

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting: A Case Study of South Korea and the Potential Benefits for Algeria

\* Omar Guerfi <sup>1</sup>, Hamza Ramli <sup>2</sup>

<sup>1</sup> Abdelhafid Boussouf University Center – Mila, (Algeria) omar.guerfi@centre-univ-mila.dz

<sup>2</sup> Hamza Ramli University of Constantine 2 (Algeria) hamza.ramli@univ-constantine2.dz

Received: 10/09/2025

Accepted: 24/09/2025

Published: 25/12/2025

### Abstract:

This article aims to analyze and evaluate the pivotal role of technology and artificial intelligence in advancing performance budgeting in South Korea. This study reviews the concept of performance budgeting and its role in enhancing the efficiency and effectiveness of public spending, with a focus on its integration of advanced technological solutions. The research examines key digital technologies and solutions adopted by South Korea and analyzes the positive effects of this integration on performance budgeting. Employing a descriptive-analytical approach and a case study design, the study draws lessons from the South Korean experience and provides practical recommendations for developing countries, particularly Algeria, to apply this experience in modernizing their financial systems and enhancing transparency and accountability in public spending.

**Keywords:** Performance budgeting, technology and artificial intelligence, public financial management, South Korea, Algeria.

**Classification JEL:** .....,

\*Corresponding author.

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

### INTRODUCTION:

Effective public financial management (PFM) is a cornerstone of achieving sustainable development and economic prosperity in any country. In the context of enhancing the efficiency and effectiveness of public spending, the concept of performance budgeting has emerged as a vital tool for linking financial resource allocation to desired objectives and outcomes, replacing the traditional focus on inputs or expenditure items. South Korea has witnessed remarkable developments in its public financial management, driven by significant economic challenges, notably the 1997 Asian financial crisis, which prompted it to undertake radical reforms to its financial system. These reforms extended beyond structural aspects, but also extended to include the integration of advanced technology and artificial intelligence into its core financial operations. South Korea is regarded as a model of effective public financial management, with much of this success attributed to its early and extensive adoption of technology. It has established an integrated public financial management information system known as dBrain-KFMIS (Korean Financial Management Information System), recognized globally for supporting financial efficiency, control, and streamlined financial operations, control, and streamlining financial operations. In this context, this study addresses the following research question: **To what extent have technology and artificial intelligence contributed to enhancing performance budgeting in South Korea, and what lessons can be drawn for Algeria?**

The main research hypothesis is as follows: **Technology and artificial intelligence significantly enhance the effectiveness and efficiency of South Korea's performance budgeting system.**

Therefore, the research is divided into (1) a general introduction that includes the research problem; (2) a theoretical framework for performance budgeting that addresses the basic concepts, principles, and main components of performance budgeting, as well as the role of technology and artificial intelligence in public financial management; (3) a case study of South Korea and the application of technology-enabled performance budgeting; (4) an examination of the extent to which Algeria has benefited from this experience; and (5) a conclusion presenting the findings derived from the case study.

### **I. Theoretical Framework for Performance Budgeting:**

Performance budgeting represents a significant advancement in public financial management, marking a qualitative shift from the traditional emphasis on inputs (what is purchased) to a focus on outputs and outcomes (what is achieved). The concept first emerged in the United States in the mid-twentieth century, notably in the 1949 Hoover Commission Report, with the objective of enhancing the efficiency of government spending and strengthening accountability (Schick, 1966, pp. 243–258). Since then, numerous countries worldwide have adopted this approach, though its implementation and depth of application have varied considerably across contexts (van Noordt & Misuraca, 2020, p10).

#### **1. Definition of Performance Budgeting:**

Performance budgeting can be defined as a financial planning and management system that links the allocation of financial resources to the strategic objectives and desired outcomes of government

programs and activities. This system involves setting clear and measurable objectives, developing key performance indicators (KPIs) to assess the extent to which these objectives are achieved, collecting performance data regularly, and using this information for budgetary decision-making (OECD, 2023).

Performance-based budgeting is an important tool in the budgeting process, enabling countries to allocate and prioritize resources more effectively by linking spending to measurable results. This type of budgeting contributes to greater transparency and accountability, and fosters a performance-oriented institutional culture, which strengthens the quality of public service delivery (OECD, 2025, p. 129).

## **2. Performance Budgeting Forms:**

According to the Organisation for Economic Co-operation and Development (OECD), there are three main forms of performance-based budgeting (OECD, 2025, p. 129):

**-Performance-informed budgeting:** A type of budgeting where performance information—such as outcome indicators, targets achieved, and achievement rates—is used to support resource allocation decisions, without necessarily linking funding directly to outcomes. The goal is to provide decision-makers with the necessary information about the success of programs and policies, thereby helping them set spending priorities more rationally and strategically (OECD, 2025, p. 129).

Based on the 2023 OECD survey, this form of budgeting is the most prevalent, adopted by 14 out of 28 surveyed countries (42%) (Organization for Economic Co-operation and Development, 2024).

**-Presentational approach:** In this approach, performance-related information is presented independently of the budget decision-making process. Performance data (such as objectives, outputs, outcomes, and performance indicators) may be provided separately or as appendices to the main budget document. Its purpose is to enhance transparency and accountability, but it is not used as a basis for determining funding. According to the 2023 OECD survey, this approach is adopted by 7 of the 28 countries (21%) surveyed (Organization for Economic Co-operation and Development, 2024).

**-The Managerial Approach:** This is a type of performance-informed approach, but it focuses specifically on the impact of performance data on institutional and administrative behavior within government agencies. Performance budgeting is used to drive internal improvement and changes in the organizational environment, not just to make funding decisions. It is linked to building an internal culture of performance and is used to evaluate and improve administrative performance, rather than directly linking results to budget size. According to a 2023 survey by the Organisation for Economic Co-operation and Development (OECD), 7 out of 28 countries (21%) surveyed followed performance budgeting (Organization for Economic Co-operation and Development, 2024).

## **3. Key Features of Performance Budgeting:**

One of the most important features of performance budgeting is its focus on the following elements:

- **Focus on results:** Instead of concentrating on expenditure items, performance budgeting emphasizes the tangible outcomes achieved by government programs for citizens. This requires clearly defining objectives and linking them to financial allocations.
- **Measurement and evaluation:** The success of performance budgeting depends on the ability to accurately and reliably measure performance. This involves developing both quantitative and qualitative performance indicators, regularly collecting data, and analyzing it to assess program effectiveness (Wang & Gianakis, 2007, p 480).

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

- **Accountability and Transparency:** Performance budgeting aims to enhance accountability by linking responsibility for spending to responsibility for achieving results. It also increases transparency by providing clear information to the public about how public funds are spent and what has been achieved with them (OECD, 2025, p 292).

- **Flexibility and Efficiency:** Performance budgeting seeks to maximize the efficiency of **resource use** by directing **resources** toward the most effective programs. It also provides managers with greater flexibility in the use of resources to achieve objectives, provided that they achieve the desired results.

- **Decision Support:** Performance information provides valuable insights for decision-makers, enabling them to make more informed decisions about resource allocation, program redesign, and overall performance improvement (OECD, 2025, p 289).

### **II. The Role of Technology and Artificial Intelligence in Public Financial Management:**

Recent decades have witnessed a profound transformation in how governments manage their financial resources, driven by significant advances in information and communications technology and the emergence of artificial intelligence (AI) as a driving force for innovation. Technology is no longer just an enabler; it has become a key component in improving the efficiency and effectiveness of public financial management while promoting higher levels of transparency and accountability (OECD, 2025).

#### **1. Importance of Technology in Public Financial Management:**

Technology plays a crucial role in enhancing public financial management by automating financial processes and improving the accuracy of data collection and analysis. The following points summarize its importance in this field (Amaglobeli, de Mooij & Moszoro, 2023, p 10):

- **Enhancing revenue collection:** Implementing tools such as electronic tax filing (e-filing), electronic invoicing (e-invoicing), and electronic financial devices can improve tax collection efficiency, potentially increasing revenues by about 0.7% of GDP.
- **Improving public spending efficiency:** Automating government payments and enhancing transparency reduces delays, minimizes waste, and boosts overall effectiveness.
- **Strengthening financial transparency and accountability:** Adopting international standards, modernizing financial management systems, and improving taxpayer and trader services encourage voluntary compliance and facilitate trade.
- **Improving the quality of social services:** Digital solutions—such as electronic patient records, telemedicine, and digital procurement and monitoring systems for medicines and epidemics—enhance service delivery in education and healthcare.
- **Reinforcing social safety nets:** Linking digital identities with socio-economic databases enables accurate identification of beneficiaries and more efficient delivery of support and transfers.
- **Increasing budget transparency:** using technology in budget management improves the quality of financial reporting, raises Open Budget Index scores, and supports anti-corruption and good governance efforts (Uña, Verma, Bazarbash & Griffin, 2023, pp. 27-28).

## 2. Importance of Artificial Intelligence in Public Finance Management:

Artificial intelligence initiatives can enhance data-driven financial decision-making by improving the generation of timely and reliable financial information and strengthening oversight mechanisms. These initiatives integrate technologies such as machine learning, natural language processing (NLP), and robotic process automation (RPA), thereby driving digital transformation in financial operations (Amaglobeli, de Mooij & Moszoro, 2023, p 23).

Artificial intelligence represents a quantum leap in financial management capabilities, going beyond mere automation to deliver intelligent solutions to many challenges affecting the state budget:

- Machine learning applications are used to forecast government treasury deficits or surpluses on a daily basis, enabling the creation of optimal cash plans for the general budget.

- They also support the early detection of high-risk payments, preventing irregular transactions in both expenditures and revenues.

- In the field of natural language processing, contract management tools can quickly identify financial risks within the terms of contracts signed by government institutions.

- With robotic process automation, payment orders are generated automatically from electronically submitted supplier invoices, streamlining verification and budget control. This not only improves efficiency but also reduces corruption risks and ensures accurate, timely financial reporting.

- Machine learning algorithms can analyze complex, multidimensional datasets (including economic, demographic, and social variables) to forecast revenues and expenditures far more accurately than traditional models. This allows governments to prepare realistic budgets and avoid unexpected financial shortfalls (International Monetary Fund, 2024).

- AI's ability to identify anomalous patterns and suspicious behavior in financial transactions constitutes a powerful tool for combating fraud and corruption. AI systems can process billions of transactions within a short time, identifying those that may indicate money laundering or misappropriation of public funds, thereby strengthening financial oversight (World Bank, 2021, pp. 2-3).

- By analyzing historical performance data and achieved results, AI can **assist** decision-makers in identifying the most effective and efficient programs, thereby directing resources toward them. This ensures that public funds are allocated to areas that generate the greatest social and economic returns (OECD, 2023).

- AI can automate routine and complex tasks in financial management, such as invoice matching, account reconciliation, and preliminary reporting. This **allows** employees to focus on higher-value-added tasks **while enhancing** the speed and accuracy of operations (Tianjin University Journal of Science and Technology, 2024, pp. 469).

- AI provides data-driven insights to decision-makers, enabling them to better understand their financial position, assess risks, and identify opportunities. Intelligent systems offer informed recommendations based on comprehensive data analysis, thereby enhancing the quality of financial decisions (Akour, Alzyoud, Alquqa, & Tariq, 2024).

Despite the significant benefits, integrating technology and AI into public financial management faces challenges such as the need for a robust technology infrastructure, the development of

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

employee digital skills, ensuring data security and privacy, and addressing ethical challenges related to the use of AI (OECD, 2024, p 63).

### **3. Applications of Technology in Public Financial Management:**

Public financial management benefits from technology applications, the most important of which include:

- **Financial Management Information Systems (FMIS):** Integrated FMIS serve as the backbone of modern public financial management. They offer a unified platform for core financial operations, including budgeting, accounting, cash management, procurement, and reporting, thereby enhancing data accuracy, streamlining processes, and minimizing human error. As a result, they contribute significantly to more efficient and transparent financial management (Pimenta, & Seco, 2021, pp 3-5).
- **Digital Platforms for Government Procurement:** Electronic platforms streamline the procurement process, foster competition, and reduce opportunities for corruption. By digitizing the entire procurement cycle—from tender announcements to final payment—governments can achieve substantial cost savings and enhance the quality of goods and services acquired (OECD, 2025, p 12).
- **Big Data and Analytics Systems:** The ability to collect and analyze large volumes of data has revolutionized financial management. Governments can now use big data analytics to identify patterns, predict fiscal trends, and evaluate the impact of policies more accurately, thereby supporting more informed budget decisions (Journal of Science, Technology and Society, 2023, p 8).
- **E-Filing:** A digital platform for electronically submitting tax returns without requiring physical visits to the tax authority. It relies on automated data verification, which reduces human error, shortens processing times, and improves transparency while advancing digital transformation in tax administration. Experiences in several countries have demonstrated that the immediate implementation of e-filing lowers costs, curbs corruption, and significantly increases tax collections (VoxDev & World Bank, 2023).
- **E-Invoicing:** The generation of electronic invoices in a standardized format (such as UBL or XML), where a unique reference number (IRN) is recorded and an encrypted QR code is included. This invoice is automatically sent not only to the recipient but also to the tax authority, supporting automated tax credit matching and reducing fraud. National e-invoicing policies have led to significant improvements in tax collection rates, including an overall revenue increase of up to 0.7% of GDP in some countries (International Monetary Fund (IMF), 2023).

### **III. South Korea's Experience in Implementing Performance Budgeting:**

South Korea's experience in implementing a technology- and AI-driven performance budgeting system is a pioneering model worthy of study and analysis. After the 1997 Asian financial crisis, the South Korean government recognized the urgent need for a comprehensive reform of its public financial management to enhance transparency, efficiency, and accountability. Integrating technology was at the heart of these reforms (World Bank, Nuts & Bolts, 2013).

This crisis was also a key factor that drove the Korean government to implement public financial management reforms over the following decade. These reforms significantly transformed the national fiscal framework and included four major innovations (Porrúa, Vieyra & Baudino, 2024):

- Developing a national public financial management plan that aligns national development strategies with annual budget formulation.
- Implementing a top-down budgeting system to enhance resource management efficiency through strategic allocation.
- Adopting a performance management system, shifting from an input-based and cap-based system to a performance-based approach.
- Implementing an accrual-based and double-entry accounting system, improving financial management transparency through uniform and consistent accounting.

### **1. Introduction to the Reform of the Performance Budgeting System in Korea:**

The Korean government began experimenting with a performance-based budgeting (PB) system in a limited number of ministries in the late 1990s, but these initial experiments were not successful. **In response**, a comprehensive reform package was launched in 2003 to integrate performance management more effectively into the budget preparation process (World Bank, Nuts & Bolts, 2013).

Korea adopted a groundbreaking approach in the mid-2000s, introducing the PB system as part of the “*Three plus One*” reforms, which also included the National Financial Management Plan, Performance Management System, and Digital Budgeting and Accounting System. This reform received legal support from the National Finance Act of 2006, and its success was largely attributed to (GIFT Network, 2016):

- Strong political commitment and backing from top-level decision-makers.
- Designing a PB system tailored to Korea’s cultural and socioeconomic context.
- Institutional restructuring and capacity building to ensure effective and sustainable implementation (World Bank, Nuts & Bolts, 2013).

### **2. Performance Budgeting Oversight Mechanisms in South Korea:**

Korea's performance-based budgeting system includes three levels of oversight (GIFT Network, 2016):

- **Performance Goal Management System:** This system aims to monitor all government programs through the annual performance plan and annual performance report. It focuses on setting goals and performance indicators and monitoring them annually to ensure alignment with overall plans.
- **Assessment of Budgetary Programs:** This includes more than 1,400 sub-programs and aims to strategically review one-third of the programs annually using a checklist. Its goal is to periodically evaluate a portion of the programs to ensure efficient use of resources.
- **In-Depth Evaluation of Selected Programs:** Each year, approximately ten programs undergo a comprehensive in-depth evaluation. This process involves a detailed analysis of programs considered particularly important or in need of special review. The evaluations are led by external experts from research institutions, most notably the Korea Development Institute (KDI), ensuring objectivity and professional rigor.
- **Top-Down Budgeting and Advisory Oversight:** Top-down budgeting plays a central role in allocating resources within the spending ceilings established for each sector or ministry. To strengthen transparency and accountability, this process is supported by a national advisory committee composed of experts from civil society and academia. The committee actively monitors

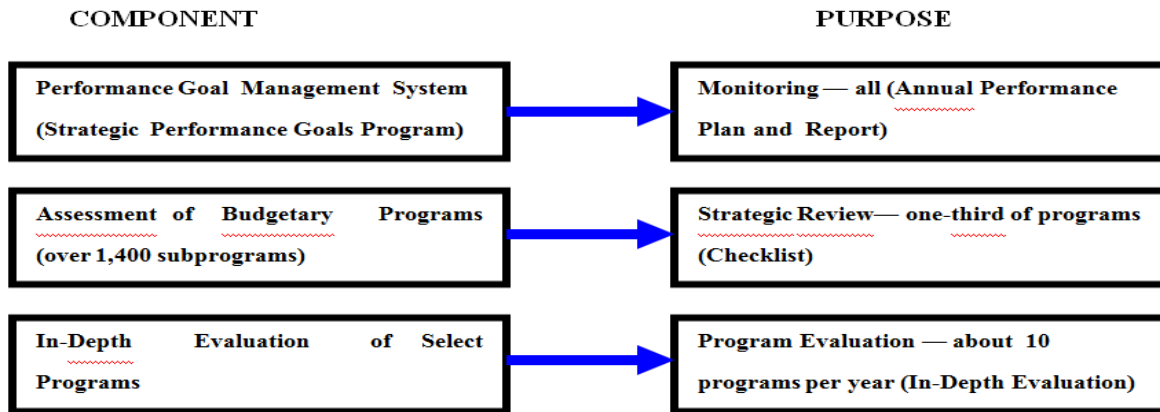
**The Role of Technology and Artificial Intelligence in  
Developing Performance Budgeting**

and refines the budget throughout all stages, including application preparation and evaluation (World Bank, Nuts & Bolts, 2013).

Each ministry also operates an internal evaluation committee, generally composed of around 20 members drawn from experts and civil society. In accordance with the National Finance Law, these committees hold the authority to accept or reject proposals and to review the detailed components of the ministry’s budget.

The following figure illustrates the overall framework of South Korea’s performance-based budgeting system, reflecting the oversight mechanisms previously outlined.

**Fig n°(0 1): The general framework of the performance-based budgeting system in Korea.**



**Source:** (Park, 2013, p16)

The previous figure demonstrates the framework of South Korea’s performance-based budgeting system (PB System Framework) (Park, 2013).

**3. Outcomes of South Korea's adoption of performance budgeting:**

The results of South Korea's adoption of performance budgeting are summarised as follows (Park, 2013, pp 1-16):

- Performance-Based Budgeting (PB) reviews demonstrated a tangible influence on resource allocation. When programs were assessed as ineffective, the government reduced their funding by at least 10% of the budget when necessary.
- Performance evaluation has become integrated into all stages of the budgetary process, extending from line ministries to the central government and ultimately to parliament.
- Constructive feedback from committees, supported by reliable program evidence, has motivated ministries to strengthen results-based management and move beyond traditional budget preparation practices.

**4. The Role of Technology in Supporting South Korea's Performance Budgeting:**

Technology has been a key driver of South Korea's success in implementing performance budgeting. The government has invested heavily in developing integrated financial information systems, most notably the Korean Financial Management Information System (KFMIS). KFMIS is considered one of the most comprehensive and advanced systems in the world, linking all aspects of public financial management—from budget preparation and execution to accounting and reporting (Jeong & Oh, 2019, p 600).

The following are four key themes for understanding the digital transformation of the public sector in South Korea, as drawn from insights gained during a visit to the United Nations Public Service Forum (Porrúa, Vieyra & Baudino, 2024):

- **Investing in digital transformation infrastructure:** South Korea has made substantial investments in enhancing the infrastructure that supports this transformation. Most notably, the establishment of the "Government Cloud" (G-Cloud) in 2012 and its continuous development since then. According to a national survey on e-government service usage, 90.6% of Koreans use the digital services provided through this platform, and 93.8% report very high satisfaction.
- **Efficiency and impact of Artificial Intelligence (AI):** AI is being effectively applied in South Korea across multiple sectors, such as enhancing traffic management in major cities and monitoring and detecting potential cases of online child abuse.
- **Enhancing cybersecurity through investment in technology and skills:** According to the 2020 Cybersecurity Report, the National Information Resources Service (NIRS) safeguards approximately 45,000 public sector systems, including servers and data centers, and supports 1,460 digital government services across 45 government agencies. This protection is ensured through four support centers and more than 1,000 highly qualified staff. The Korea Internet and Security Agency (KISA) is also central to this effort, with more than 700 government employees working across 10 regional centers nationwide. These figures underscore the critical importance of cybersecurity and highlight that the implementation of digital solutions must be accompanied by robust security components.
- **Continuous learning and adaptation:** The case of South Korea shows that advancing digital transformation requires proactive adaptation and the sharing of best practices, adopting an integrated approach that goes beyond infrastructure investment. Korea's strong commitment to innovation highlights the need to keep pace with technological change while continuously adjusting strategies and policies over the long term. A notable example is the publication of a comprehensive catalog of government digital solutions, which serves as a practical reference for other countries.

#### **IV. Technologies and technological solutions adopted in South Korea for public budget management:**

South Korea has adopted advanced technologies and innovative solutions in public budget management, contributing to the automation of financial processes and enhancing the accuracy of planning and oversight. The key measures introduced include:

- **Open Data Portals:** The South Korean government has developed open data portals that provide the public with detailed information on budgets, expenditures, and performance outcomes. These platforms strengthen transparency and accountability by enabling citizens and civil society organizations to monitor government spending and assess the effectiveness of programs (Jeong & Oh, 2019, p 601).
- **Advanced Analytics and Artificial Intelligence:** South Korea leverages advanced analytics and artificial intelligence to process and interpret large volumes of financial and performance data. These technologies are applied to enhance decision-making, improve the accuracy of budget forecasts, and strengthen oversight mechanisms.

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

- **Fiscal Forecasting:** Enhancing the precision of revenue and expenditure projections, thereby supporting the preparation of more realistic budgets and reducing the risk of unexpected deficits or surpluses (Government Finance Officers Association (GFOA), 2014).
- **Program Evaluation:** Assessing the effectiveness of government programs in achieving their intended outcomes, with artificial intelligence supporting the identification of initiatives that require improvement or redesign (Jacob, 2023, p187).
- **Risk and Fraud Detection:** Using artificial intelligence algorithms to detect unusual patterns in spending and financial transactions that may signal financial risks or fraudulent activity, thereby strengthening both internal and external controls (Guo & collaborators, 2025, p 11).
- **Decision Support:** Utilizing AI-powered interactive dashboards and reports to provide decision makers with data-driven insights, thereby facilitating more informed and timely policy and budgetary decisions (Balasubramanian, Yadav & Shrivastav, 2024, p 15).
- **Digital Government Services:** South Korea has digitized a wide range of government services, reducing administrative burdens and improving efficiency in service delivery. By streamlining processes and minimizing bureaucratic delays, digitalization enhances the effectiveness of public spending while also lowering operational costs (Jerab, 2024, p 4).

### V. dBrain-KFMIS Budget Management System in South Korea:

**dBrain System:** Established in 2007, the *Digital Budget and Accounting System (dBrain)* was designed to operationalize South Korea's new fiscal framework. It integrated two key systems: the Budget Information System (FIMSys), overseen by the Ministry of Planning and Budget, and the Treasury Information System (NaFIS), managed by the Ministry of Finance and Economy. This integration streamlined fiscal management processes and enabled more efficient allocation and utilization of national resources (Porrúa, Vieyra & Baudino, 2024).

• **Evolution of dBrain:** In 2011, a performance management component was added to dBrain, allowing budgets to be directly linked to results and enabling electronic tracking of project and government agency performance. In 2012, a technical infrastructure monitoring system was introduced to ensure operational continuity, strengthen data protection, and enable the immediate detection of system faults. In 2015, the government launched an open financial data portal to improve transparency and provide the public with accessible analyses of revenues and expenditures. To institutionalize the system's management, the Korean Public Financial Information Service (KPFIS) was established in 2016 to operate and maintain dBrain. Today, dBrain functions through 21 interconnected subsystems, covering the entire spectrum of public finance activities, from budget preparation and execution to performance monitoring and project management (Development Academy of the Philippines, 2020).

• **KFMIS Functions:** The Korea Financial Management Information System (KFMIS) serves as a unified platform for all ministries and government agencies to manage their budgets and programs. It enables real-time tracking of expenditures, systematic collection of performance data, and the generation of comprehensive financial and performance reports (Porrúa, Vieyra & Baudino, 2024). The primary goal of the dBrain system is to ensure accurate analysis of financial data and provide timely support to decision-makers. It was designed to strengthen budget credibility through the adoption of double-entry and accrual accounting, thereby incorporating information on assets,

liabilities, and costs. Another key objective was to integrate and interconnect financial information systems across ministries, local governments, and public institutions. Overall, dBrain aims to enhance efficiency, transparency, and public participation in national financial management (Korea Fiscal Information Service, 2014).

### **1. Components of the dBrain System:**

The dBrain system comprises several subsystems that are seamlessly integrated through a standardized interface, ensuring smooth functional coordination. Among the most significant are (Ministry of Education, Republic of Korea, 2025):

- **Project Management System (PMS):** This subsystem connects all public entities' projects with the Program Budgeting System. It provides a comprehensive view of the entire financial business cycle, from project registration to implementation and closure, thereby facilitating effective monitoring and coordination.

- **Budget Management System:** This subsystem supports the preparation of national financial and annual plans as well as the allocation of budgets. Through the Decision Support System (EIS), it provides model financial information to senior officials, enabling evidence-based decision-making. It employs algorithms to forecast revenues and expenditures using historical data and projected scenarios. Additionally, it facilitates participatory review by enabling communication between the Ministry of Finance and sectoral entities, and it supports the preparation of multi-year financial plans (MTEFs) (OECD & OPSI, 2014).

- **Fund Management System:** Manages financing and loan operations, fund planning, ensuring a balanced supply and demand for financial resources, and provides real-time visibility into the location and distribution of government liquidity across various accounts. It also operates the Treasury Single Account (TSA) system.

- **Fund Management System:** This subsystem manages financing and loan operations, including fund planning, to ensure a balanced supply and demand of financial resources. It provides real-time visibility into the location and distribution of government liquidity across various accounts and operates the Treasury Single Account (TSA) system (Korea Fiscal Information Service (KPFIS), 2025).

The system integrates with the government banking infrastructure to automatically monitor deposits, transfers, and withdrawals, while also enabling the forecasting of future liquidity requirements through advanced analytical models (Nam, 2018).

- **Electronic Revenue and Payment System (EBPP):** Oversees the full tax collection process, ensuring that all government revenues are processed through a unified platform. It regulates budget disbursements using centrally validated electronic payment orders and automatically links resource allocation to actual expenditure (Park, 2018).

- Restricts spending beyond approved limits, thereby preventing financial excesses.

- Integrates with government procurement systems (e-Procurement) to track and control expenditures on contracts and purchases (Nam, 2018).

- **Expenditure and Electronic Funds Transfer (EFT) System:** Facilitates the direct transfer of funds to creditors' accounts based on government spending decisions. It regulates budget disbursements through centrally authenticated electronic payment orders and automatically links resource allocations to actual expenditures (Park, 2018).

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

- **Procurement Management System:** Manages procurement processes in real time and integrates with platforms such as G2B (Online Public Procurement System). It restricts spending beyond approved limits, preventing financial excesses, and connects with e-Procurement systems to monitor expenditures on contracts and purchases (Nam, 2018)

- **National Asset Management System:** Enables comprehensive oversight of national assets and properties, covering planning, administration, and operations. It maintains a unified database that records and continuously updates all government-owned assets, including real estate, land, machinery, and equipment (Korea Fiscal Information Service (KPFIS), 2025).

It assesses the market value of assets and calculates their depreciation on a regular basis. The system monitors asset transfers between government agencies and regulates their disposal, ensuring proper oversight. In addition, it generates real-time reports to support informed decision-making on asset restructuring or the sale of surplus assets (Nam, 2018).

- **Debt and Credit Management System:** Ensures effective management of government debt and credit in compliance with national laws, providing real-time visibility into the location and distribution of government liquidity across various accounts. The system also oversees the operation of the Treasury Single Account (TSA) (Korea Fiscal Information Service (KPFIS), 2025).

It integrates with the government banking system to automatically monitor deposits, transfers, and withdrawals, while enabling the forecasting of future liquidity needs through advanced analytical models (Nam, 2018).

- **Accounting Management System:** Manages real-time accounting operations and supports the preparation of reconciliation reports and accounting ledgers. The system generates fully automated consolidated government financial statements, including the balance sheet, profit and loss account, and cash flow reports, in compliance with IPSAS (International Public Sector Accounting Standards). It enables accurate reconciliation between planned and executed expenditures and assists in preparing the country's final accounts for submission to Parliament or other oversight bodies (Development Academy of the Philippines, 2020).

- **Cost Management System:** Segregates revenues and expenditures by program and calculates direct and indirect costs, supporting effective financial management and informed decision-making.

- **Performance Management System:** Facilitates the electronic processing and evaluation of performance plans, enhancing management efficiency. The system links performance to the budget through a framework of Key Performance Indicators (KPIs) and other relevant metrics (OECD & OPSI, 2014).

- **Financial Statistics and Analysis System:** Supports informed decision-making by analyzing financial data through multiple analytical tools, including OLAP and EIS platforms.

The following figure illustrates a model of the South Korean Public Financial Information System (KFMIS–dBrain).

Fig n°(0 2) : Model of the South Korean Public Financial Information System (KFMIS-dBrain).



Source: (Porrúa, Vieyra & Baudino, 2024).

The above figure illustrates a model of the South Korean Public Financial Information System (KFMIS–dBrain). It highlights four main interconnected components of the system, along with the challenges associated with each component.

Therefore, it is evident that the dBrain system constitutes the backbone of Korea's digital transformation in public financial management. By providing a single, integrated platform, the system ensures high transparency across all stages of financial management, operational efficiency through automation and system integration, and robust financial governance that promotes accountability and performance tracking.

## 2. Advantages of the KFMIS-dBrain System:

- **Comprehensive Transparency Policy:** dBrain makes financial information accessible to both officials and the public, enabling the monitoring and enhancement of national projects during implementation and providing detailed insights into government spending (World Bank, 2025).
- **Budget Efficiency:** dBrain facilitates information exchange among central and local governments and public agencies, enhancing strategic planning and accelerating the collection of payments.
- **Combating Corruption:** Surveys conducted by the Korean Institute of Public Administration indicate that the proportion of citizens perceiving bribery as common decreased from 69% in 2000 to 57% in 2008, while the percentage of those who actually paid a bribe declined from 25% to 5% over the same period.
- **Real-Time Features:** The system enables real-time tracking of expenditures and revenues, facilitating prompt and informed decision-making. Features such as electronic billing and payment (EBPP) and electronic funds transfer (EFT) support continuous monitoring of cash flows (Development Academy of the Philippines, 2020).
- **Program-Based Online Feature:** All financial data, from budget allocation and implementation to financial reporting, is accessible online at the program or project level, facilitating managers' monitoring of program performance and identification of areas for improvement (Inter-American Development Bank, 2018).
- **Integration and Interface Capabilities:** The system consolidates all financial management processes across ministries and funds and interfaces with external systems, expanding the scope of

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

available financial statistical information and supporting informed decision-making based on comprehensive data (Inter-American Development Bank, 2018).

- **Government Financial Statistics and Information Analysis:** The system produces accurate and diverse statistical analyses, including past performance, current status, and departmental or functional forecasts. This supports sound policy decisions while ensuring transparent and detailed financial information is accessible to the public (Development Academy of the Philippines, 2020).

If we consider the advantages of the KFMIS-dBrain system, it becomes evident that the Republic of Korea's experience is remarkable, as its achievements in e-governance have received widespread international recognition over the past decade. In 2004, Korea ranked first in the Digital Opportunity Index issued by the World Bank. In 2005, it received the Global Progress Award from the Asia-Pacific Economic Cooperation (APEC) forum for its e-governance system (Karippacheril, Kim, Beschel & Choi, (Eds), 2016).

### **VI. Algeria's potential to benefit from the South Korean experience in employing technology in budget management:**

Regarding Algeria, it is noteworthy that in recent years the country has adopted several financial and budgetary reforms, the most significant of which is Organic Law 15-18, aimed at establishing the principles of governance, accountability, and transparency in the management of public funds. This law replaces the previous legal framework (17-84) as part of efforts to modernize the legal system, link spending to performance and results, and enhance public sector efficiency through governance principles—practices actively adopted in South Korea. These reforms seek to improve public financial management and increase the effectiveness of public spending by integrating performance management into the budget process, ensuring efficient resource allocation, and emphasizing the legal framework by including a performance management system in the national finance law.

This study observed that there are significant differences between the South Korean and Algerian experiences in organizing and structuring the national budget. The most notable differences include the following:

- South Korea possesses a longer and more mature experience in implementing performance budgeting, as its reforms began in the early 2000s and progressed through stages of trial and error. In contrast, Algeria's Law 15-18 is relatively recent, and the country remains in the initial stages of its implementation.
- South Korea has implemented detailed methodologies for performance budgeting, including the Performance Management System for Budget Programs (PMSBP), Self-Assessment of Budget Programs (SABP), and In-Depth Program Evaluation. In contrast, Algeria's Law 15-18 emphasizes general principles of governance, transparency, and accountability, while the operational details for implementing performance budgeting remain under development.
- It was noted that the adoption of Law 15-18 in Algeria has not yet gained widespread acceptance. Limited buy-in from responsible managers indicates challenges in practical implementation. In contrast, South Korea, despite initial difficulties, successfully integrated the performance budgeting system into the budget process.

- Although Algeria seeks to leverage technology, the South Korean experience, owing to its advanced technological infrastructure, has been more successful in integrating technology and artificial intelligence applications into budget management. South Korea possesses extensive experience in using computerized systems in public financial management, such as the new computerized accounting system developed in 2005.

- While South Korea places strong emphasis on measuring results and performance indicators to link them to budget allocations, Algerian law appears to prioritize establishing fundamental governance principles as an initial step toward enhancing performance.

Algeria has significant potential to benefit from South Korea's experience in developing its performance budgeting system through the use of technology, particularly as it seeks to modernize its financial management and enhance transparency. Algeria can draw inspiration from this model by:

- **Initiating the development of an integrated financial management information system:** Similar to dBrain-KFMIS, Algeria could begin developing a unified system that links all financial operations, which would improve data accuracy and accelerate the budget cycle.

- **Strategic Planning:** Integrating long-term strategic planning into the budget process, so that the budget serves as a tool for achieving national strategic goals rather than simply a tool for short-term resource allocation.

- **Linking Performance to Budget:** Promoting a direct link between performance evaluation and budget allocation. Performance evaluation results should serve as a decisive factor in funding decisions, motivating ministries and government agencies to improve their performance.

- **Investing in the digital transformation of financial management:** This requires the digitization of financial processes, from budget preparation to implementation and monitoring, and the adoption of digital solutions in government procurement and revenue management.

- **Applying Artificial Intelligence technologies in specific areas:** Algeria could begin applying AI in priority areas, such as improving financial forecasting, detecting fraud in public spending, and evaluating the performance of social programs.

- **Promoting a culture of performance and accountability:** This entails training employees on performance budgeting concepts, defining clear performance indicators for government programs, and linking funding to achieved results.

- **Opening Government Data:** Algeria could adopt an open data policy, allowing the public to access budget and spending information, thereby enhancing transparency and public oversight.

- **Adopting Applied Methodologies:** Studying detailed Korean methodologies for performance measurement and program evaluation could provide Algeria with a roadmap for developing its implementation mechanisms.

- **Leveraging Technology and Artificial Intelligence:** Algeria could draw inspiration from South Korea in integrating artificial intelligence applications to improve spending efficiency, predictive analysis, fraud detection, and budgetary process automation. Algeria could also enhance cooperation with countries experienced in performance budgeting and public financial management to share expertise and technical knowledge.

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

- **Capacity Building:** Focusing on capacity-building programs for public officials to ensure their understanding and acceptance of new reforms, which has been a challenge in the Algerian experience.
- **Learning from Trial and Error:** Embracing trial and error in implementing reforms, with sufficient flexibility to adapt and develop the system to suit the Algerian context.
- **Enhancing Transparency and Accountability:** Utilizing technology to improve transparency and accountability, aligning with the objectives of Law 15-18, and fostering trust between the government and citizens. Implementing these recommendations, while considering the specific Algerian context, could significantly enhance the efficiency and effectiveness of public spending, support the achievement of the Sustainable Development Goals, and contribute to a more modern and transparent public financial management system.

### **Conclusion:**

Through this research, we demonstrate that South Korea's experience in adopting performance budgeting with the support of technology provides a valuable model with lessons for developing countries, including Algeria, particularly in their efforts to modernize public financial management and strengthen governance. While Organic Law No. 15-18 on Finance Laws in Algeria represents an important step toward establishing the principles of accountability and transparency, the South Korean experience offers a practical roadmap for translating these principles into effective implementation mechanisms, supported by advanced technology and artificial intelligence. Learning from the Korean experience does not imply copying it verbatim; rather, it requires adapting the lessons learned to the specific Algerian context.

In addition, we examined the extent to which technology and artificial intelligence have contributed to improving the performance budgeting system in South Korea, as well as the lessons that can be drawn for Algeria.

The South Korean case study confirms the main hypothesis of this research, which asserts that technology and artificial intelligence have significantly enhanced the effectiveness and efficiency of the performance budgeting system in South Korea. This is demonstrated by measurable improvements in data collection, analysis, reporting, and decision support, all of which have positively influenced overall public financial management.

### **Discussion of the Results in Light of the Research Problem and the Proposed Hypothesis:**

- **Performance Budgeting and Its Main Characteristics:** The theoretical framework demonstrated that performance budgeting is an approach that links resource allocation to results, emphasizing measurement, accountability, and transparency. South Korea has adopted these fundamental characteristics in its system, confirming a thorough understanding of the importance of this concept in achieving sound financial management.
- **The Development of Public Financial Management in South Korea:** The study revealed that South Korea has experienced significant advancements in its financial management, particularly following the Asian financial crisis. These developments were not merely reactive to crises but reflected a strategic vision to adopt global best practices, with the integration of technology serving as a crucial component of this process.

- **Prominent Digital Technologies and Solutions:** The integrated dBrain-KFMIS system constituted the cornerstone of the South Korean experience. This system, together with open data portals and the use of advanced analytics and artificial intelligence, provides compelling evidence of South Korea's commitment to digital transformation in public financial management. These technologies were not merely tools; they formed an integral part of the budgetary decision-making process.

The South Korean experience offers valuable lessons for other countries. The most important of these lessons is that the successful implementation of technology-enabled performance budgeting requires strong political commitment, substantial investment in technological infrastructure, and ongoing human capacity development. Transparency and accountability, reinforced through open data, are essential for building trust between the government and citizens.

These findings demonstrate that technology and artificial intelligence are not merely complementary tools, but rather crucial drivers of transformation in public financial management. By providing accurate and real-time data, enhancing analytical capabilities, and enabling intelligent automation, these technologies have helped South Korea achieve significant advancements in the efficiency and effectiveness of its public spending, making it a model for the future.

#### . Bibliography List:

- Akour, I., Alzyoud, M., Alquqa, E., & Tariq, E. (2024). Artificial Intelligence and Financial Decisions: Empirical Evidence from Developing Economies. *International Journal of Data and Network Science*, 8(1), pp. 101–108. Retrieved from: <https://doi.org/10.5267/j.ijdns.2023.10.013>, consulted on Avril 14, 2025
- F. Varone, S. Jacob, & P. Bundi (Eds.), *\*Handbook of Public Policy Evaluation\** (pp. 187–205). Cheltenham, UK: Edward Elgar Publishing. Retrieved from: <https://doi.org/10.4337/9781800884892.00021>, consulted on Mai 14, 2025.
- Government Finance Officers Association (GFOA). (2014). Financial forecasting in the budget preparation process [PDF]. Retrieved from: GFOA website: <https://www.gfoa.org/materials/financial-forecasting-in-the-budget-preparation-process>, consulted on July 29, 2025.
- Guo, A., & collaborators. (2025). Artificial Intelligence for Financial Accountability and Governance in the Public Sector: Strategic Opportunities and Challenges. *Administrative Sciences*, 15(58), [pp 11–12]. Retrieved from: [Artificial\\_Intelligence\\_for\\_Financial\\_Accountabili.pdf](#) and Cha, consulted on Mai 14, 2025.
- Inter-American Development Bank. (2018). Integrated Public Financial Management System. Retrieved from: <https://blogs.iadb.org/gestion-fiscal/en/integrated-public-financialmanagement-system-korea/>, consulted on Avril 13, 2025.
- International Monetary Fund. (2024). Artificial Intelligence Can Make Markets More Efficient—and More Volatile. Retrieved from: <https://www.imf.org/ar/Blogs/Articles/2024/10/15/artificial-intelligence-can-make-markets-more-efficient-and-more-volatile>, consulted on July 29, 2025.
- Jeong, S.-h., & Oh, Y. (2019). New development: Lessons and recommendations from South Korea's experiences with integrated financial management information systems. *Public Money &*

---

**The Role of Technology and Artificial Intelligence in  
Developing Performance Budgeting**

---

Management, 39(8), pp. 599–601. Retrieved from: <https://doi.org/10.1080/09540962.2019.1598201>, consulted on Avril 3, 2025.

- Jerab, D. A. (2024, September). The Impact of Digital Transformation on Public Services, (pp. 4–5) [Conference paper]. Retrieved from: <https://www.researchgate.net/publication/383836540> The Impact of Digital Transformation on Public Services, consulted on Mai 13, 2025.
- Journal of Science, Technology and Society. (2023). Importance of introducing big data into financial management. *Journal of Science, Technology and Society*, 2(1), pp. 7–12. Retrieved from: <https://www.researchgate.net/publication/375672015> Importance of Introducing Big Data into Financial Management, consulted on Avril 12, 2025.
- Karippacheril, T. G., Kim, S., Beschel, R. P., Jr., & Choi, C. (Eds.). (2016). Bringing government into the 21st century: The Korean digital governance experience. *Directions in Development – Public Sector Governance*. International Bank for Reconstruction and Development
- Korea Fiscal Information Service (KPFIS). (2025). Digital Budget Accounting System (dBrain<sup>\*</sup>). Retrieved from: [https://www.fis.kr/en/main\\_biz/dBrain](https://www.fis.kr/en/main_biz/dBrain), consulted on Avril 22, 2025.
- Ministry of Education, Republic of Korea. (2025.). Overview of the Digital Budget and Accounting System (dBrain). National Education Information System (NEIS). Retrieved from: <https://neisopen.moe.go.kr/portal/dbrain/english/overview.do?code =dBrain&leftCd =26&subCd=21&depCd=>, consulted on May 24, 2025.
- OECD. (2023). OECD Performance Budgeting Framework. Retrieved from: [https://one.oecd.org/document/GOV/SBO\(2023\)1/REV1/en/pdf](https://one.oecd.org/document/GOV/SBO(2023)1/REV1/en/pdf), consulted on July 29, 2025.
- OECD. (2024). G7 Toolkit for Artificial Intelligence in the Public Sector: Prepared for the 2024 Italian G7 Presidency and the G7 Digital and Tech Working Group, (pp. 63–64), OECD Publishing. Retrieved from: ResearchGate. consulted on May 25, 2025.
- OECD. (2025). Government at a Glance 2025. OECD Publishing. Retrieved from: <https://doi.org/10.1787/0efd0bcd-en>— "Performance budgeting is an important budgeting tool allowing countries to allocate and prioritise resources more effectively by linking them to measurable outcomes. It enhances accountability and transparency...", (pp. 289-292), consulted on May 25, 2025.
- Organization for Economic Co-operation and Development (OECD), Observatory of Public Sector Innovation (OPSI). (2014, October 7). Digital Budget and Accounting System (dBrain). Retrieved from the OECD OPSI website, consulted on July 24, 2025.
- Organization for Economic Co-operation and Development. (2024, February 16). OECD Performance Budgeting Framework (GOV/SBO(2023)1/REV1). OECD Public Governance Directorate. Retrieved from: [https://one.oecd.org/document/GOV/SBO\\_%282023%291/en/pdf](https://one.oecd.org/document/GOV/SBO_%282023%291/en/pdf), consulted on May 24, 2025.
- Park, N. (2013). Performance budgeting in the Republic of Korea: Framework and implementation. *OECD Journal on Budgeting*, 14(3), p16. Retrieved from: <https://doi.org/10.1787/budget145jrtl4wnm1r5>, consulted on July 29, 2025.

- Park, S. (2018). Republic of Korea–Fiscal transparency and open budget. UN Economic and Social Commission for Asia and the Pacific. Retrieved from: [https://www.unescap.org/sites/default/files/\[Sunghoon%20Park\]%20Republic%20of%20Korea%20-%20Fiscal%20transparency%20and%20open%20budget.pdf](https://www.unescap.org/sites/default/files/[Sunghoon%20Park]%20Republic%20of%20Korea%20-%20Fiscal%20transparency%20and%20open%20budget.pdf), consulted on May 23, 2025
- Pimenta, C., & Seco, A. (2021). Financial Management Information Systems (FMIS): Project Guide: Strategic, Functional, Technological, and Governance Issues in the Design and Implementation of New Platforms for Public Financial Management Systems (pp. 3–5) [PDF]. Inter-American Development Bank. Retrieved from: <https://doi.org/10.18235/0003342>, consulted on July 29, 2025.
- In Tianjin University Journal of Science and Technology (Natural Science & Engineering Techniques Edition). (2024, June). Intelligent automation in accounting and financial reporting. Tianjin University Journal of Science and Technology, 57(06), 468–469. Retrieved from: <https://doi.org/10.5281/zenodo.12516114>, consulted on May 06, 2025.
- Uña, G., Verma, A., Bazarbash, M., & Griffin, N. N. (2023). Fintech Payments in Public Financial Management: Benefits and Risks (IMF Working Paper No. 2023/020, pp. 27–28). Washington, DC: International Monetary Fund. Retrieved from: <https://doi.org/10.5089/9798400232213.001>, consulted on May 04, 2025.
- VoxDev & World Bank. (2023). Using technology to improve governance: Evidence from electronic tax filing in Tajikistan. VoxDev Feature. Retrieved from <https://voxdev.org/topic/public-economics/using-technology-improve-governance-evidence-electronic-tax-filing>, consulted on August 13, 2025.
- Wang, X., & Gianakis, G. A. (2007). Performance Measurement and Management in Public Organizations. In Handbook of Public Administration (pp. 473-488). CRC Press.
- World Bank, Nuts & Bolts, (2013.). Performance Budgeting in the Republic of Korea (Vol. 4, No. 28) [Newsletter]. World Bank. Retrieved from World Bank, Retrieved from [https://www.worldbank.org/content/dam/Worldbank/document/Poverty%20documents/Nuts%26Bolts\\_28\\_Dec\\_2013.pdf?utm](https://www.worldbank.org/content/dam/Worldbank/document/Poverty%20documents/Nuts%26Bolts_28_Dec_2013.pdf?utm), consulted on August 15, 2025.
- World Bank. (2021). Finding Fraud: GovTech and Fraud Detection in Public Administration – Summary Note (pp. 2–3) [PDF]. World Bank. Retrieved from World Bank Documents.
- World Bank (2025.). D-Brain in South Korea. Retrieved from: <https://www.worldbank.org/en/topic/governance/brief/d-brain-in-south-korea>, consulted on August 1, 2025.
- GIFT Network. (2016, May 1). Korea, Republic of Top-Down Budgeting: Advisory Committees in the Budget Preparation and Evaluation. Global Initiative for Fiscal Transparency. Retrieved July 29, 2025, Retrieved from: <https://fiscaltransparency.net/korea-republic-of-top-down-budgeting-advisory-committees-in-the-budget-preparation-and-evaluation/>, consulted on May 05, 2025.
- Nam, S. (2018, May 28). How to build an integrated financial management information system: The case of the Korean government. Gestión fiscal (Inter-American Development Bank blog). Retrieved from: <https://blogs.iadb.org/gestion-fiscal/en/integrated-public-financial-management-system-korea/>, consulted on July 15, 2025.

---

## The Role of Technology and Artificial Intelligence in Developing Performance Budgeting

---

- van Noordt, C., & Misuraca, G. (2020, September). Evaluating the impact of artificial intelligence technologies in public services: Towards an assessment framework. In Proceedings of the 13th International Conference on Theory and Practice of Electronic Governance, (pp. 8–16).
- Development Academy of the Philippines. (2020, October 2). Digital Budget and Accounting System (dBrain)/Korean Financial Management Information System (KFMIS). Compendium of Innovation. Retrieved from: <https://coe-psp.dap.edu.ph/compendium-innovation/digital-budget-and-accounting-system-dbrain-korean-financial-management-information-system-kfmis-2/>, consulted on May 22, 2025.
- Amaglobeli, D., de Mooij, R. A., & Moszoro, M. (2023, September 7). Harnessing GovTech to Tax Smarter and Spend Smarter: Digitalization, done right, can equip governments to improve revenue collection and spending efficiency. International Monetary Fund. Retrieved from: <https://www.imf.org/en/Blogs/Articles/2023/09/07/harnessing-govtech-to-tax-smarter-and-spend-smarter>, pp. 5-24, consulted on May 29, 2025.
- International Monetary Fund (IMF). (2023, September 7). Harnessing GovTech to Tax Smarter and Spend Smarter. IMF Blog. Retrieved October 26, 2023, Retrieved from: <https://www.imf.org/en/Blogs/Articles/2023/09/07/harnessing-govtech-to-tax-smarter-and-spend-smarter>, consulted on July 22, 2025.
- Porrúa, M. A., Vieyra, J. C., & Baudino, F. (2024, May 16). Integrated public financial management system: Korea's experience. Inter-American Development Bank. Retrieved from: <https://blogs.iadb.org/gestion-fiscal/en/integrated-public-financial-management-system-korea/>, consulted on August 21, 2025.
- Porrúa, M. A., Vieyra, J. C., & Baudino, F. (2024, September 3). What makes South Korea a trailblazer in the digital transformation of the public sector? Gobernarte (Inter-American Development Bank blog). Retrieved from: <https://blogs.iadb.org/administracion-publica/en/south-korea-digital-transformation-public-sector/>, consulted on July 29, 2025.
- Balasubramanian, V. R., Yadav, N., & Shrivastav, E. A. (2024, October). Designing AI-Driven Financial Dashboards for CFO Decision-Making in SAP Ecosystems (pp. 15–17) [PDF]. Retrieved from: [https://www.researchgate.net/publication/388869694\\_Designing\\_AI-Driven\\_Financial-Dashboards\\_for\\_CFO\\_Decision-Making\\_in\\_SAP\\_Ecosystems](https://www.researchgate.net/publication/388869694_Designing_AI-Driven_Financial-Dashboards_for_CFO_Decision-Making_in_SAP_Ecosystems), consulted on August 20, 2025.
- OECD. (2025, June 30). Digital Transformation of Public Procurement: Good Practice Report, (OECD Public Governance Policy Papers, No. 77, pp. 12–15) [PDF]. Retrieved from: <https://doi.org/10.1787/79651651-en>, consulted on June 14, 2025.
- OECD. (2025, August 6). Digital Government in Australia: Enhancing Digital Investment. OECD Digital Government Studies, retrieved from: <https://doi.org/10.1787/91c22326-en>, consulted on May 5, 2025.