answers in category 4, namely "Agree". Although most respondents tended to agree, some were still dissatisfied with *SAKTI*'s current appearance.

Regarding the perceived usefulness of the special functions of the bill settlement process, participants expressed satisfaction. *SAKTI* helps reduce errors in manual recording and increases the accuracy of the data produced. Satisfaction with the bill settlement function is indicated by an average score of 4.34 out of 5 on the Likert scale, with the dominance of answers in the "Agree" and "Strongly Agree" categories. However, some respondents still expressed disagreement when answering their satisfaction with the bill settlement function in the *SAKTI* system. A summary of the interview results to measure system use variables based on the indicators of overall satisfaction, enjoyment, and perceived usefulness is shown in Table 8.

**Table 8. Results of measuring user satisfaction variables in the human dimension**

| Indicator | Statement | Findings |
|---|---|---|
| *Overall satisfaction* | Users have a high level of satisfaction but development of the SAKTI system is still needed. | Users really appreciate SAKTI as an integrated system that makes the financial management process easier |
| *Enjoyment* | Users rate the appearance of the SAKTI system as very good | Users stated that SAKTI has a simple and easy to understand interface, but users are more focused on the practical benefits in |

| Indicator | Statement | Findings |
|---|---|---|
| | | the form of system integration and support in the bill settlement process |
| *Percieved usefulness* | Users assess that data from the SAKTI system is valid data and can be understood well | Users say SAKTI produces valid and understandable data, helping to reduce errors in manual recording and increasing the accuracy of the data produced |

## CONCLUSION

In conclusion, this research evaluates the effectiveness of the web-based *SAKTI* system in improving bill settlement performance within government ministries and institutions. The implementation of *SAKTI* has proven to enhance the efficiency of the bill settlement process by reducing processing time, minimizing errors, and ensuring better data integration across different modules. The system's automated processes, tiered verification, and strong security features contribute to a more streamlined and reliable bill settlement workflow. However, challenges such as technical issues and system instability remain, which need to be addressed for the system to operate at its full potential. This study highlights the importance of collaboration between internal and external units in achieving smooth operations within the *SAKTI* framework. For future research, it is recommended to explore the long-term impact of *SAKTI* on the overall financial performance of government ministries and institutions, particularly focusing on its scalability and adaptability across various government sectors. Further studies could also investigate the specific challenges faced by different user groups, such as operators and external parties like *KPPN*, to provide more targeted recommendations for system improvement and user training.

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