

## Evaluation of the Local Government Information System (Sipd) in The Management of Bos Funds of the Berau Regency Education Office

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### ABSTRACT

This research is motivated by the implementation of the Local Government Information System (SIPD) in the management of School Operational Assistance (BOS) funds in Berau Regency which aims to overcome a fragmented manual system, but instead raises fundamental problems. This descriptive qualitative research uses data collection methods through interviews, observations, and documentation, which is then analyzed with the CIPP (Context, Input, Process, Product) evaluation model. The results of the study reveal a philosophical conflict between the rigid SIPD architecture and the logic of the APBD and the spirit of BOS funds which demand flexibility according to the principles of School-Based Management (SBM). As a result, the workflow becomes rigid, verification by the agency tends to be shallow, and the phenomenon of "garbage in, gospel out" emerges, where the BPK Audit Results Report (LHP) finds the existence of incomplete SPJ and potential overpayment, even though users perceive an increase in accountability.

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## **INTRODUCTION**

Education is a fundamental pillar in Indonesia's national development mandated by Pancasila and the 1945 Constitution to educate the nation's life. This constitutional mandate is then realized through various regulations, one of which is Law No. 20 of 2003 concerning the National Education System, which affirms the government's obligation to ensure the implementation of basic education that can be accessed by all citizens without exception. This confirms that the Central Government and Regional Governments hold full responsibility in providing quality and equitable education services for all Indonesian people (Wulandari et al., 2022).

The reality on the ground shows that the national education system still faces complex challenges. Fundamental problems such as limited access to education for the poor, inadequate facilities and infrastructure, and uneven quality and distribution of educators are crucial issues that hinder the pace of educational progress. This condition is exacerbated by economic factors, where poverty is often the main barrier for school-age children to be able to receive education, which ultimately has the potential to reduce the overall quality of human resources (Jusman, 2023). As a direct response to these problems, the central government launched the School Operational Assistance (BOS) program since 2005. The program is specifically designed to ease the burden of education costs borne by the community, eliminate levies at the elementary education level, and ensure that no student drops out of school due to financial constraints. The main goal is to support the 12-year compulsory education program so that it can run well, which is expected to be able to significantly improve the quality of education throughout Indonesia (Sari & Saputro, 2023).

Analysis of the existing literature shows that research on the Local Government Information System (SIPD) has been carried out a lot, but with a focus that tends to be macro. Various studies, such as those conducted by Hidayat (2021) in Jambi and Saputra et al. (2022) in Musi Rawas, generally evaluate the implementation of SIPD at the level of the Regional Financial and Asset Management Agency (BPKAD) and highlight aspects of planning and budgeting the APBD as a whole. These studies have not specifically explored the unique modules within the SIPD, especially those related to specific transfer funds such as the BOS Fund. On the other hand, there is also a significant body of research on the governance of the BOS Fund. Research by Sari (2020) and Pratiwi (2019), for example, has evaluated the accountability and transparency of BOS Fund management, but often in the context of older information systems (such as SIMDA) or focusing on manual analysis at the education unit level. In addition, the application of comprehensive evaluation models such as CIPP (*Context, Input, Process, Product*) initiated by Stufflebeam is still very rare to evaluate a complex and integrated government financial information system such as SIPD. This research *gap* is a gap to be researched more deeply.

The novelty of this research lies in the combination of three crucial elements, namely the evaluation of the implementation of SIPD, the specific context of the governance of the BOS Fund, and the application of the holistic analysis framework of the CIPP model at the level of the Education Office. This

research has a high urgency to be carried out immediately in Berau Regency for two main reasons. First, as a nationally mandated system, early evaluation of SIPD implementation is crucial to provide constructive feedback for system and policy improvement. Second, the BOS Fund is the lifeblood of school operational financing, so that any obstacles in its management system through SIPD can have a direct impact on the smooth running of education services. Based on the description above, the researcher is interested in conducting research by focusing on the analysis of how to evaluate the Regional Government Information System (SIPD) in the governance of BOS funds at the Berau Regency Education Office in Berau Regency, what are the factors that hinder the implementation of SIPD in optimizing BOS fund governance at the Berau Regency Education Office, and How to design a management reform model BOS funds with the SIPD program at the Berau Regency Education Office.

## **THEORETICAL REVIEW**

### ***Policy Evaluation***

According to Dunn, policy evaluation is the process of providing an overview that the implementation of policies is assessed based on information received and obtained directly in the field. If the problems in the policy are not clear, either from the initial process of policy formation itself, it will not hit the expected target, this means that evaluation can also be used as a supervision of the implementation of the policy. This definition explains that policy evaluation is the result of a policy which in fact has the value of the results of policy objectives or objectives, where the final part of a policy process is policy evaluation (Tachjan, 2006).

One of the most comprehensive frameworks for conducting policy evaluations is the CIPP model, which offers a holistic approach to assessing a policy from planning to its outcome. This study adopts the CIPP (Context, Input, Process, Product) evaluation model developed by Daniel Stufflebeam as a theoretical framework. This model was chosen for its comprehensive and systematic nature, allowing for a thorough evaluation of the implementation of the Local Government Information System (SIPD) from the planning stage to the final results. In the context of this study, the Context component will be used to analyze the urgency and strategic objectives of the implementation of SIPD in the governance of BOS funds in the Berau Regency Education Office, such as to respond to the demands of central regulations and increase transparency and accountability. Furthermore, the Input component will assess the readiness and feasibility of the resources allocated for implementation, which includes the SIPD platform itself, budget availability, competence of school apparatus and operators, technological infrastructure, and clarity of existing standard operating procedures (SOPs).

The results of this product evaluation will serve as a basis for concluding the success rate of the implementation of SIPD and formulating constructive recommendations for future system improvements.

## **METHODOLOGY**

This study uses a descriptive method with a qualitative approach to evaluate the Local Government Information System (SIPD) in the governance of BOS funds at the Berau Regency Education Office. The qualitative approach was chosen because the research problem was considered to be not thoroughly clear, and this method allowed researchers to understand hidden meanings, social interactions, as well as develop theories based on the natural conditions of the research object. This study aims to provide an in-depth overview and describe the conditions that are currently occurring regarding the implementation of SIPD in the management of BOS funds (Adlini et al., 2022). The focus of this study is to analyze implementation evaluation, identify inhibiting factors, and develop a model for BOS fund management reform using CIPP (Context, Input, Process, Product) evaluation theory (Hasibuan et al., 2022).

Data collection was carried out at the Education Office office and several schools in Berau Regency. Primary data was obtained through structured interviews with key informants, which included the Secretary of the Education Office, the BOS Management and Verification Team, as well as the Principals and Treasurers of BOS from five schools. Meanwhile, secondary data was obtained through direct observation of the implementation of the program, as well as documentation in the form of notes, transcripts, and archives from the Berau Regency Education Office. To ensure the validity of the data, the researcher uses the source triangulation technique, which is by comparing and cross-checking data obtained from interviews, observations, and documentation to ensure the consistency and accuracy of information (Sugiyono, 2013).

The validity of the data was tested using the data source triangulation technique. The data analysis technique used in this study is an interactive analysis model developed by Miles, Huberman, and Saldaña. This analysis process includes three main stages that are carried out on an ongoing basis. The first is data condensation, which is the process of selecting, focusing, and simplifying the raw data that has been collected. Second, data presentation, where simplified data is presented in the form of narrative text so that it is easy to understand. The final stage is the withdrawal and verification of conclusions, where the initial conclusions formulated will continue to be verified and deepened until they reach a final finding that can answer the formulation of the research problem (Milles, Huberman, & Saldaña, 2014).

## **RESULTS AND DISCUSSION**

### ***Evaluation of the Local Government Information System (SIPD) in the management of BOS funds at the Berau Regency Education Office in Berau Regency***

The evaluation of the Local Government Information System (SIPD) in the management of School Operational Assistance (BOS) funds within the Berau Regency Education Office shows a sharp paradox. Conceptually at the policy level, this program is considered a necessary success for bureaucratic modernization. However, in practice at the operational level, implementation in the field is hampered by a series of systemic fundamental problems at each stage of CIPP evaluation starting from context, inputs, processes, to final results.

Success celebrated at the macro level is not perceived as ease, but rather often as a new burden at the end-user level.

### 1. Context Evaluation

An in-depth contextual evaluation shows that the implementation of the SIPD was born out of an urgent and fundamental need to reform public financial governance that for years has been trapped in a fragmented, non-standardized, and prone to inefficiencies and irregularities. Before the SIPD era, the landscape of the financial system in the regions, including in Berau Regency, was a chaotic mosaic. More than 50 different types of independently developed applications operate simultaneously, creating information silos that are impervious to each other. This makes data consolidation at the national level an incredibly difficult, time-consuming task, and often results in inaccurate reporting. The main goal of SIPD, as understood by stakeholders, is to dismantle the silos and create one data that is integrated from upstream to downstream starting from planning, budgeting, administration, to reporting. This grand vision was well received at all levels as it promised greater transparency and accountability.

Behind this noble goal, context analysis also reveals an inherent flaw that is at the root of many problems in the future, the existence of fundamental system architecture incompatibility. SIPD is designed and built solidly on the logic, cycle, and flow of the Regional Revenue and Expenditure Budget (APBD), whose movement of funds is through the regional treasury. This challenge is compounded by the rigidity of the system that is national (one for all). This system is difficult to adapt to the specific needs and dynamics of spending in the region, such as the procurement of creative teaching materials or the payment of honorariums for local resource persons who do not have national price standards, so that it has the potential to create data integrity problems and hinder the accountability that is actually to be achieved.

### 2. Evaluation of Inputs

Evaluation of the input component revealed that the foundation of SIPD implementation in Berau Regency is very fragile and faces fundamental challenges, especially in the aspects of human resources and internal control. Although basic resources such as hardware (computers) and human resources are available to learn, weaknesses in other input aspects serve as the root of the problems of the various administrative problems and irregularities found. The most critical and often cited weakness is training and socialization that is very sporadic, uneven, and more ceremonial in nature one-hitter. This approach fails to equip operators with the deep understanding needed to operate complex systems. As a result, many operators are forced to become self-taught learners who rely on informal sources such as tutorial videos on YouTube. This dependency is very risky because it can cause inconsistencies in understanding, non-standard practices between schools, and even misinformation.

Even more worrying are the findings of account holder practices, where one person performs multiple roles or holds several different accounts (e.g., an input account as well as a verifier account). This practice fundamentally undermines the principle of segregation of duties, which is a key pillar in the internal control system to prevent errors and fraud. Without a check and balance

mechanism, the loopholes for unintentional mistakes and deliberate abuse of authority are wide open. In addition, infrastructure constraints are also a serious layered problem. On the one hand, centrally managed national servers are often overloaded at critical times, creating a digital bottleneck that impacts all users. On the other hand, there is a real digital divide between schools in urban areas and schools in remote areas that are still struggling with unstable internet connections. The fatal weaknesses in this input component ultimately correlated directly with the negative findings in the Inspectorate's inspection report. Undue accountability, incomplete evidence, and other administrative errors are logical manifestations of poorly trained human resources and very weak internal controls.

Analysis of the findings of the Inspectorate's 2024 inspection shows a very clear cause-and-effect relationship between weak input components and problematic final results. Findings such as incomplete accountability, inappropriate evidence, and deviant procurement processes are not stand-alone issues. Rather, they are symptoms of a deeper disease where undertrained human resources are due to minimal socialization, and the collapse of internal control systems due to the harmful practices of account managers. When the Treasurer is not careful or the BOS Team is not optimal in verifying, this is a direct reflection of the lack of a deep understanding of the correct procedures and the absence of an effective mutual testing mechanism. In other words, negative findings in an audit are not just ordinary administrative errors, but tangible evidence of a failure to provide the most fundamental inputs to the success of a financial system.

### 3. Process Evaluation

Process evaluations reveal significant and often frustrating gaps between the ideal workflow designed in SIPD and the actual implementation in the field. Although the system theoretically aims to integrate data from ARKAS (at the school level) to SIPD (at the regional level), this process is in reality not just a simple copy-paste. Instead, it is a complex and highly exacting process of re-mapping account codes, where operators must translate shopping items from the ARKAS structure into a more rigid and formal SIPD structure. The implementation of this process is colored by three main interrelated obstacles. First, the technical constraints of the system, where the central server often rotates (slows down drastically or overloads) when approaching the deadline, forcing operators to work late at night just to be able to input data. This condition not only decreases productivity, but also has a negative impact on the mental health and work motivation of operators. Second, obstacles to supporting infrastructure, such as unstable internet networks and power outages, are serious obstacles and real obstacles, especially for schools in rural or coastal areas. Third, procedural constraints, where system rigidity (e.g., the need to refer to Standard Unit Prices/SSH for all types of spending) is often inconsistent with the flexibility required in the management of BOS funds for unique and innovative activities. Further, the monitoring and evaluation mechanisms that run during the process tend to be superficial and focus only on formal compliance (the important incoming report) rather than examining the substance and reasonableness of the

expenditure. Verifiers in the service often check administrative completeness rather than material truth, so irregularities at the lower levels often escape detection. It is exacerbated by the absence of an effective feedback loop mechanism from users in the field to system developers at the center. Complaints, difficulties, and suggestions for improvement from operators seem to have no official channels to be heard and acted upon, making the system static, rigid, and increasingly lagging behind the real needs of its users.

The core of the paradox of SIPD implementation shows that there is a very wide gap between the perception of users and the facts of the audit. Stakeholders in schools and agencies feel that the process has become more transparent because the data is open and the flow is clear within the system. However, the LHP Inspectorate proves that this procedural transparency does not necessarily result in substantive accountability. The system succeeds in making the process look better, but it does not succeed in making it better in practice. The failure of the verification process and internal supervision that is not optimal is the main reason why irregularities in the field continue to occur even though sophisticated systems have been used. This suggests that the focus of implementation is more on the adoption of the technology itself, and not on reforming business processes and strengthening the control mechanisms that should come with it.

#### 4. Product Evaluation

Product evaluation, as a final stage, reveals results that are dualistic and full of contrasts. On the one hand, as an information technology product, SIPD can be considered successful in achieving the macro goal of integrating, standardizing, and unifying regional financial data. The positive impact is evident in increasing procedural transparency and the ability of local governments to prepare more neat and timely aggregate financial statements, which is even associated with the achievement of the Reasonable Without Exception (WTP) predicate. Not surprisingly, the level of user satisfaction at the leadership and planner levels in the service tends to be high because this system has succeeded in solving the problem of data fragmentation that has been going on for a long time. On the other hand, this product has not been optimal in realizing fully accountable and efficient governance at the practice level. Satisfaction at the level of operational users (treasurers and school operators) tends to be low. For them, this system often feels that it adds a new administrative burden, is inefficient due to slow server performance, and has a complicated and unintuitive interface. The sharpest and most alarming gap is seen when comparing perceptions with audit facts. Even though users in schools feel that their accountability is increasing, the BPK LHP clearly shows the opposite fact where fundamental problems such as incomplete SPJ, potential overpayment, and non-compliance with provisions are still rampant. This indicates that there is a great risk of the phenomenon of garbage in, gospel out. This is a dangerous condition in which poor-quality, inaccurate, or even manipulated source data from the school level, is fed into the sophisticated system of SIPD. This system then processes them into aggregate reports that look neat and professional at the district level. Decision-makers who look at this clean report may make policies based on the illusion of sound data, even though the real problems at the lower

levels are completely unsolved, even covered by the sophistication of the technology itself. Nevertheless, all informants agreed that this program must be continued because it is a regulatory mandate, but with the note that there must be significant and fundamental improvements, especially in system flexibility, simplification of interfaces, and massive and sustainable strengthening of human resource capacity.

The gap between user perception and audit facts is the strongest evidence of the phenomenon of garbage in, gospel out. The final product in the form of consolidated and clean regional financial statements (which contributed to the WTP opinion) turned out to be produced from raw data at the school level whose quality is still very doubtful due to the weak verification process. This creates an illusion of successful governance. The SIPD system as a product has managed to become a sophisticated reporting engine, but it has failed to be an effective control engine. This failure lies not in the technology itself, but in the ecosystem that surrounds it: weak HR input and superficial oversight processes. Ultimately, the product produced by SIPD is a mirror that reflects back all the weaknesses of the context, input, and process stages, confirming that technology without process reform and strengthening human capacity will only result in automation from old practices.

### ***Factors inhibiting the implementation of SIPD in optimizing the governance of BOS funds at the Berau Regency Education Office***

#### **1. System Rigidity and Architectural Incompatibility with BOS Fund Flows**

The first inhibiting factor is the rigidity of the one-size-fits-all SIPD system design and the incompatibility of its basic architecture with the BOS funding flow mechanism. This problem arises from the conflict between two different governance philosophies that are forced to merge. SIPD is built on the logic of the Regional Revenue and Expenditure Budget (APBD) which is *top-down*, hierarchical, and centralized, with the aim of stability and control. In contrast, BOS funds embrace the spirit of decentralization and autonomy based on the principles of School-Based Management (SBM), where funds are transferred directly to schools to enable a quick and flexible response to dynamic needs at the level of educational units.

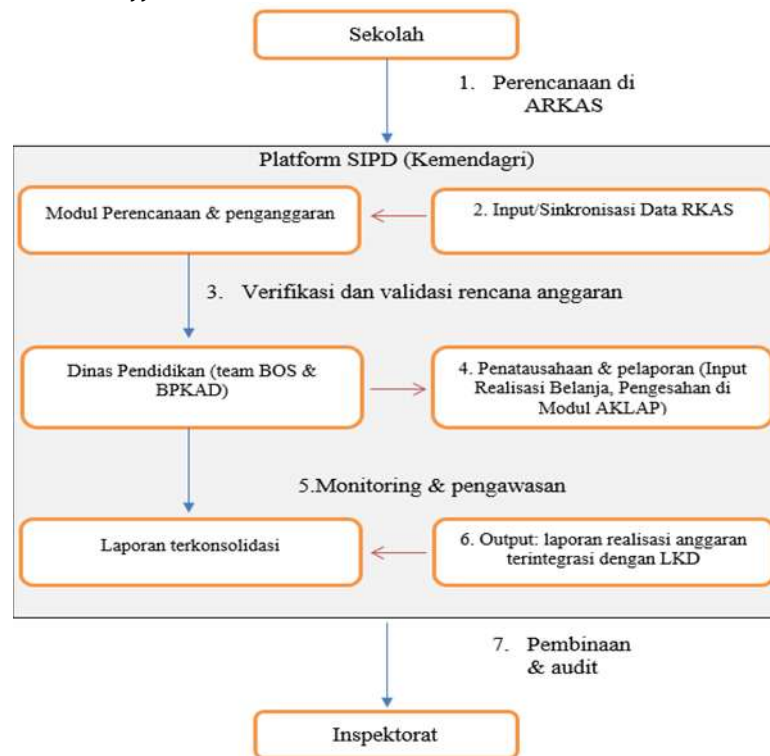
Efforts to force the flow of liquid BOS funds into the rigid APBD framework within the SIPD create various technical and procedural complications. One obvious example is the obligation to lock all types of spending on the Standard Unit Price (SSH) set by the local government. This is an obstacle to creative and contextual educational needs, as innovative items such as toy telescopes for science festivals are almost certainly not on the SSH list. As a result, school treasurers are forced to make inaccurate budget classifications, which technically constitute falsification of reports, so that a system that aims to improve accountability actually encourages dishonest reporting practices. In addition, this rigidity cripples the response to emergency needs, such as repairing a damaged printer during an exam, because the process of shifting the budget in the APBD logic is very bureaucratic and time-consuming.

#### **2. Inadequate Training and Fatal Weaknesses of HR Internal Control**

The second crucial factor lies in human resources (HR), which is a combination of minimal training and fatal weaknesses in internal control. The training and socialization provided are more ceremonial than substantial, often lasting only one day for a complex financial system. This kind of training is not enough to build technical competence, teach how to solve problems, or provide an in-depth understanding of the rules. As a result, operators are forced to learn independently through sources such as YouTube, whose content may be outdated, incorrect, or inappropriate for the local context, thus undermining the goal of SIPD standardization.

This weakness in the HR aspect is exacerbated by the practice of "account masters", where one person, usually a treasurer or operator, holds and runs several accounts with different authority, such as the treasurer's account as well as the principal's account. This practice fundamentally destroys the principle of separation of duties which is a key pillar in the internal control system. By merging the filing and approval functions into a single person, a huge gap opens up for error and abuse. An account holder can hypothetically make fictitious transactions that from the system's point of view will appear legitimate because they have passed the approval stage that should have been carried out by the other party. Leaving the security of public funds only to the integrity of the individual without systemic control is a fatal omission.

*Draft BOS fund management model with the SIPD program at the Berau Regency Education Office*



Source : author's analysis, 2025

**Figure 1. BOS fund management workflow in the SIPD ecosystem**

The following is an explanation of the workflow sketch of BOS fund management in the SIPD ecosystem

1. Initial Planning at ARKAS: Schools prepare School Activity Plans and Budgets (RKAS) at ARKAS, a platform designed by the Ministry of Education and Culture for more flexible and needs-based planning for schools. This is where aspirations and innovations from the grassroots level are formulated.
2. Digital to SIPD Translation: This is the first friction point. School operators must translate shopping items from flexible ARKAS into rigid APBD account codes in SIPD. This process, which is often called copy-paste, is actually a complicated and error-prone manual mapping process, where shopping items such as Science Competition Prizes must be forced into official account codes such as Student Practice Tool Shopping.
3. Verification by the Agency: The BOS team from the Education Office acts as the gatekeeper. They verify the conformity of the RKAS with budget ceilings, regulations, and price standards. This stage has the potential to become *a bottleneck* (inhibition) in the event of a build-up of documents, or if there is a difference in the interpretation of the rules between innovative schools and conservative official verifiers.
4. Awkward Administration: After the budget is approved and spent, the school treasurer inputs proof of transactions. One of the perceived irregularities is the verification process which is placed in the Accounting and Reporting module (AKLAP), not in the Administration module. This clearly shows that the SIPD was designed from the point of view of central government accounting, not from the logical workflow of users in the regions.
5. Centralized Monitoring: The Education Office and BPKAD get great benefits at this stage. They can monitor the progress of budget absorption from hundreds of schools in *real-time* through a centralized dashboard, a capability that was previously impossible.
6. Consolidated Report Output: The system is magically able to consolidate thousands of transactions from across schools into a neat and integrated Budget Realization Report (LRA). This is a big win for macrofinance management, but the quality of these reports is highly dependent on the accuracy of the inputs in the 2nd and 4th steps.
7. Digital-Based Audits: Inspectorates now have a clear digital footprint to audit. In theory, this makes tracking easier. However, a clean digital footprint can hide unnatural transactions if internal control processes in the earlier stages are weak.

An analysis of the implementation of the Local Government Information System (SIPD) in the management of School Operational Assistance (BOS) funds in Berau Regency has revealed a fundamental paradox, namely a system that technically succeeds in creating procedural transparency at the macro level, but practically fails to realize substantive accountability and operational efficiency at the micro level. The root of the problem goes much deeper than just a software bug but lies in the fundamental philosophical conflict between the rigidity of the

centralized control of the SIPD based on the APBD and the spirit of autonomy and dynamic flexibility that is the soul of the BOS fund. This failure is exacerbated by the fragility of the supporting pillars: poorly trained human resources, illogical business processes, and inadequate infrastructure.

Answering these multidimensional challenges requires a new design that is transformative. This design not only aims to patch the existing system embroidery as illustrated in Figure 7.1, but to reconstruct the entire management ecosystem holistically. Based on the principles of full interoperability, human-centric design, and risk-based intelligent oversight, the design of the BOS Fund Management digital bridge model in the SIPD ecosystem aims to bridge the gaping gap between the ideal policy at the central level and the operational reality on the ground. The goal is to transform SIPD from a dreaded administrative burden into an intuitive empowerment tool that truly serves the advancement of education.

The proposed design model stands firmly on four mutually reinforcing basic principles, designed to unravel the root of the problem that has been identified.

1) Hybrid & adaptive approach

This principle recognizes that the one-size-fits-all approach has proven to fail. Imposing the rigid logic of the APBD on BOS funds is like asking an artist to paint using only a ruler. Instead, allowing school autonomy without standardization will return to the chaos of the pre-SIPD era. Therefore, the system must be able to accommodate two different but mutually necessary worlds: the world of flexibility, creativity, and innovation at the school level (through ARKAS), and the world of standardization, aggregation, and data consolidation at the national level (through SIPD). Both must be able to coexist harmoniously.

2) Entity separation & full interoperability

Instead of forcing a single system to do everything, this model treats ARKAS and SIPD as two distinct but intelligently connected specialist entities through an *Application Programming Interface* (API)-based Digital Bridge. This is a fundamental change from a tedious double manual input process to an automated Drag & Translate flow. Schools can simply work on a single platform they understand (ARKAS), and the behind-the-scenes system will automatically pull in that data, translate it into the SIPD language, and present it for national reporting needs.

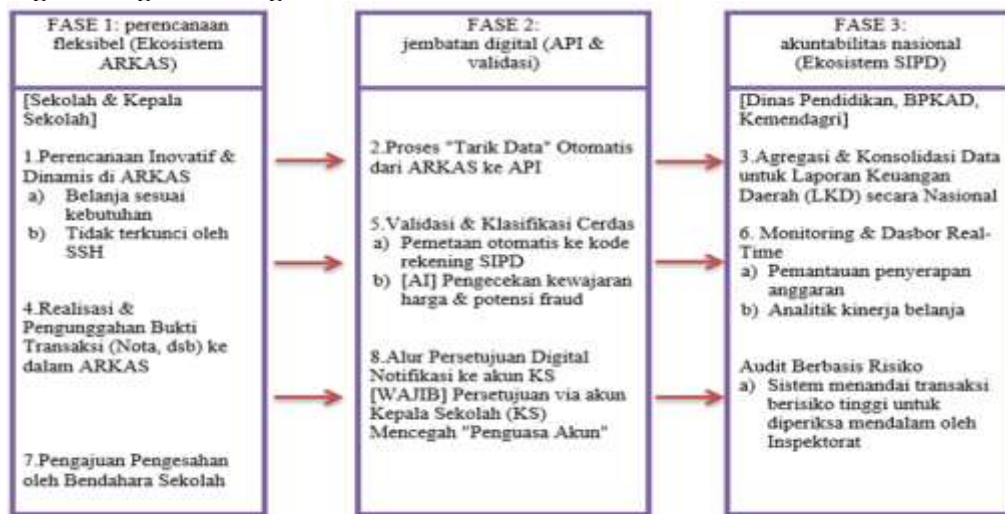
3) Human-centric

This principle affirms that technology must serve humans, not the other way around. The top priority is to design a user experience that is easy, intuitive, and frustration-free. All the complaints that have arisen—from the reliance on YouTube Professors, to the high cognitive load, to the emergence of risky practices like Account Ruler are symptoms of a system design that does not humanize its users. The human-centric design will focus on simplifying the interface, providing clear help lines, and automating repetitive tasks, so that users can focus on their substantive work.

4) Risk-based & *real-time surveillance*

This model changes the supervisory paradigm from reactive and formal (check the document completeness box) to proactive, intelligent, and substantive. Instead of spending time examining thousands of transactions with the same level of depth, the system will use data analysis to automatically flag a small number of the riskiest or anomalous transactions. This allows the supervisor (Education and Inspectorate) to focus their limited resources on the areas that need the most attention, just like a doctor focuses on the patients with the most serious symptoms.

The following sketch illustrates a new workflow that separates the flexible planning function from the national reporting function, which is connected by an intelligent Digital Bridge.



Source : author's analysis, 2025

**Figure 2 . Design of the BOS Fund Management digital bridge model in the SIPD ecosystem**

The following is a detailed analysis of the components of the BOS Fund Management digital bridge model design in the SIPD ecosystem

1) Phase 1: Flexible Planning in the ARKAS Ecosystem (School World)

This phase returns the functions of planning, realization, and accountability fully to its natural habitat, i.e. the school, by empowering ARKAS as a single platform. The role of ARKAS is strengthened into a Single Platform where ARKAS is no longer just a planning tool, but the only platform for schools to carry out the entire cycle starting from planning, budgeting, recording realization, and uploading evidence of BOS fund spending. This completely eliminates the need for double inputs that are a major source of frustration and inefficiency. Users only need to master one system that is designed for their needs. Schools can input shopping items according to their actual names and needs (e.g. Purchase of Toy Telescopes for Science Clubs, Local Farmer Resource Persons Honor for Agricultural Projects, or Transportation Costs for Study Visits to Museums). They no longer need to force it into rigid SSH code. It's not just about convenience, but also about encouraging honesty reporting, increasing the relevance of shopping, and rekindling the flame of innovation at the school level.

2) Phase 2: API (Machine Translation & Validation) Digital Bridge

This is the heart of the new model, a layer of intelligent middleware that works automatically behind the scenes to bridge ARKAS and SIPD. Automatic data pull (not manual push) where the system no longer waits for the operator to do the tedious copy-paste. Periodically (for example, every night), this Digital Bridge will pull RKAS data and realization data from the ARKAS server automatically. This process is invisible to the user and does not require human intervention. This is where the magic and the main added value happens. This bridge will map data automatically using a continuously updated mapping algorithm and data dictionary, shopping items from ARKAS will be automatically classified to the most appropriate APBD account code in SIPD. For example, the Toy Telescope will be mapped to Student Practice Tools and Teaching Aids Spending, while Local Farmers Honorarium will be mapped to Expert Service Spending/Resource Persons. The system can be equipped with simple artificial intelligence (AI) to flag unnatural transactions. For example: if a school in the interior suddenly buys advanced IT equipment from a supplier located outside the province at a price above the market average, the system will provide a warning notification (*flag*) to the service verifier for further examination. When the treasurer submits an SPJ endorsement at ARKAS, the system will automatically send a notification (e.g. via email or application) to the Principal's account. The Principal is required to approve using his/her personal account (with two-factor authentication if necessary). This digital trace of consent is permanently recorded and undeniable. This would technically kill the practice of the Account Ruler and forcibly enforce the principle of separation of duties.

### 3) Phase 3: National Accountability in the SIPD Ecosystem (World of Government)

The role of SIPD is changed to be more focused, strategic, and analytical, no longer as a tool for operational data input. SIPD is no longer burdened with operational details and data input from thousands of schools. Its main role is to receive clean, validated, and classified data from the Digital Bridge. Its main function is to aggregate it for the needs of preparing regional financial statements (LKD) and monitoring policies at the national level. The Education Office now has a sophisticated supervision dashboard. They don't just look at numbers, but also analysis. They can see a map of the distribution of budget absorption, spending trends by type of activity, comparisons between schools, and most importantly, a list of transactions or schools that are most often marked as at risk by the system. This changed the role of the supervisor from a mere verifier to a policy analyst. Inspectorates no longer need to check all transactions at random like looking for a needle in a haystack. The system will present a list of the most high-risk transactions (e.g., the value of a transaction is very large, made at the end of the fiscal year, from a new supplier, or one that is flagged by AI). This allows the audit process to be sharper, deeper, and more efficient, maximizing impact with limited resources.

The design fundamentally changed the paradigm of BOS fund management, from a system that coerced and burdened to a system that served and empowered. By building a smart Digital Bridge to harmonize the world of school flexibility (ARKAS) with the world of national accountability (SIPD), this

model elegantly resolves the philosophical conflict that has been at the root of the problem. With this holistic approach, the management of BOS funds will not only be procedurally transparent, but will also be effective, efficient, and substantively accountable, which ultimately realizes the true goal of bureaucratic reform, namely better public services to classrooms in all corners of Berau Regency.

Based on the analysis provided, Daniel Stufflebeam's CIPP (Context, Input, Process, Product) evaluation model, which has long been respected for its holistic and systematic framework, now shows significant limitations when faced with complex and dynamic modern programs. Although historically the gold standard in evaluation, its application to large-scale digital transformation programs such as the Local Government Information System (SIPD) in Berau Regency has revealed four fundamental weaknesses. These inherent limitations are not just theoretical issues, but practical constraints that hinder a comprehensive understanding of the success or failure of a program, thus limiting the diagnostic capacity of the classical CIPP model in dealing with the challenges of interconnected and evolving programs in the current era.

1) Tends to be Linear and Less Accommodating to Feedback Dynamics

The CIPP model is often applied in sequential flows ( $C \rightarrow I \rightarrow P \rightarrow P$ ). Although Stufflebeam himself states that evaluation can be done formatively at every stage, in practice, the CIPP logic encourages a linear and compartmentalized way of thinking. It is significantly less able to capture the true nature of complex program implementation, where problems at one stage are often simply symptoms of a disease that took root in the previous stage. The CIPP model is good at identifying "what" is wrong in each box, but it is not good at explaining the "why" the error occurs due to the causal relationship between the boxes.

2) Vulnerable Internal Focus Ignores External Ecosystem Interactions

CIPP is very effective in evaluating elements that are within the boundaries of a program. However, strategic programs such as SIPD never operate in a vacuum. SIPD is a planet within the larger policy solar system, which must interact, negotiate, and sometimes collide with systems, regulations, and other stakeholders that are beyond the program's direct control. CIPP's internal focus makes it less sensitive to the health of these external relationships.

3) Weak in Measuring and Managing Sustainable Adaptation Capacity

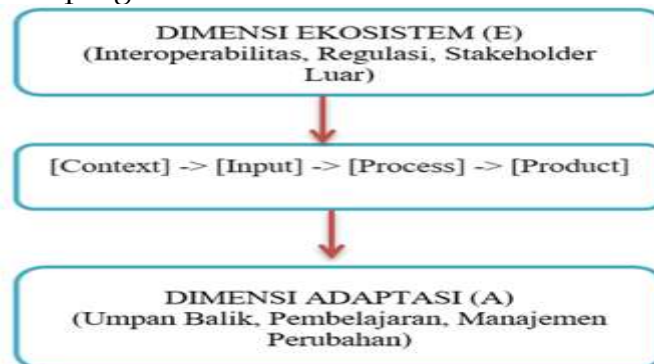
The CIPP model has traditionally focused on answering the question "Is the program succeeding in achieving its goals?" at each stage. However, in the dynamic and ever-changing implementation of technology, the more important question is "Is the program able to adapt, learn, and evolve from failure on a sustainable basis?". Adaptability capacity is the key to long-term success, not just the achievement of momentary targets. CIPP places less emphasis on this evaluation of learning capacity.

4) Risk of Garbage In, Gospel Out Due to Weak Cross-Validation

The most dangerous and subtle weakness of CIPP is the potential for the phenomenon of *garbage in, gospel out*. This model evaluates the Product based on the goals it has set. If the goal is to produce regional financial statements that are consolidated and look accountable, then SIPD can easily be considered

successful. This model does not automatically force evaluators to cross-validate the correctness and integrity of the source data that makes up the report. These are the sharpest and most alarming findings of the study. There is a deep gulf between the perception of success among users and officials (feeling more transparent and accountable) and the audit facts from the BPK/Inspectorate LHP which clearly show incomplete SPJ, potential overpayments, and even fictitious spending. The system (SIPD) has managed to generate a "good" and professional looking report (Gospel Out) from source data that turns out to be of very poor quality (Garbage In). This happened because of the shallow verification process at the official level. The CIPP model can uncover this, but only if the evaluator has the proactive initiative to conduct in-depth investigations and compare the data. This model lacks a "mandatory" component for performing data triangulation or external validation, thus creating a dangerous "blind spot".

To overcome these fundamental weaknesses, we propose a reconstruction of the CIPP model into the CIPP-A+E (Context, Input, Process, Product - Adaptation + Ecosystem) Evaluation Model. This model does not replace the core components of the CIPP that have been tested, but rather strengthens it by adding two new evaluation dimensions that are transversal, dynamic, and sustainable, namely Adaptation (A) and Ecosystem (E). These dimensions serve as a lens that constantly scans the program from the outside in and from the inside out.



Source : author's analysis, 2025

**Figure 3. CIPP-A+E Model Design**

Components of the CIPP-A+E model:

1. Context: Just like CIPP, evaluate needs, problems, and goals. However, it has now been expanded with the obligation to conduct ecosystem mapping from the beginning. This means explicitly identifying all systems, regulations, and external stakeholders that will interact, potentially conflict, or depend on the program.
2. Input: Just like CIPP, evaluate resources, strategies, and plans. This includes a more in-depth analysis of the readiness of resources (HR, budget, technology) to interact effectively with the elements of the ecosystem that have been mapped.
3. Process: Just like CIPP, it evaluates the actual implementation. The analysis is now supplemented by evaluating how internal processes respond

dynamically to pressures, changes, and constraints that come from outside (the ecosystem).

4. Product: Just like CIPP, evaluate outcomes and impacts, both expected and unexpected. This component is significantly strengthened by the obligation to cross-validate key data sources using data from external sources (e.g., audit data, banking data) and direct confirmation with ecosystem stakeholders.
5. Adaptation: This transversal dimension specifically and continuously evaluates the "intelligence" and capacity of the program to learn, adapt, and evolve.
  - a) Feedback Mechanisms: Are there formal, structured, and effective channels (e.g., help ticket systems, regular user forums) for users to report issues and provide suggestions? How quickly and effectively did the program manager respond to and resolve the feedback?
  - b) Learning & Innovation Capacity: Are findings from evaluations (internal or external) and problem reports systematically analyzed to identify root causes? Does this knowledge translate into real improvements to systems or procedures? Is there a culture of innovation to solve problems, or is it just "putting out fires"?
  - c) Change Management: How does the program manage the human aspect of change? Is training designed as a continuous cycle tailored to the role, rather than just a ceremonial event? How is user resistance, both active and passive, identified and managed constructively?
6. Ecosystem: This second transversal dimension specifically evaluates the health and quality of the program's relationship to the complex external environment.
  - a) System Interoperability: To what extent can the program system "speak" or integrate technically (e.g., via APIs) and procedurally with other vital external systems (such as SIPD with ARKAS)? Is this integration seamless, or does it create a manual reconciliation workload?
  - b) Regulation Harmonization: Are there conflicts, overlaps, or gray areas in regulations issued by different institutions (such as the Minister of Home Affairs and the Minister of Education and Culture) that directly hinder the effectiveness of programs in the field? How are these regulatory conflicts identified and negotiated?
  - c) External Stakeholder Management: How does the program proactively manage relationships with external actors that are crucial but not under its control (such as the disbursing banks, external auditors, other ministries, or even the system developer's vendor)?

The CIPP evaluation model remains a powerful, relevant, and historic tool. The classic CIPP model manages to show "what" went wrong at each stage, but it is often less able to analyze in depth the "why" the system fails to adapt to its internal errors and the "why" the CIPP fails to interact healthily with its external environment. The proposed CIPP-A+E model tries to fill this strategic gap. By adding the Adaptation and Ecosystem dimensions as a constant evaluation lens, this model encourages evaluators to transform. From simply being a program "auditor" who ticks off checklists, to being a "systems doctor" who is able to

diagnose the health, resilience, and intelligence of a program in the context of its dynamic and often inhospitable environment. Ultimately, CIPP-A+E shifts the focus of evaluation from simply assessing past achievements to assessing a program's capacity to survive and thrive in the future. CIPP-A+E assesses resilience and intelligence, two qualities most needed in the face of a complex real world, a challenge that the implementation of SIPD has clearly and painfully demonstrated.

## CONCLUSIONS AND RECOMMENDATIONS

From the overall analysis of the results of the SIPD Evaluation research in the governance of BOS funds at the Education Office in Berau Regency, the following conclusions can be drawn;

- 1) The evaluation of the implementation of the Local Government Information System (SIPD) for BOS funds in Berau Regency revealed a fundamental failure behind the perception of success. Although well-intentioned, this system imposes a rigid APBD logic on BOS funds that demands flexibility, creating architectural conflicts from the start. This problem is exacerbated by critical weaknesses in human resources (HR) that lack training, "account lords" practices that undermine internal controls, and inadequate infrastructure. As a result, the process becomes rigid, verification is only a formality, and there is no feedback mechanism. This condition gives birth to the dangerous phenomenon of "garbage in, gospel out," where bad data produces a report that looks good, but the findings of the BPK LHP actually show the existence of incomplete SPJ and potential state losses.
- 2) The inhibiting factor in the implementation of SIPD in the governance of BOS funds at the Berau Regency Education Office is the rigidity of the system that forces schools to follow Standard Unit Prices (SSH) and bureaucratic processes, thus shutting down innovation and paralyzing the school's ability to respond to emergency needs. A fatal weakness in the capacity of human resources who are forced to self-teach and the concentration of authority on one person, which directly destroys the principle of separation of duties. It is this combination of philosophical conflict of systems and weaknesses of capacity that directly leads to serious accountability problems.
- 3) As a solution to the problem of SIPD in the governance of BOS funds at the Education Office in Berau Regency, a holistic design was proposed consisting of two main components. Technically, a "Digital Bridge" model is proposed that connects a flexible ARKAS system with SIPD via API, so that schools remain autonomous while data can be validated and integrated automatically. Managerially, the CIPP evaluation model is strengthened into CIPP-A+E, adding the dimension of Adaptation (A) to ensure the system can evolve through feedback, and Ecosystem (E) to align the system with regulations and other external platforms, to address policy conflicts at their roots.

From the drawing of these conclusions, the author compiles practical recommendations for the Government as follows;

- 1) Carry out total reforms in human resource (HR) governance and strengthen internal controls that have proven to be very weak. The Berau Regency

Government should immediately issue strict regulations, such as the Regent's Regulation, which explicitly prohibits the practice of account holders with clear administrative sanctions to enforce the principle of separation of duties. Along with that, the ceremonial and proven failed one-time training model must be replaced with a tiered and certified continuous training program for all treasurers and principals. Finally, the focus of verification by the BOS team in the office must be changed from just checking administrative completeness to substantive analysis and fairness of spending to prevent the phenomenon of *garbage in, gospel out*.

- 2) Immediately form a *pilot project* team to start implementing the Digital Bridge Model proposed in the research, in order to address the fundamental problems of system rigidity and workflow inefficiencies. The ultimate goal is to restore flexibility to schools by letting them work only within the ARKAS ecosystem, thereby eliminating the need for tiring dual inputs. The mechanism is to develop an *Application Programming Interface* (API) as a bridge that automatically pulls data from ARKAS, translates it into SIPD account codes, and performs intelligent validation to flag anomalous transactions. This model would also technically kill the practice of "account masters" by requiring digital consent flows by separate and undeniable principal accounts.
- 3) Building system sustainability by creating a formal *feedback loop* mechanism and encouraging persistent improvement of technology infrastructure. Local governments should urge the central government to embed a structured Report Problem/Proposal feature in the SIPD application, so that complaints and suggestions from users in the field can be followed up systematically and no longer depend on informal sources. At the same time, the Berau Regency Government needs to actively lobby the Ministry of Home Affairs to make serious investments in increasing national server capacity to overcome the problem of digital congestion that always occurs at critical times. To overcome the digital divide, it is necessary to encourage the development of the ARKAS application that has a reliable offline mode, so that schools in areas with limited internet connectivity are not hampered in carrying out their work.

## **FURTHER STUDY**

Future research is recommended to compare SIPD implementation across regions to assess the broader effectiveness of BOS fund management. Longitudinal studies can be conducted to observe the development of SIPD usage over time. Further studies may also explore user perceptions, integration with other systems, and technology adoption factors that affect its effectiveness. A policy and governance approach is also important to examine regulatory support for SIPD implementation.

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