Enhancing Efficiency, Transparency, and Accountability through Digital Fiscal Systems: The Case of South Korea's Local Governments

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Abstract

This study analyzes the innovation process behind the implementation of digital fiscal and tax administration systems in South Korea's local governments, focusing on their impact on efficiency, transparency, and accountability. The integration of digital technologies has become a pivotal strategy for enhancing efficiency in local administration and strengthening fiscal transparency. This research demonstrates that the successful implementation of the Local Fiscal Information System (FIS) and the Taxation Information System (TIS) was facilitated by government-led legislation and a collaborative governance framework involving the private sector, public institutions, and end-users. These systems have significantly improved the efficiency and transparency of fiscal and tax administration in local governments by systematically digitizing processes. Notably, the introduction of electronic tax notifications and simplified authentication for online tax services—enabled through technological partnerships with private firms—has contributed to greater convenience in tax administration. However, the study also identifies persisting challenges, such as the need to better accommodate elderly individuals and address constraints within fiscal digital platforms to enhance user engagement. These challenges are highlighted as critical areas for improvement to ensure the long-term success of such systems. Overall, this study suggests that while digital transformation in local administration has yielded positive outcomes, continuous enhancements and strengthened support systems are essential for sustained progress.

Keywords: Fiscal Information System (FIS); Taxation Information System (TIS); efficiency; transparency; accountability; South Korea.

A. Introduction

Efficiency, transparency, and accountability are foundational to modern public administration, especially in the context of local government fiscal management, where they play a critical role in building public trust (Kandhro & Pathrannarakul, 2013; Oti & Otalor, 2024; Yang & Holzer, 2006). However, achieving transparent fiscal governance remains a challenge, requiring innovative approaches that go beyond traditional practices. Recent advancements in information technology have offered new pathways to address these challenges by enhancing transparency and efficiency in government operations. In South Korea, government-led initiatives have introduced digital systems to support fiscal and tax administration, such as the Fiscal Information System (FIS) and the Taxation Information System (TIS), which have transformed how local governments manage and report financial activities (Botchway et al., 2016; Kim et al., 2009).

This study analyzes the innovation process involved in implementing these digital systems in South Korea's local governments by focusing on the impact of FIS and TIS on transparency, accountability, and operational efficiency. The systems offer integrated platforms that manage in real-time budget execution, subsidy allocations, contract administration, and asset tracking through cloud-based technologies (Chun et al., 2010; Government 24, 2024). Importantly, the effectiveness of these digital platforms depends not only on technical functionality but also on the adoption and effective utilization of such services by civil servants, citizens, and other stakeholders involved in local governance (Adya & Mascha, 2011; Stelter et al., 2020). Therefore, this study examines how legislative initiatives, collaborative governance structures, and partnerships with private firms have shaped the implementation and acceptance of FIS and TIS within South Korea's local administrative systems.

While South Korea is a recognized leader in digital innovation (Dayton, 2020), limited research exists on the practical application of digital technology in local fiscal administration. Previous studies have often focused on e-government development at the national level (Inusah et al., 2024; Yusmanizar et al., 2023) or have emphasized economic and technological outcomes (Botchway et al., 2016; Doran et al., 2023; Marino & Pariso, 2019). By concentrating on the local government level and examining the interactions of actual users—including citizens and public officials—with digital fiscal systems, this study aims to provide a deeper understanding of how digital fiscal and tax administration tools are utilized among actual users. Ultimately, this research sheds light on the advantages and limitations of digital transformation in local fiscal policy, offering insights into the future directions of digital governance in public administration.

The study focuses on three key analytical elements: (1) *legalization*, which examines the legislative foundation supporting these systems; (2) *key features and settings*, which detail the functionalities of the FIS and TIS and their impact on fiscal efficiency, transparency, and accountability; and (3) *governance*, which considers the collaborative framework involving public institutions, private firms, and end-users. Additionally, the study highlights limitations and identifies areas for further improvement in digital engagement and accessibility across fiscal platforms.

B. Digital Transformation in Local Governance: Local Fiscal Information System (FIS) and Tax Information System (TIS)

1. *Local Informatization in South Korea*

The academic definition of "local informatization" varies depending on the country. Derived from the French word informatization, it is defined by the Oxford English Dictionary as "the adoption of information technology" (Liu, 2012). In this context, local informatization could be understood as the process by which local governments adopt information technology to enhance administrative functions and public services.

In South Korea, the term "local informatization" was first legally defined in 1995 in the *Framework Act on National Informatization*, which was later revised in 2021 into

the *Basic Act on Intelligent Informatization*. Article 16 of the earlier law defined local informatization as "the process of informatization across administration, lifestyle, and industry sectors aimed at improving residents' quality of life, promoting balanced regional development, and addressing the digital divide." In 2020, it was revised to include "local intelligent informatization," adding "empowerment of residents" as an objective. This shift in terminology from "informatization" to "intelligent informatization" emphasized the broader goal of using intelligent information technologies to drive administrative and industrial advancement (KLID, 2023: pp. 60–61).

The conceptual scope of local informatization policy has evolved with technological advancements and shifting social environments. Local informatization policy is influenced not only by the characteristics of information technology itself but also by political decision-making and national policies on regional issues. In South Korea, the lack of interconnectivity across agencies and the challenge of integrating new emerging technologies, such as artificial intelligence (AI), into existing systems have posed significant obstacles. Additionally, balancing national information needs with local decentralization initiatives has been crucial. As a result, local informatization policy gradually evolved from simply bridging the digital divide to serving as a strategic means for fostering regional digital innovation. This transformation is reflected in efforts to enhance public services through digital technology, foster region-specific industries, and collaboratively address local challenges with residents (KLID, 2010, p. 15).

A prominent early example of local informatization in South Korea is the "Informatization Village (*정보화마을 사업*, in Korean)" initiative of the early 2000s, which aimed to bridge the digital divide by providing rural residents with internet access and promoting balanced informatization across the country. Over time, the informatization paradigm shifted towards a more user-centered approach with advanced infrastructure. As a result, policies evolved to encourage citizen participation and establish public-private-academic partnerships. However, top-down local informatization policies led by the central government often failed to reflect regional characteristics and caused inefficiencies due to overlapping investments, leading to a growing recognition of the need for stronger decentralization and local autonomy(KLID, 2023, p. 78). From the mid-2010s, local informatization policies began to focus on providing customized services to residents. As the Fourth Industrial Revolution advanced, innovations in intelligent government and data-centric systems gained momentum, and services tailored to residents' life cycles and AI-based smart administration were applied in areas such as social welfare, public safety, and disaster prevention. In 2022, the Yoon Suk-yeol administration adopted the national vision of "A Great Local Era for All of Korea" and established the Digital Platform Government Committee to develop regional innovation agendas (KLID, 2023, pp. 78–79).

Historically, local informatization first emerged in large cities, such as Seoul and Daejeon, where batch processing was introduced to efficiently manage data with the goal of increasing tax revenue. Consequently, early informatization efforts primarily fo-

cused on digitization in specific local regions. It was only after the national computer network project in the 1980s that national-level institutions overseeing administration, education, public security, defense, and finance were integrated with regional systems. At the time, local governments lacked the legal authority to pursue their own policies. It was only after the 1988 revision of the Local Autonomy Act, the 1991 election of local councils, and the 1995 election of local government heads that local policy could be initiated by local governments. Then, the 1997 Framework Act on Informatization Promotion provided a foundation for local governments to act as key players in regional informatization, leading to the creation of the Regional Informatization Support Foundation, the precursor to the Korea Local Information Research and Development Institute (KLID, 2023, pp. 79–80).

The concept of e-government was first introduced during the Kim Dae-jung administration under the slogan "although we were late to industrialize, we will lead in informatization." In 2001, South Korea enacted the Act on the Promotion of Digitalization of Administrative Work for E-Government Implementation, the world's first e-government law, which led to the development of local administrative information systems at the city, county, and district levels. The same year, the Act on Closing the Digital Divide was introduced, which established a comprehensive plan to provide free internet and personal computers, as well as offer informatization training to vulnerable groups (KLID, 2023, p. 80).

During the Roh Moo-hyun administration, the goal of realizing "electronic local government" led to the advancement of local administrative information systems, resulting in the establishment of Saeol, an internet-based administrative information system. Other key projects included informatization in local finance, education finance, and personnel administration. Under the Lee Myung-bak administration, the Ministry of Information and Communication was dissolved, transfeering its informatization responsibilities to the Ministry of the Interior and Safety, which then consolidated the Framework Act on Informatization Promotion and the Act on Closing the Digital Divide into the Framework Act on National Informatization (KLID, 2023,pp. 80–81).

In 2013, the Park Geun-hye administration introduced the "Government 3.0" initiative to promote openness, sharing, communication, and collaboration. The same year, the Public Data Act was enacted, establishing a foundation for open data and private-sector utilization. Following the AlphaGo phenomenon in 2016, the intelligent informatization paradigm gained traction, with AI and data-driven technologies spreading across the public sector. In 2017, the Moon Jae-in administration introduced the National Informatization Plan, which setstrategies for hyper-connected intelligent networks and smart cities.The 2018 National Informatization Basic Plan set forth objectives, including the creation of smart cities and smart villages that citizens could experience tangibly (KLID, 2023, p. 81).

In 2022, the Yoon Suk-yeol administration established the Digital Platform Govern-

ment Committee to develop digital platform-based innovation agendas related to local informatization. Key projects included the construction of next-generation, intelligent local administration systems, and integrated platforms for local public institutions to advance data-driven governance. In terms of budget, the 2023 Intelligent Informatization Action Plan allocated KRW 2.5804 trillion across 13,998 informatization projects in local governments, marking a 12.3% increase in the number of projects from the previous year, albeit with a 4% budget decrease. Given the trend of fiscal austerity, the Ministry of Science and ICT, the Ministry of Land, Infrastructure and Transport, and the Ministry of the Interior and Safety accounted for the largest portion of central government and grant-funded projects in 2023 (KLID, 2023, pp. 81–82).

2. *The Status and Challenges of Digital Transformation in Korean Local Governments*

The introduction of digital technology in South Korea's local governments coincided with the growing recognition of structural limitations within the existing e-government system. The local e-government, operational for over 17 years, revealed numerous shortcomings (KLID, 2022, 2023). According to Nam & Nam (2020, p. 140), the existing e-government system faced challenges due to insufficient inter-agency coordination within central government departments, resulting in fragmented services and limited collaboration. For example, even after the adoption of e-government, various ministries continued to operate separate platforms without interconnected data systems, leading to complicated access for citizens.

While South Korea consistently ranked high in UN e-government assessments—ranking 3rd in 2018, 2nd in 2020, and 3rd in 2022 (UN E-Government Knowledgebase, 2024)—and gained recognition as a global leader in e-government, the standardized e-government framework established in 2007 struggled to adapt to emerging new technologies. The absence of blockchain, AI, big data, and cloud computing in administrative systems hindered the government's responsiveness to evolving administrative environments and prevented the establishment of an efficient, data-driven governance structure. These issues were highlighted during crises such as the 2016 Gyeongju Earthquake, Typhoon Chaba, and the 2017 pesticide-contaminated egg scandal, where website failures and inaccurate information dissemination undermined public trust.

Another driving factor for digitalization in the FIS and the TIS was to address service inequality arising from disparities in informatization levels across regions, which were linked to differences in fiscal capacity across localities. Alleviating these regional informatization disparities was crucial, as fiscally affluent regions could adopt advanced systems, while underfunded areas lagged behind, leading to increased administrative costs and inequalities in public service quality. South Korea's local governments are divided into metropolitans and basic municipalities, with metropolitan governments generally enjoying higher fiscal autonomy and, consequently, more advanced informatization than rural basic municipalities. Bridging these disparities played a significant role in the decision to introduce the standardized Local Fiscal Information System (FIS),

which aimed to support equitable informatization across local governments.

To address these issues, the South Korean government launched a full-scale informatization initiative in 1998, aimed at transforming manual, labor-intensive administrative tasks through standardized processes and shared databases. Through the digitalization of the FIS and the TIS, the government has achieved significant outcomes, including the provision of personalized services to meet citizen demands, digital delivery of tax-related documents, streamlined public requests, and enhanced capacity to respond to increasing cybersecurity threats (Choi & Bae, 2009; Choi & Jo, 2008). The digital transformation introduced by the Local FIS and the TIS contributed to greater responsiveness in local administrative services and established a foundation for improved public service provision. Chapter 3 will offer a more detailed analysis of the legislative foundation, system characteristics, and governance structures associated with the innovations and improvements in the FIS and TIS systems.

C. Analysis of the Local Fiscal Information System (FIS) and Taxation Information System (TIS) in South Korea

This study is based on qualitative analysis, utilizing a variety of sources, including government-issued statistics, reports, academic literature, and newspaper articles. The analytical framework for this research is structured as shown in Table 1. Through this framework, the study aims to comprehensively analyze the legal foundations, key characteristics, and governance structures of South Korea's local fiscal and tax information systems.

Table 1: Analysis Framework

Analytic Factor	Detailed Analytic Content
Legalization	✓ Legal foundations and issue formation
Key features and Settings	✓ Characteristics of the Korean Local Fiscal and Taxation Information Systems (FIS and TIS) ✓ User adaptation and system usage experience
Governance	✓ Operational entities and coordination mechanisms

1. *Legalization*

An information system is not simply about introducing technology into administrative services and systems; it also requires the standardization of processes, government budget allocations, and investment in personnel (Kim, 2017). Thus, to establish an effective information system for public purposes, a clear legal and institutional foundation is essential (Fan et al., 2016; Ryu, 2018). Early regional informatization was promoted as part of public informatization efforts under Article 11 of the *Framework Act on Informatization Promotion* enacted in 1995 (see Table 2). At that time, local governments were authorized to pursue informatization projects tailored to local characteristics, and the national government was required to provide the necessary administrative, financial, and technical support. In 2009, the *Framework Act on Informatization Promotion*

was comprehensively revised into the *Framework Act on National Informatization*, which distinguished the provisions for regional informatization from those for public informatization. This revision provided a legal basis for promoting regional informatization to bridge the digital divide and achieve balanced development, specifying that local governments could develop informatization projects reflecting their regional characteristics and needs (KLID, 2023, p. 61).

In 2020, the *Framework Act on National Informatization* was again revised to the *Intelligent Informatization Framework Act*, introducing the concept of "regional intelligent informatization." This concept involved adopting intelligent information technologies to improve residents' quality of life, close the digital divide, and promote balanced regional development, thus establishing a basis for the national and local governments to pursue informatization policies that reflect local needs. The revised act also encouraged partnerships with private institutions to promote public intelligent informatization projects, thereby attracting private investment and forming consultative bodies (KLID, 2023, pp. 65–66).

The *E-Government Act*, enacted in 2001, further established basic guidelines for electronic administrative processing, including regional informatization as part of the broader e-government domain. E-government initiatives aimed to digitize administrative operations of public institutions using information technology to provide more efficient services to citizens. Article 5 of the *E-Government Act* required the inclusion of regional informatization project implementation and performance management in the basic e-government plan (KLID, 2023, pp. 66–68).

Additionally, various laws provided grounds for advancing regional informatization. These include the *Smart City Act*, the *Public Data Act*, the *Cloud Computing Act*, and the *Data-Based Administration Act*. Notably, in 2023, the *Special Act on National Balanced Development* and the *Special Act on Local Autonomy and Administrative System Reorganization* were integrated to form the *Special Act on Decentralization and Regional Balanced Development*. This act reinforced the legal foundation for local government-driven informatization, which enabled a more systematic approach to locally initiated informatization projects (KLID, 2023, pp. 68–77). Thus, regional informatization in South Korea has been legally defined and supported through multiple legislative measures, and recent advancements in intelligent informatization have further strengthened the institutional foundation for more comprehensive and progressive informatization initiatives (see Table 2).

This study now proceeds to an analysis of the regulatory mechanisms underlying local fiscal and tax informatization systems. Currently, all administrative tasks related to local finance are managed through the Local Fiscal Management System, established under the legal framework of Article 96-2 of the *Local Finance Act* ("Local Fiscal Informatization") and Article 63 of the *Enforcement Decree of the Local Accounting Act* ("Accounting Treatment by Local Fiscal Management System"), both introduced in May

Table 2: The Evolution of Local Government Informatization Legislation

Date of Enactment	Law Name	Key Provisions Related to Local Informatization
July 4, 1949	Local Autonomy Act	- Scope of local government administrative tasks (Article 13, Paragraph 1) - Information disclosure to residents (Article 26)
August 4, 1995	Basic Act on Intelligent Informatization	- Promotion of local intelligent informatization (Article 15) - Cooperation with private institutions (Article 17)
March 28, 2001	e-Government Act	- Establishment of e-Government basic plans (Article 5, Paragraph 1) - Measures for the expansion of electronic public services (Article 10) - Establishment and operation of Local Information and Communication Center (Article 55) - Support and promotion of local informatization projects (Article 65) - Promotion of pilot projects (Article 66) - Establishment of the Korea Local Information Research Institute (Article 72)
March 28, 2008	Act on the Promotion of Smart Cities and Industries	- Applicable Subjects (Article 3) - Responsibilities of the State (Article 3-2) - Establishment of Smart City Basic Plans (Article 8) - Designation and Management of Smart City Zones (Article 35) - Provision of Support for Smart Cities (Article 44) - Formation of Revitalization Council (Article 45)
July 30, 2013	Act on the Promotion of Public Data Provision and Use	- Basic Plans for Promoting Public Data Provision and Use (Article 7) - Promotion of Public Data Provision and Use (Article 14)
March 27, 2015	Act on the Development of Cloud Computing and User Protection	- Responsibilities of the State (Article 3) - Establishment of Basic Plans for Cloud Computing (Article 5) - Establishment and Operation of Cloud Computing Promotion Council (Article 16)
June 9, 2020	Data Basic Act	- Establishment of National Data Policies (Article 7) - Promotion of Data-based Innovation (Article 16) - Establishment of Data Promotion Policies (Article 17)
July 1, 2022	Act on the Establishment and Operation of the Digital Platform Government Committee	- Establishment and Functions (Article 2)
July 10, 2023	Special Act on Local Autonomy and Decentralization	- Definition of Local Autonomy (Article 2) - Duties and Powers of Local Governments (Article 7) - Promotion of Information-based Local Governance (Article 14) - Establishment and Management of Local Information Infrastructure (Article 33)

Source: (KLID, 2023: 62-63)

2014. The implementation of this system has significantly enhanced transparency and efficiency in local finance, reduced fiscal disparities between regions, and established a foundational framework for e-government initiatives. In April 2022, the government initiated the development of the next-generation integrated local administration system (e-Hojo). This initiative represented a critical move toward overcoming the structural limitations of the existing system.

Meanwhile, local tax informatization was legally supported by the amendment of Article 135 of the *Framework Act on Local Taxes* ("Informatization of Local Tax Admin-

istration") in July 2017. This provision mandated the heads of local governments administer tax administration tasks as prescribed by local tax laws through the Local Tax Information System, in order to improve the efficiency and transparency of local tax administration. The legal basis for local tax informatization thus plays a crucial role in creating a systematic and consistent approach to the digital management of tax administration in local governments.

2. *Key Features and Settings*

The local Fiscal Information System (FIS), e-Hojo, was introduced to address the need for electronic management of local finance and taxation to ensure citizens' right to information, and improve taxpayer convenience (Fan et al., 2016, p. 199). Prior to the adoption of local FIS, 243 local governments operated independent systems to manage finances manually. This fragmentation hindered administrative efficiency and posed significant obstacles to real-time monitoring and oversight, as well as to fiscal soundness and data disclosure.

To address these issues, the government developed e-Hojo in 2003 based on the e-Government Roadmap. E-Hojo was implemented nationwide in 2007, and in 2016 the "Local Finance Integrated Open System (*지방재정365* in Korean)" was introduced to improve public access to fiscal information. A major overhaul of the system was undertaken from 2020 to 2023 with a budget of KRW 101.4 billion. Specifically, incremental system upgrades began with the introduction of the budget planning function in August 2022, followed by budget execution and local subsidy management portals in January 2023. In August 2023, resident service and policy support services were launched, and finally in January 2024, year-end tax settlement and subsidy fraud prevention management functions were integrated (KLID, 2022, 2023).

The newly updated e-Hojo Plus, launched in January 2024 and managed by the Ministry of the Interior and Safety, integrated systems across all 243 local governments into a centralized cloud-based environment, effectively transitioning from a decentralized structure to a unified, collaborative platform. This system included six key service portals to enhance the efficiency and transparency of local financial management:

1. e-Hojo Plus (plus.e-hojo.go.kr): Manages local budget planning, expenditure, and settlements, now integrated with national finance (e-Naoridoum), education finance (K-Edufine), and the welfare system (Haengbok e-eum) for functions to support budget execution, contracting, and management of funds, assets, and liabilities.
2. Botaem-e (losims.go.kr): Digitalizes the selection of local subsidy recipients and issuance and management of subsidies, allowing private entities to apply for and process subsidies easily.
3. Policy Help-e (dss.e-hojo.go.kr): Supports data-driven policy decisions by integrating accumulated local finance data with regional economic and social data since 2008 for policy development.
4. e-Hojo Bill (e-hojobill.lofin365.go.kr): An online electronic payment service that

shifts traditionally paper-based procedures online, reducing burdens for small business owners and social costs.

5. Resident Participation-e (pb.lofin365.go.kr): Provides services for residents to directly participate in budgeting through proposal submission and voting.
6. Local Finance Integrated Open System (lofin365.go.kr): Enhances public access to and comparison of local fiscal data through integrated disclosures, aiding both residents and fiscal experts.

The e-Hojo Plus system consolidated the entire local finance workflow, enhancing transparency in fund management and allowing for rapid distribution of funds, such as welfare aid. Operating in a cloud-native environment, it ensured system stability and availability while reducing time and costs by facilitating streamlined document processing for payment requests. Since the 1980s, e-Hojo Plus has developed progressively through government-led standardization efforts. The initial e-Hojo system, developed as a national standard in 2004, was expanded in 2018 with cloud-based integration for real-time data storage and utilization. By 2020, it achieved electronic document management for accounting tasks, including contract management integration, as part of the Next-Generation Local Financial Platform (ISMP) initiative (see Table 3). Further advancements included computerized management of disqualified contract vendors in 2021 and expanded electronic payment processing for non-tax cash transactions in 2022, along with system stabilization through local fiscal management training.

The Local Subsidy Management System, known as Botaem-e, became fully operational across all municipalities in January 2024, enabling both public officials and private sector vendors to manage local subsidies efficiently. Through Botaem-e, vendors dealing with local governments could submit payment requests online without needing to visit government offices, while subsidy recipients could handle applications and access support services seamlessly. This system streamlined the issuance, execution, and settlement of subsidies and allows for real-time data monitoring, effectively preventing fraud and duplication and significantly enhancing administrative efficiency. Additionally, the Botaem-e public portal empowered subsidy recipients to manage the entire process—from application submission to disbursement, execution, and settlement—thereby improving transparency and further safeguarding against fraudulent claims and duplicate payments.

Finally, residents could actively participate in local development projects and monitor budgeting processes through the “Resident Participation-e” platform, and use “Policy Help-e” to analyze local finance and regional economic data and supporting policy development and problem-solving. The comprehensive subsidy portal, which was fully integrated in February 2024, now allowed residents a more transparent access to local subsidy programs.

Table 3: Local Finance Management System (e-Hojo) Development

Stage	Year	Milestone
Stage 1		**Development of Individual Local Government Systems**
	1980s	Establishment of Local Government Core Systems
	1990s	Introduction of CS-based Local Government Development Solutions
Stage 2		**Standardized System (e-Hojo)**
	2003	E-government Roadmap & Selection of e-Government Projects
	2004	Selection of National Projects
	2005-2007	Establishment and National Expansion of the Local Financial Management System (Nationally released in 2007)
Stage 3		**Cloud System (e-Hojo+)**
	2016	Improving public access to financial information through 'Local Finance Integrated Open System(*지방재정*365)'
	2018-2020	Preparation and Feasibility Study for Next-Generation Local Financial Platform (ISMP)
	2021-2023	Construction and Stepwise Opening of the Next-Generation Local Financial Platform
	2024 and onward	Full Opening and Stabilization of the Next-Generation Local Financial Platform

Source: Adapted from KLID (2023, p. 51)

Having reviewed the key features of the local FIS (e-Hojo), we now turn to an analysis of the Local Tax Information System (TIS). This system was designed to efficiently manage local tax administration tasks within local governments, including tax assessment, collection, and delinquency management, and to facilitate convenient tax payment options for citizens. The local TIS included two main components: the Standard Local Tax Information System and Wetax. The dual structure enabled the provision of tailored services for government officials and the public, respectively. Additionally, the system included the Integrated Tax Data Management System and the Comprehensive Real Estate Tax System, comprising a total of four subsystems.

Table 4: Composition of the Local Tax Information System

Component	Description
Standard Local Tax Information System	A tax assessment and collection system used by tax officials across 16 provinces and 201 cities/counties (Seoul operates a separate system - Comprehensive Tax System).
Wetax / Smart Wetax	An internet portal and mobile service for citizens to report and pay local taxes and non-tax revenues.
Integrated Tax Data and Delinquency Information Management System	A system for integrating local government tax data and connecting/sharing tax information with related institutions.
Comprehensive Real Estate Tax System	A system supporting the calculation of the comprehensive real estate tax based on property tax assessment information.

Source: KLID (2022, p. 108)

Firstly, the Standard Local Tax Information System is a dedicated platform for public officials, designed to manage the assessment, collection, tax delinquency, and statistical tracking of 11 local tax categories, including acquisition and property taxes. This system provides standardized tools to enable local government officials to process tax administration tasks more efficiently. It is divided into two subsystems: the Provincial

Standard Local Tax Information System and the Municipal/County Standard Local Tax Information System. The provincial system oversees comprehensive and integrated local tax management, while the municipal/county system handles detailed operations related to individual tax categories, such as assessment, collection, and tax delinquency management. This structure enables tax administrators within local governments to manage local tax tasks systematically and efficiently.

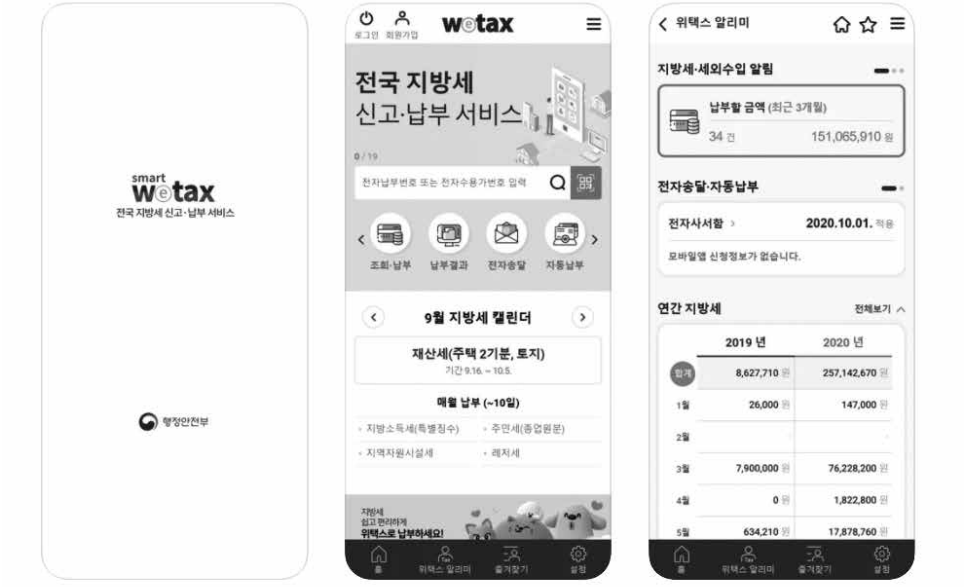

Figure 1: Example Screen Shot of Using the WeTax Mobile App

Source: Blog, https://wealth.thesignal.co.kr/24

Note: WeTAX allows taxpayers to view, file, and pay local taxes online. Key features included local tax inquiry, electronic document delivery, and access to past records organized by year, all available without additional documentation. This screenshot demonstrates WeTAX's streamlined access to tax-related information for efficient management of local taxes.

Secondly, Wetax is a platform that enables citizens to report and pay local taxes, non-tax revenues, environmental improvement charges, water and sewage fees etc.(see Figure 1). Through its internet portal and the Smart Wetax mobile service, it allowed citizens to conveniently manage local tax-related tasks anytime, anywhere. Additionally, Wetax integrated payments for public services, such as water and sewage fees, thereby enhancing public convenience.

Thirdly, the Integrated Tax Data Management System consolidates and connects tax data between local governments and related institutions, enhancing accuracy and reliability of local tax assessment and collection. Fourthly, the Comprehensive Real Estate Tax System manages property tax and comprehensive real estate tax for real es-

tate-related taxation, providing support for nationwide real estate tax information and payment services.

These four subsystems are interconnected, forming the Local Tax Information System, which is managed by the Ministry of the Interior and Safety. This integrated system enables real-time processing of information by public officials and tax administrators within local governments. It is also linked to other relevant systems, such as the e-Government System, the National Tax Integration System, and the Electronic Procurement System, facilitating comprehensive and efficient local tax management.

A noteworthy enhancement is the introduction of new features to strengthen local tax collection, which maximizes the efficiency of local tax administration (see Table 5). A new function was created to manage high-value delinquents who had existing tax defaults across multiple localities, improving the effectiveness of delinquency management. Additionally, to prevent tax omissions, collaboration with the Credit Finance Association has allowed a pre-notification for acquisition tax to be sent to automobile lease lessees and set up a taxation system which allows taxation any time at the timing of lease purchase. The integration of financial transaction information from the Financial Intelligence Unit (FIU) has further strengthened delinquency management, closing gaps in local tax collection and enhancing the efficiency of local tax administration.

Table 5: Local Tax Information System Development Process

Year	Key Events and Initiatives
2004	**Planning for Local Tax Informatization** - Basic planning for local tax informatization.
2005–2009	**System Development and Expansion** - Establishment of the standard local tax information system. - Implementation of the WETAX system. - Expansion to 17 provinces and 224 cities/districts, covering 2 additional administrative units.
2010	**Application of Local Tax Revision** - Reduction to 11 local tax categories. - Separation of local taxes into general and earmarked taxes, as well as differentiation from the national tax system.
2012–2014	**Advancement of Local Tax Collection Systems** - Online local tax collection pilot project initiated. - Revision of the Local Tax Code. - Establishment of a simplified tax payment system (introduction of system for local tax payments via ARS).
2014–2016	**Introduction of Local Tax Informatization** - Shift to a comprehensive real estate tax system (2015). - Integration of comprehensive tax management system. - Expansion of smart WETAX usage (2014). - Adoption of individualized tax adjustments (2015).
2017-Present	**Future Taxation** - Business Process Re-engineering/Information Strategy Planning (BPR/ISP) project to support next-generation system (2017). - Formation of task force for tax evasion prevention (2018). - Development of the next-generation local tax information system (2019).

Source: KLID (2022, p. 109)

3. Governance

The local FIS, e-Hojo, is an integrated digital platform designed to enhance the efficiency and transparency of financial management within local governments. It operates through a networked structure that connects various administrative agencies and departments, supporting local fiscal management based on internal integration among platforms and external integration across actors (see Table 6). This framework enables local governments to systematically and consistently manage their finances.

Firstly, internal integration was achieved through the interconnection of multiple subsystems that handle various fiscal functions within local governments. Systems such as Saeol Administrative Information System (expenditure and asset management), Local Personnel Information System (personnel-related fiscal management), Electronic Procurement System (debt and fiscal information), and CheongBaek-e System (budget, expenditure, and contract management) each cover specific areas of financial administration. By interlinking these subsystems within e-Hojo, data consistency and accuracy are maintained, allowing local governments to systematically manage the entire fiscal process.

External integration, meanwhile, necessitates collaboration with numerous central government departments and public institutions. Key partners included central agencies such as the Ministry of Economy and Finance, Ministry of the Interior and Safety, Board of Audit and Inspection, and National Tax Service, which play critical roles in ensuring transparency and efficiency in fiscal execution. Additionally, real-time data exchanges with the Ministry of Employment and Labor and the Ministry of Health and Welfare allow for the processing of welfare and employment-related fiscal information. Other public institutions, such as the Social Security Information Service, Korea Environmental Industry and Technology Institute, and Statistics Korea, are likewise integral to managing and analyzing local fiscal data. Partnerships with agencies like the National Fire Agency and the Bank of Korea support safety management and fund processing. Through close cooperation with these external agencies, local governments aligned their financial operations with central government policy directions, reinforcing policy consistency and efficiency in fiscal administration.

Key functions of the local FIS include fiscal planning, budget management, revenue and fund management, and debt and expenditure management. These functions are executed through digitalized procedures such as electronic payments, which ensure speed and accuracy in administrative tasks. Furthermore, real-time monitoring and statistical analysis are enabled through integration with the Local Fiscal Statistics System and Local Fiscal Analysis System, enhancing the financial soundness and operational efficiency of local governments.

In conclusion, the local FIS plays a critical role in maximizing transparency and efficiency in fiscal management by fostering a multi-layered collaborative governance framework between local governments and central authorities. This system serves as a

foundational platform that ensures the consistency of fiscal policies, maintains the financial health of local governments, and guarantees the prompt execution of administrative processes.

Table 6: Functionality and Governance of the Local Finance Management System (e-Hojo)

Category	Details
Users	Local Governments, Central Government, Residents, Local Research Officers
Usage of Users	**Local Governments**: Local Tax, Tax Collection, City/Provincial Administrative Systems, HR Systems, Record Management **Administrative/Public Institutions**: Ministry of Economy and Finance, Ministry of Education, Ministry of Health and Welfare, Ministry of the Interior and Safety **Local Government Agencies**: National Tax Service, Government Public Procurement Service, Ministry of Employment and Labor
Linked External Systems	Korea Financial Telecommunications & Clearings Institute, Banks
Operations and Functions	6 Financial Operations and Resident Services, 2,412 Work Functions (Screens), 1,070 Connected Systems
Local Financial Platform	Bring distributed functions together on one platform
	Local Finance Services: Project Management, Local Finance, Asset Management, Settlement Management, Local Budget, Local Funds, Local Public Enterprises, Statistical Management **Common Management**: Code Management, Rights Management, Electronic Documentation **Local Subsidy Services**: An integrated management system for Subsidy Initiation, Subsidy Management, Subsidy Payment, Fraud Detection, Reconciliation/Claims **Policy Support Services**: Smart Dashboard, Multidimensional Analysis, Big Data Analysis, Local Subsidies, AI/Big Data, Resident Registration System, Mobile Services, Security Management, Shared Data **Cloud Services**: Cloud Services, Resource Management, User Support, Security, Integrated Management, AI/Big Data, External Collaboration
Data Interoperability	Integrated Database (DB): Tax, Finance, Asset Management, DB Interconnection Hub

Source: (KLID, 2023, p. 99)

The local TIS is a comprehensive digital that maximizes the efficiency of local tax assessment and collection and enhances citizen access through collaborative governance with local governments, related agencies, and private companies such as Kakao, Naver, and BC Card etc. This governance structure plays a vital role in improving the efficiency and transparency of local tax administration while increasing convenience for citizens.

The Ministry of the Interior and Safety oversees the management and operation of the Local TIS, providing a standardized working environment that enables local government officials to handle local tax-related tasks efficiently. The system is comprised of four subsystems, the Standard Local Tax Information System (categorized by province and city/county levels), Wetax, the Integrated Tax Data Management System, and the Comprehensive Real Estate Tax System. Notably, partnerships with private companies such as Kakao, Naver, and BC Card, etc. have enabled the creation of an electronic delivery service that allowed citizens to receive local tax notifications via private mobile

platforms like KakaoTalk, Naver, and Payco, safely and conveniently. This digitalization of tax notice issuance and payment processes allowed citizens to manage local tax-related tasks more easily, while also enhancing administrative efficiency for local governments. This public-private collaborative governance structure plays a crucial role in increasing convenience for citizens while ensuring accuracy and promptness in local tax payments.

Local government officials perform core tasks—such as tax assessment, collection, and delinquency management—through the Standard Local Tax Information System, which is divided by province and city/county units. The provincial system provides overarching functions, including comprehensive local tax management, tax audits, and collection management, while the city/county system supports tax-specific assessment, delinquency management, statistical reporting, and mobile services, allowing frontline tasks to be managed systematically. These systems enable real-time data processing, thereby improving the efficiency of administrative tasks and ensuring the accuracy of local tax data.

Additionally, the Integrated Tax Data Management System consolidates tax information through data linkages between local governments and related agencies such as the National Tax Service, Korea Customs Service, Supreme Court, and Ministry of Land, Infrastructure and Transport. This integration maintains data consistency throughout the tax assessment and collection processes and strengthens the accuracy and transparency of local tax administration through real-time information sharing. The Comprehensive Real Estate Tax System manages nationwide real estate tax data and tax calculations, supporting the swift and accurate processing of property-related local taxes. This system improves the accuracy and efficiency of real estate tax management by linking with the National Tax Service and other real estate-related agencies.

D. The Impact of Local Governments' Adoption of Digital Transformation Initiatives on Efficiency, Transparency, and Accountability

It is essential that local FIS and TIS are designed to satisfy users and encourage return visits to the website or cloud system (Park et al., 2015: 48). User trust in these systems can only be achieved through the provision of essential functionality and stability (Lee, 2010: 120). The impact of an information system on decision-making can vary based on users' service using patterns and intention (Lim & Kang, 2013: 49), while system design should account for individual user characteristics (Ryu, 2018: 3). This implies that informatization of core public services should be assessed on user-centered factors, as well as its ability to improve public administration.

First, the local FIS significantly improves user convenience by simplifying repetitive data entry processes in contract management. In the past, users had to repeatedly input identical data when registering contract records, but the next-generation system now allows users to duplicate previous data, reducing time and effort. Moreover, with an online integrated data management system where all users can access data, deci-

Table 7: Functionality and Governance of the Local Tax Information System

System	Features
WeTAX (Wetax)	- Portal Services: Inquiry, Filing, Payment, Correction, Refund Inquiry, and Local Tax Info Inquiry - Smart WeTAX: Real Estate Tax, License Tax Inquiry, Tax Refund, Local Government Data Inquiry, and Car-related Tax
Other systems that leverage data with WeTax	
City/Province Standard Local Tax Information System	- General Management, Additional Charges Management, Arrears Management, Tax Collection, Local Tax Operation, and System Management
County/District Standard Local Tax Information System	- General Management, Additional Charges Management, Arrears Management, Mobile Service, and System Management
Comprehensive Property Tax System	- National Real Estate Asset Management, Tax Payment, and Objection Management
Integrated Property Data Management System	- Property Data, Statutory Data Management, and Arrears Management
Related External Institutions	- National Tax System (Korea Customs Service, Ministry of Land, Infrastructure, and Transport, Electronic Tax Management System, and Korea Financial Telecommunications and Clearings Institute
Other Features	
Citizen Interfaces	- Call Center, Mail, Fax, Internet, Financial Institution Kiosk, E-Mail, Web, Mobile.
Interconnected Systems	- New Administrative Information System, Local Finance Information System, and Resident Registration Information System.

Source: KLID (2022, p. 108)

sion-making and data management can be delegated to appropriate users easily. For example, in terms of local construction defect management, the authority has been delegated from contract administrators to project managers. This not only alleviated the workload, but more importantly improved the effectiveness of defect management by allowing monitoring decisions to be made by users with the most relevant information. In addition, by adding the filter option of "inspection date" in customized search screens, operational efficiency has improved.

Similarly, the TIS enhanced accessibility through collaboration with private companies, enabling electronic delivery of tax notifications and simplifying authentication services. In Korea, where over 95% of citizens use smartphones, electronic delivery of local tax bills through private platforms like KakaoTalk, Naver, and Payco allows citizens to receive tax notifications conveniently and securely. This service has solved issues that commonly arise in traditional mail, such as delivery errors leading to delinquency and has reduced hundreds of billions of won in annual mailing costs (KLID, 2022, 2023). These developments have accelerated the shift to a so-called paperless society, significantly enhancing public convenience. Through collaboration with private companies, the government has also streamlined identity verification and authentication processes, demonstrating a successful case of public-private partnership in technology advancement. In addition, the electronic tax filing and payment system of the local TIS was able to increase public awareness. As of 2022, Wetax membership reached 12.21 million, an increase of 1.32 million from the previous year, while the number and total amount

of electronic filings grew significantly to 34.24 million filings and KRW 41.18 trillion, respectively (KLID, 2022, p. 110). This growth reflects the effectiveness of ongoing promotion and system convenience improvements.

Secondly, from the perspective of transparency, a real-time monitoring framework of the FIS has been established to address issues such as debt, liabilities, and budget waste within local governments, strengthening both internal control by public officials and external oversight by citizens throughout the entire fiscal management process, from budget planning to execution. Additionally, with systems like Local Finance Integrated Open System, all local fiscal information is available to the public 24/7, allowing citizens to easily access and utilize information by theme. This enhances the openness and trustworthiness of public finance, providing a foundation for responding to diverse public demands and fostering a more transparent and accountable environment for local fiscal management.

Despite these advancements, given that public administration is an ethics-centered field that explicitly declares its value in "realizing human dignity" (Ascher, 1986, p. 365), the evaluation of local fiscal and tax informatization systems should also consider whether it has improved the society in dimensions of democracy and human dignity (Lasswell, 1999; Kwon, 2007). In this regard, bridging the digital divide remains an important challenge in Korea's local fiscal and tax informatization. Advancements in information and communication technology (ICT) have driven a paradigm shift in civil service delivery. Traditional offline processes have evolved through informatization, expanding from PC-based websites to mobile web and app-based wireless internet services, diversifying service delivery channels. The Wetax service, for instance, accelerated the transition to a paperless society through electronic document delivery. While this shift has improved accessibility and administrative efficiency, vulnerable populations, such as the elderly or disabled, may face difficulties and inconvenience. The introduction of Resident Participation-e (pb.lofin365.go.kr) is also a positive example of improving public access and transparency in the budgeting processes of local governments. This service enabled residents to directly participate in budget planning through proposal submissions, electronic voting, and progress monitoring, with chatbots available for inquiries. However, this online service environment may restrict participation opportunities for digitally unacquainted groups, potentially resulting in their exclusion from the fiscal process.

Thus, while new online services introduced through local fiscal and tax informatization offer convenience for the general public, they may exacerbate information disparities for vulnerable populations with limited access to digital devices (Lee, 2019: 26). To address this, local governments should incorporate complementary measures for vulnerable groups into future informatization processes and develop policy alternatives that mitigate digital exclusion.

Table 8: Summary of Analysis Results

Analytic elements	Fiscal Information System	Taxation Information System
Legalization	• Continuously strengthened the legal framework for local informatization through the establishment of policies and laws from the 1980s to the 2020s. • Operates under Article 96-2 of the Local Finance Act (Local Fiscal Informatization) and Article 63 of the Enforcement Decree of the Local Accounting Act (Accounting through Local Fiscal Management System).	• Established under Article 135 of the Framework Act on Local Taxes (Informatization of Local Tax Administration). • The Local Tax Information System comprises the Standard Local Tax Information System and Wetax, offering customized services for officials and citizens.
Key features and Settings	• Enhances efficiency in everyday fiscal tasks through computer and mobile platforms. • Improves fiscal data management and transparency with the Local Finance Integrated Open System. • Streamlines contract management and supports cyclical fiscal tasks.	• Maximizes tax-related task efficiency (assessment, collection, delinquency management) via computer and mobile platforms. • Supports electronic tax notifications and payments with real-time processing. • Expands Wetax app functionality with simplified verification..
Governance	• FIS promotes transparency and integration in fiscal management by linking with other administrative agencies. • Supports local fiscal management through internal and external integration. • Supports local fiscal management through two main pillars: internal integration (platform) and external integration (actors).	• The Local Tax Information System is managed through collaborative governance involving the Ministry of the Interior and Safety, local governments, related institutions, and private companies. • The Ministry of the Interior and Safety oversees comprehensive management, providing a standardized environment to facilitate efficient processing for local officials and citizens.
The Impact of Local Governments' Adoption of Digital Transformation Initiatives on Efficiency, Transparency, and Accountability	• Increases user convenience with automation in contract management. • Enhances transparency with 24/7 access to fiscal information through the Local Finance Integrated Open System. • Supports real-time monitoring for internal control and public accountability.	• Improves accessibility through electronic tax notification and payment options. • Enhances transparency and citizen engagement with services like Wetax and Resident Participation-e. • Demonstrates public-private cooperation for optimized service delivery.

E. Conclusion

This study analyzes the impact of South Korea's local FIS and TIS on administrative efficiency, transparency and accountability, assessing the challenges and limitations encountered in the process. Advancements in information and communication technology (ICT) have driven the digitalization of local administration, enhancing fiscal transparency, accelerating public service delivery, and fulfilling citizens' right to information. The findings of this study hold several key implications.

First, the effective implementation of local governments' FIS and TIS can be at-

tributed to foundational government-led legalization efforts. Grounded in the Local Finance Act and the Framework Act on Local Taxes, these systems have facilitated the digital transformation of fiscal and tax administration, establishing a basis for ongoing improvement and expansion through legal institutionalization. Additionally, the governance framework, characterized by collaboration among diverse stakeholders—including private sector entities, public institutions, end-users, and various government departments—has significantly contributed to their operational success. This integrated governance approach appears to support both enhanced efficiency and improved transparency in system operations.

Second, this study further highlights the local FIS's role in advancing the efficiency, transparency of local government fiscal management. By enabling systematic data management and providing tools for real-time monitoring and statistical analysis, the system supports public officials in executing timely and accurate financial administration, thereby reinforcing the reliability and credibility of fiscal policy.

Third, the dual structure of the local TIS provides convenience for both officials and the public, optimizing the efficiency of tax assessment, collection, and delinquency management. The introduction of electronic notification, payment services, and simplified authentication systems, in collaboration with private platforms such as KakaoTalk, Naver, and Payco, etc, has significantly improved convenience for citizens in handling tax-related tasks. This innovative achievement, realized through public-private collaboration, enhances public access to services and strengthens the efficiency of local tax administration.

While digital transformation has positively impacted the efficiency, transparency and accountability of local governments, issues of unequal access to information remain a major challenge. This study draws attention to the difficulties encountered by digitally marginalized groups, particularly elderly individuals less acquainted with digital technologies, who continue to rely on offline services through administrative office visits. Additionally, such groups may be underrepresented in online participatory budgeting processes, pointing to potential new forms of inequality within the information society. These observations highlight the need for local governments to consider supplementary measures that support these marginalized populations in adapting to digital informatization efforts. Addressing the digital divide effectively suggests that technical implementation alone is insufficient; rather, a holistic approach—encompassing education and support systems—is essential to enable all citizens to engage meaningfully with these digital systems in their daily lives.

Notes

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