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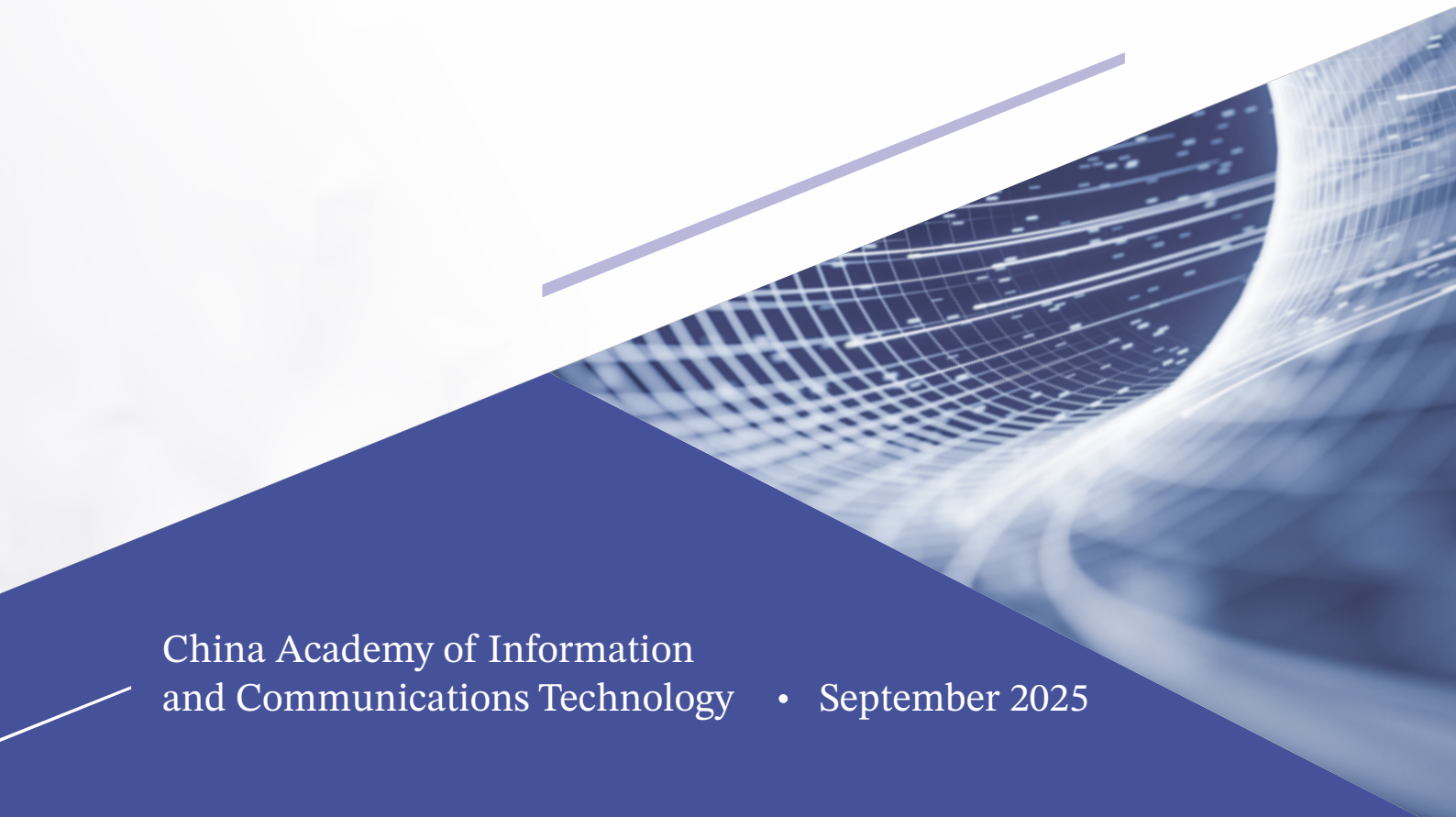
Digital Public Infrastructure Solutions:
From the perspective of China's Practices



China Academy of Information
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Executive Summary

Digital public infrastructure has now become an important topic on the agenda of global digital development cooperation. The United Nations (UN) Summit of the Future in September 2024 adopted the Global Digital Compact, which considers "digital public goods and digital public infrastructure to be key drivers of inclusive digital transformation and innovation." All parties recognize that digital public infrastructure is still an evolving concept and there are multiple models of it, but the core goals are highly consistent: to develop secure, interoperable, open shared digital systems that can build fundamental, common, core digital capabilities underlying public and private digital services and enable inclusive digital transformation.

China is a pioneer in implementing digital public infrastructure and an important participant in the corresponding global agenda. For one thing, despite differences in terminology, models and other aspects, the "Digital China" initiative has been closely aligned with the concept of digital public infrastructure. Its top-level design and implementation practices supports the digital economy, digital government, digital culture, digital society and digital ecology based on developing digital infrastructure and data source systems. In this process, China has built up extensive experience, technologies and solutions and cultivated an array of competitive enterprises. For another, China has been deeply engaged in the UN, G20 and BRICS, positively contributing to the development of the digital public infrastructure concept, and fostering consensus around it.

From the perspective of China's practice, digital public infrastructure should include several components: physical infrastructure layer, data sharing layer; common platforms and technical capabilities; and integrated APIs and portals.

On top of that, digital public infrastructure exhibits the following key characteristics: it is an organic whole that closely combines hardware and software; it achieves openness and interoperability by diverse means, such as unified standards, open interfaces and open-source software; it has full-lifecycle, well-designed security safeguards; it makes good use of the industry's advantages in technology, capital and innovation to shape sound public-private partnerships and a healthy competitive ecosystem.

In response to the Global Digital Compact, this report draws on China's practice in building a digital government, shares experiments and observations on digital public infrastructure , highlighting Chinese industry's digital solutions across key sectors, such as government services, education, healthcare and tax. It aims to contribute China's unique perspective and good practices to the global agenda on digital public infrastructure.

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I. A Priority on the Global Agenda

Over recent years, driven by multilateral mechanisms and multi-stakeholders, including the UN, the World Bank Group and G20, digital public infrastructure has emerged as an important topic on the agenda of global digital development.

Long before digital public infrastructure gained global prominence, the groundwork had already been laid through related practices and theoretical discussions. Some studies argue that digital public infrastructure can be traced back to the implementation of such key public technologies as the Internet and the Global Positioning System (GPS). Some academics hold that it is the result of evolving early explorations, such as e-government and Government as a Platform (GaaP). Meanwhile, many countries have long been developing digital systems for digital infrastructure, digital identity, data exchange, laying the practical foundation for the development of digital public infrastructure.

Around the period from 2020 to 2022, multi-stakeholders, including Co-Develop, The Rockefeller Foundation, the Observer Research Foundation (ORF) and the Digital Public Goods Alliance (DPGA), released a series of key research reports and policy papers, which preliminarily shaped the basic concept and vision for digital public infrastructure. In 2023, digital public infrastructure became a priority on G20's agenda and thus a core part of the digital agendas of the UN, BRICS, and other multilateral mechanisms. In 2024, the UN Summit of the Future adopted the Pact for the Future and its annex Global Digital Compact, under which all parties consider "digital public goods and digital public infrastructure to be key drivers of inclusive digital transformation and innovation" and commit to enhance international exchange and sharing, facilitate investments and establish partnerships.

The G20 Digital Economy Ministers Meeting made it a priority for three consecutive years, forged the first global high-level multilateral consensus on the concept of digital public infrastructure, released guidances for voluntary adoption, including G20 Framework for Systems of Digital Public Infrastructure and G20 General Principles on the Governance

of Digital Identity, and had forward-looking discussions on such issues as best practices, governance, standards and interoperability.

UN agencies, represented by the UN Office for Digital and Emerging Technologies (ODET), the International Telecommunication Union (ITU) and UNDP, have close cooperation with multi-stakeholders on the development, deployment and governance of digital public infrastructure. For example, they started initiatives and campaigns as the "UN High Impact Initiative on Digital Public Infrastructure" and the "Global DPI Summit" and released the UN Universal Digital Public Infrastructure Safeguards Framework, among other documents. The ITU World Telecommunication Standardization Assembly 2024 (WTSA-24) adopted a resolution titled "Enhancing standardization activities on digital public infrastructure" to launch relevant standardization activities, ITU also created the OpenWallet Forum in partnership with the Open Wallet Foundation (OWF) to enhance coordination on technical standards in the area of digital wallet.

Multilateral development bank provide financial support and technical assistance for the implementation of digital public infrastructure in developing countries. The World Bank Group's flagship programs, including the Identification for Development (ID4D) Initiative and the Digitalizing Government to Person Payments (G2Px) Initiative, are moving faster to drive the development of digital identity and digital payments. Regional development banks like the Inter-American Development Bank (IDB) provide region-specific financing solutions and implementation paths to digital transformation of countries.

Regional organizations are advancing digital public infrastructure through strategic planning and cross-border cooperation to drive digital integration.The EU's International Digital Strategy made digital identity and digital public infrastructure a priority for cooperation. The EU is pressing ahead with the Digital Identity Wallet program to provide all EU citizens with digital identities that allow cross-border, mutual recognition. The African Union views digital public infrastructure, including digital identity, as fundamental to driving digital transformation and building a digital single market. The MERCOSUR Digital Citizen Initiative is actively advancing the mutual recognition of national digital identities among Argentina, Brazil, Paraguay and Uruguay. The ASEAN has been driving cross-border payment integration and digital identity development in its member states, while also establishing regional governance frameworks like the ASEAN Data Management Framework.

As an active participant in and important contributor to the global agenda for digital public infrastructure, China has been deeply engaged in relevant discussions of multilateral mechanisms, including the UN, G20 and BRICS, contributing China's wisdom and solutions. For this reason, this report is intended to systematically share our observations on China's practical experience in response to the Global Digital Compact, in hopes of fueling the effort to deepen international dialogue and pragmatic cooperation.

II. An Evolving and Changing Concept

Based on global discussions today, it is widely agreed that digital public infrastructure is still an evolving concept with varying categorical frameworks and development models.

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> “Digital public infrastructure (DPI), as an evolving concept and as a set of shared digital systems, built and leveraged by both the public and private sectors, based on secure and resilient infrastructure, and can be built on open standards and specifications, as well as opensource software...”
>
> ***(G20 New Delhi Leaders' Declaration)***

> “Resilient, safe, inclusive and interoperable digital public infrastructure has the potential to deliver services at scale and increase social and economic opportunities for all. We recognize that there are multiple models of digital public infrastructure, and that each society will develop and use shared digital systems according to its specific priorities and needs."”
>
> ***(Global Digital Compact)***

First, there's different understandings of the dimensions covered by digital public infrastructure. Some argue that it is an digital, intermediate layer that sits atop physical infrastructure (including networks and cloud) and below the layer of specific services, referring in particular to digital systems that provide common support at the software level. Other views emphasize that digital public infrastructure is an integral whole, where physical components like networks and data centers are deeply coupled with the software systems providing foundational support, all while adhering to core principles such as interoperability, security, and resilience.

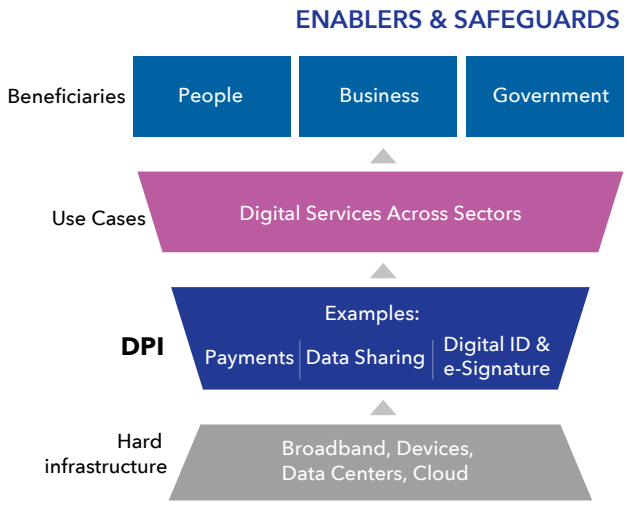

Figure 1. The architecture of digital public infrastructure

Source: World Bank, Digital Public Infrastructure and Development: A World Bank Group Approach

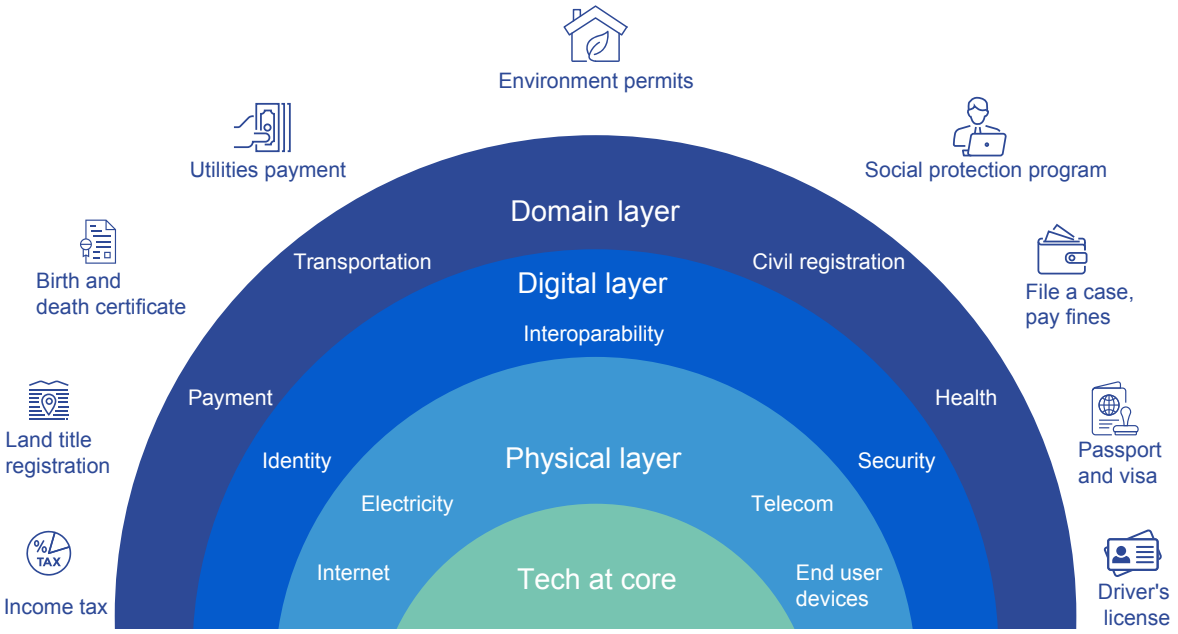

Figure 2. The layers of digital public infrastructure

Source: DCO, Digital Public Infrastructure: A Key Building Block for Social Inclusion and Economic Development

Second, opinions differ on the scope of functions of digital public infrastructure. Some views hold that it is a foundational, horizontal digital layer, designed to support digital economy and public services. In this view, digital public infrastructure mainly refers to digital identity, digital payment, and data exchange systems. Meanwhile, a broader perspective now includes sector-specific platforms (for smart cities, agriculture, etc.), digital systems with public good attributes like digital signatures, wallets, and artificial intelligence, as well as digital public goods, reflecting its deepening integration into the economy and society.

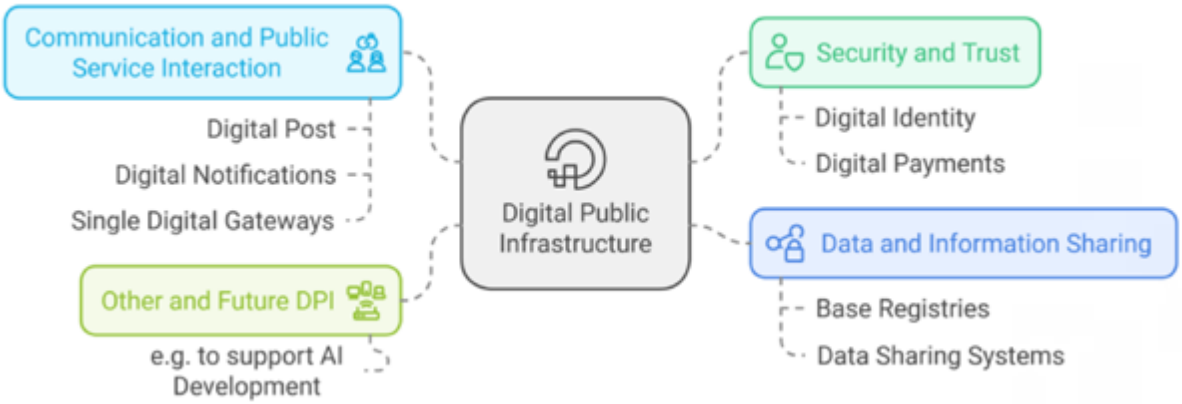

Figure 3. Types of digital public infrastructure

Source: OECD, Digital Public Infrastructure for Digital Governments

Third, the priorities of developing digital public infrastructure vary across different national and regional contexts. Developing countries, represented by India, seek to accelerate financial inclusion, expand universal coverage of public service, and leapfrog digital transformation by developing digital identity and digital payment systems. By adopting open-source building blocks, they could lower the cost, and mitigate the risks of vendor lock-in. Some countries, represented by Estonia, are committed to building efficient, transparent digital government, with a focus on the interconnectivity and fostering application ecosystem, thereby modernizing public administration, and creating a digital society. The EU views digital public infrastructure as a way to advance regional digital integration and interoperability in the digital domain, and an underpinning for reducing external dependencies and safeguarding digital sovereignty.

Though opinions differ, seen from the existing definitions and descriptions by major international organizations and multilateral platforms, there is preliminary consensus on digital public infrastructure: to develop secure, open, interoperable shared digital systems that can build fundamental, common, core digital capabilities underlying public and private digital services and enable inclusive digital transformation.

Table 1. Descriptions of digital public infrastructure by selected consensus documents and international organizations

Source: China Academy of Information and Communications Technology

Selected consensus documents and reports of international organizations	Descriptions
Global Digital Compact	Resilient, safe, inclusive and interoperable digital public infrastructure has the potential to deliver services at scale and increase social and economic opportunities for all. We recognize that there are multiple models of digital public infrastructure, and that each society will develop and use shared digital systems according to its specific priorities and needs. Transparent, safe and secure digital systems and user-centred safeguards can promote public trust and use of digital services.
G20 Rio de Janeiro Leaders' Declaration	We acknowledge the contribution of digital public infrastructure to an equitable digital transformation and recognize the transformative power of digital technologies to bridge existing divides and empower societies and individuals including all women and girls and people in vulnerable situations.
G20 Maceió Ministerial Declaration on Digital Inclusion for All, 2024	...can play a key role in improving the responsiveness, effectiveness, transparency and reliability of the public sector in the digital era, while protecting privacy, personal data, human rights and fundamental freedoms.
G20 New Delhi Leaders' Declaration	...as an evolving concept and as a set of shared digital systems, built and leveraged by both the public and private sectors, based on secure and resilient infrastructure, and can be built on open standards and specifications, as well as opensource software can enable delivery of services at societal-scale.
G20 Digital Economy Ministers Meeting Outcome Document and Chair Summary, 2023	...a set of shared digital systems that should be secure and interoperable, and can be built on open standards and specifications to deliver and provide equitable access to public and / or private services at societal scale and are governed by applicable legal frameworks and enabling rules to drive development, inclusion, innovation, trust, and competition and respect human rights and fundamental freedoms.
World Bank Group	...an approach to digitalization focused on creating "foundational, digital building blocks designed for the public benefit."
United Nations Development Programme (UNDP)	A set of foundational digital systems that forms the backbone of modern societies. Digital public infrastructure (DPI) is still an evolving concept, but there is a growing consensus on it being a combination of (a) networked open technology standards built for public interest, (b) enabling governance, and (c) a community of innovative and competitive market players working to drive innovation, especially across public programs.
Digital Cooperation Organization (DCO)	...a key building block in the provision of technology-powered digital services, offering significant social and economic opportunities. ...the development and deployment of DPI encompasses several layers.
Organisation for Economic Co-operation and Development (OECD)	...shared digital systems that are secure and interoperable and can support the inclusive delivery of and access to public and private services at societal scale. Digital public infrastructure (DPI) plays a key role in enabling efficient and effective public service delivery and advancing the broader digital economy. Key components of DPI include digital identity, digital payments, data sharing systems, digital post, digital notifications and base registries.

III. China's Practical Experience

Seen from China's Practice, digital public infrastructure serves the overall planning of Digital China by developing two foundations, i.e., digital infrastructure and data resource systems, to facilitate more harmonized digital development across sectors, such as digital economy, digital government, digital culture, digital society and digital ecology, for socioeconomic development.

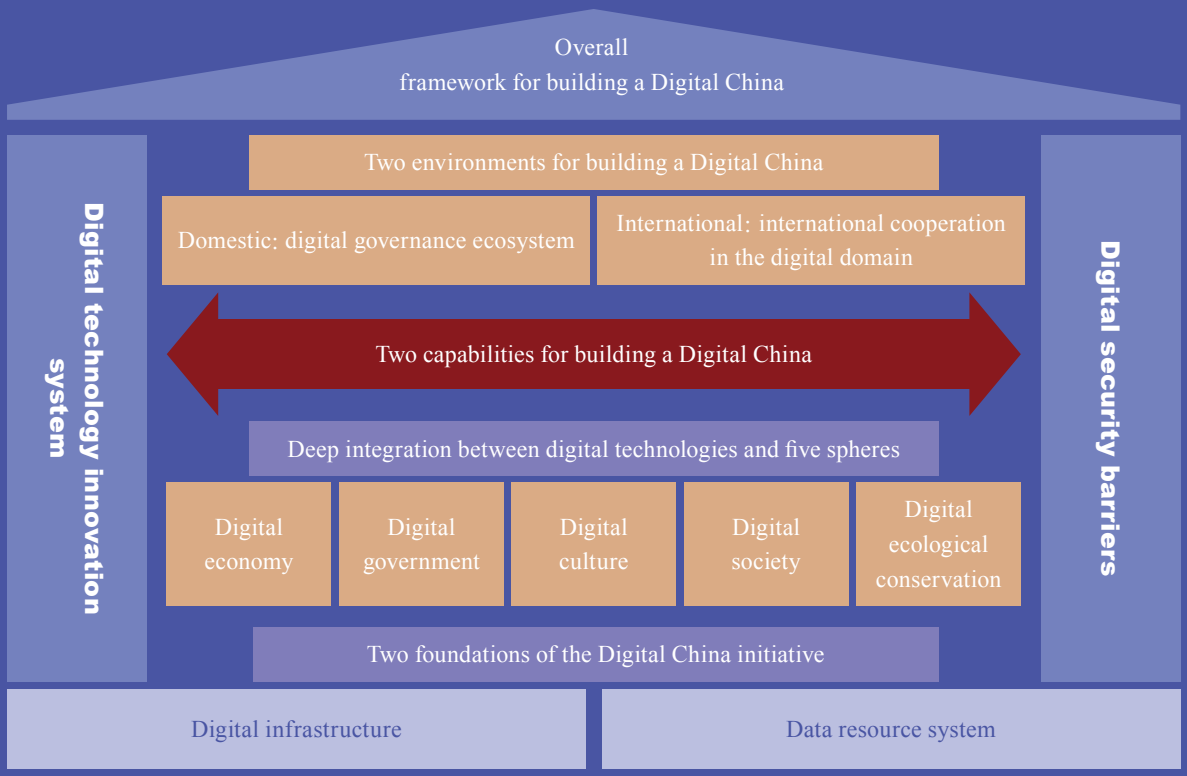

Figure 4. Overall framework for building a Digital China

Source: www.cac.gov.cn

China has been vigorously advancing the provision of foundational, common services that enable digitalization and intelligent transformation, thereby supporting economy, government services, public services and people's wellbeing,etc..One is pushing for the improvement and upgrading of network infrastructure, including 5G network, gigabit optical network and satellite Internet, as well as developing converged infrastructure, such as industrial internet, smart cities and intelligent transportation. Another is facilitating the smooth circulation of data resources. This includes, promote the orderly development and utilization of public data resources, encourage the innovative

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use and compliant circulation of corporate data resources, optimize data circulation mechanisms, and promote the market-oriented allocation of data factors. Efforts are being actively made to develop data circulation infrastructure, such as trusted data spaces, data trading platforms, as well as create high-quality datasets in key sectors such as healthcare, industry and education, which continuously enhancing the scale and quality of data resources.

Digital government, a foundational, pioneering program for building a Digital China, provides robust support for the digital economy, government services, societies, culture and ecological conservation, among other areas, enabling high-quality socioeconomic development and leading and driving digital transformation across the board. In this context, this report will take China's digital government drive as a typical case to examine China's experiences, practical pathways in developing digital public infrastructure.

(i) China's Practices in Building a Digital Government

China's digital government drive started in the 1980s. After more than 40 years, this effort has undergone four major stages of development, i.e., digital dissemination of government information, digital development of government service systems, digital delivery of government services and digital innovation in government service architecture. This trajectory corresponds to a shift in focus from single government office services and information exchange to industry-specific administration, civil services and on to the current intelligent, converged development. In this process, China has pulled off four transitions from laying the groundwork to building a framework, shaping a system and all-round digitalization, supporting the shift of the Chinese government toward a service-oriented one, and further a whole of government. In April 2022, China issued the Guiding Opinions on Strengthening the Building of a Digital Government, which put forward that digital government is a new digital, intelligent form of government workings which widely applies digital technologies to government management and services to facilitate better processes, innovative models and improving capabilities in government governance.

The digital government includes five systems, i.e., the platform support system, the data resource system, the digital performance capabilities system for the government, the institutional rules systems, and the security safeguard system.

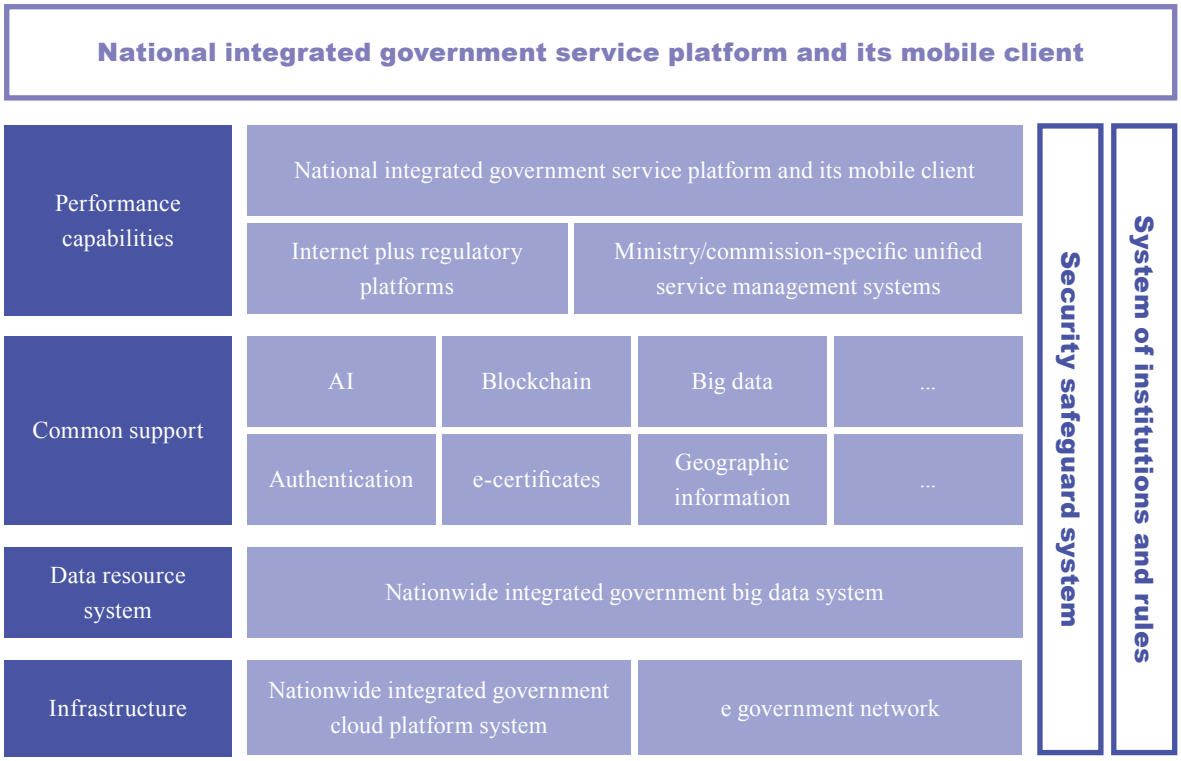

Figure 5. Overall framework of China's digital government drive

Source: China Academy of Information and Communications Technology

1. Platform support system

The platform support system refers to infrastructure for building a digital government, primarily including an infrastructure layer and a common support layer.

1.1 Infrastructure layer

The infrastructure layer includes e-government networks and a nationwide integrated government cloud platform system.

The e-government networks, as important e-government public infrastructure and government information highways, provide secure, speedy, reliable, interconnected public network channels for inter-agency, inter-regional information sharing and public service delivery, among other service applications, by governments at all levels. China is now pushing for improving the support capacity of e-government networks by driving core networks to expand and upgrade, boost mobile access capabilities and strengthen service functions. As of the end of 2024, China had achieved the full coverage of e-government networks at national, provincial, municipal and county levels, with a primary-level access rate of 99.4% at the township/subdistrict level, focusing on bridging the last mile of government services.

The nationwide integrated government cloud platform system, capable of coordinating diverse, heterogeneous computing resources for intensive supply and intelligent allocation of data center resources, provides secure, scalable, interconnected computing base and cloud resources subject to efficient scheduling and management to the storage, computing, circulation, sharing and application of big data required by socioeconomic development and government services. This system can be roughly divided into three levels: national-level coordination and management of State Council department-specific government clouds; provincial-level coordination of the development of provincial and municipal-level government clouds; and municipal-level customized deployment in line with provincial government clouds. To date, China has built 32 provincial cloud infrastructure platforms, with government cloud platforms established in more than 70% prefecture-level cities.

1.2 Common support layer

This layer primarily provides generic services, such as authentication, e-certificate sharing, e-sealing and geographic information, as well as common technical capabilities, including government service large models, IoT sensing platforms, digital twins and government service blockchains.

Relying on authentication resources on the national government big data platform, including demographic and legal person repositories, China has established a set of identification systems offering verification services on natural persons, legal persons and other social organizations. The national cyberspace ID authentication public service platform, in particular, can provide authoritative, secure, credible, convenient, efficient natural person digital identity authentication services. To date, this platform has built up an authentication support capacity of no less than 1.2 trillion times per year, with positive results achieved in public service areas (e.g., social security), financial credit reporting areas (e.g., MSMEs financing) and major industrial sectors, including Internet platforms, culture and tourism, education and examination, and healthcare.

2. Data resource system

The data resource system, a core part of the digital government drive, includes the nationwide integrated government big data system and focuses on reinventing data management mechanisms, facilitating more efficient data sharing, and promoting orderly data utlization.

The nationwide integrated government big data system integrates and improves existing government data platforms, databases and infrastructure, breaking down government data silos by design. With the national government big data platform at the core, it is aligned with 32 provincial government data platforms and N government data platforms of relevant agencies under the State Council, forming a "1 + 32 + N" structure. The national government big data platform pools government data resources from across the country at the logical layer through normative compilation of government data directories. By doing so, it has created and improved a high-quality national database covering demographics, legal persons, natural resources, e-certificates, healthcare, social security and ecological conservation, among other domains. This platform is also equipped with six core systems, i.e., data analytics, data directories, data openness,

data governance, supply and demand matching and data sharing, which constitute a complete application support system for full-lifecycle data processing, analysis and circulation. To date, this system has supported more than 540 billion times of government data sharing and calling by agencies across regions.

3. The digital performance capabilities system for the government

This layer is designed to boost the effectiveness of government performance by holistically advancing the intensive development, interconnectivity, synergistic interaction and innovative management of government application systems in all sectors of society, among other means. By creating economic intellectual foundation databases, a nationwide integrated online supervision platform, new types of primary-level management service platforms and a nationwide integrated government service platform, among others, this system seeks to boost capabilities in such areas as macroeconomic regulation, market regulation, public services, eco-environmental protection, government functioning and government transparency.

The nationwide integrated government service platform, with the national government service platform as a public channel and total hub, pools government services from various agencies across regions for centralized provision of national government services to the public. Built on common application support, including authentication and e-certificate sharing, this platform allows the sharing and mutual recognition of relevant documents and data resources, thus effectively simplifying government service processes. For example, local and central government agencies can develop and improve trusted credentials and login systems to access and call the unified authentication services on the national government service platform, solving the problem of repeated registrations and verifications by businesses and individuals on agency-specific platforms across regions. As of the end of May 2025, the nationwide integrated government service platform had standardized 5.21 million service items and more than 36,000 high-frequency, hot service applications.

4. Security safeguard system

The safeguard system is the bottom line and lifeline of the digital government drive. It includes requirements in four dimensions, i.e., security responsibility, security systems, security capacity, and autonomy and manageability. This system requires that government agencies across regions (a) establish a comprehensive, multi-layer, integrated safeguard system and shape inter-regional, inter-agency, cross-layer collaboration and interaction mechanisms; (b) establish and improve such systems as grading- and classification-based data protection, risk assessment, and testing and certification to enhance accountability mechanisms; (c) put in place a sound digital government technical safeguard system featuring dynamic monitoring, proactive defense and collaborative response; and (d) intensify the effort to tackle key and core technical problems in building a digital government to boost autonomy and manageability.

5. Institutional rules system

It is an integral part of the two-pronged approach to building a digital government. It includes managerial functions, management mechanisms, laws and regulations, and standards and specifications.

On the front of laws and regulations, China has promulgated and implemented relevant laws, regulations and policy papers, including the Cybersecurity Law, the Data Security Law and the Personal Information Protection Law. In terms of management mechanisms, China has developed and implemented such security management systems as the Regulations on Government Data Sharing, improved grading and classification-based data management systems, and identified and improved accountability mechanisms. The Administrative Provisions on the Security of Internet Government Affairs Applications helps enhance safeguards for Internet government service applications to ensure and promote the secure, stable operation of such applications. On the front of safeguarding technologies, China has stepped up security assessment for new technologies and applications by employing threat prediction and cyber-security situation awareness, among other tools. As for standards, China has introduced such standards and guidances as the Phase I of the National E-government Standards System Development Project and the Guidelines for Building a National E-government Standards System.

(ii) China's Understanding of Digital Public Infrastructure

China's practices in building a digital government provide not only a viable approach to and invaluable lessons for government digitalization and intelligentization, but also an important gateway for us to understand China's conception of digital public infrastructure.

The digital public infrastructure framework China is building can roughly be divided into four layers: the infrastructure layer, the data resource layer, common support platforms and the integrated interface layer. Besides, digital public infrastructure also relies on robust safeguards and an active industrial ecosystem.

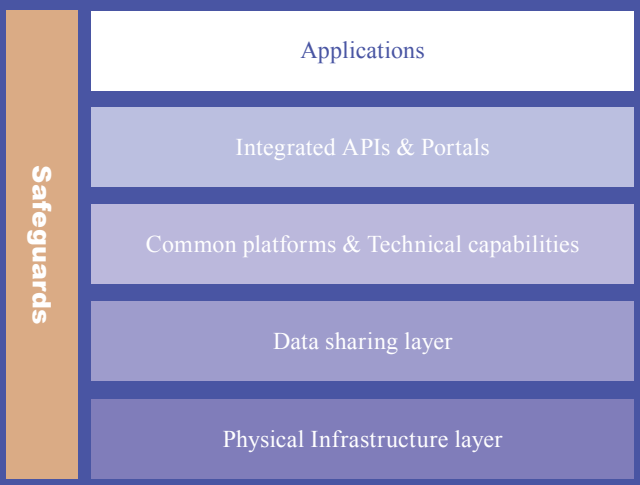

Figure 6. **Digital public infrastructure framework**
Source: China Academy of Information and Communications Technology

1. Physical infrastructure layer

Physical digital infrastructure, represented by network and computing infrastructure, can provide foundational support capabilities, including network and data transmission, data processing and computing, for nationwide, large-scale, all-scenario service applications, and meet the needs of applying such technologies as big data and AI.

2. Data sharing layer

Built on network and computing capabilities, this layer primarily supports the orderly circulation and shared application of data. It integrates, pools and governs diverse data resources to form standardized, high-quality, definitive databases. Meanwhile, it provides data processing capabilities, including data analytics, sharing, circulation and safeguarding, as well as an efficient, trusted environment for data circulation.

3. Common platforms and technical capabilities

These platforms primarily include generic digital systems and components, most standardized, component-based and platform-based, which are available for autonomous calling and flexible configuration by users, including government agencies and businesses, to realize high-frequency use and rapid extension. Specifically, this layer includes such generic services as authentication systems, e-certificate sharing systems, e-sealing systems and geographic information sharing systems, as well as such common technical capabilities as AI and blockchains.

4. Integrated APIs and Portals

This layer unlocks robust physical infrastructure, the unobstructed data resource layer and strong common support capabilities through standardized, unified, secure, reliable APIs and integrated, reengineered one-stop service portals/platforms to underpin a variety of application ecosystems, including digital government services, smart education, intelligent transportation and smart healthcare.

Besides, digital public infrastructure should possess the following key characteristics.

a. Organic integration of hardware and software

Digital public infrastructure is an organic whole that closely combines hardware and software. Digital infrastructure represented by network connectivity, cloud computing, data centers is the physical base of digital public infrastructure. It provides stable, speedy, seamless foundational capabilities, including network transmission, data exchange and complex computing, to support upper-layer applications like government services. Its capacity directly dictates the effectiveness of public services. The organic integration and coordinated development of software and hardware infrastructure serve as a crucial foundation for realizing resource scheduling, data sharing, application support, and service encapsulation. They also lay the

groundwork for breaking down information silos and data chimneys, as well as enabling business collaboration and service delivery.

b. Openness and interoperability

Openness and interoperability, as key features of digital public infrastructure, facilitates integration. Open, interoperable digital public infrastructure can deliver multi-agent, cross-scenario, inter-agency, cross-industry applications through unified standards, open interfaces, modular design or open-source software, among other methods. This helps lower access thresholds and costs, providing more possibilities for customized, scalable deployment.

c. Security safeguards

Security is a premise and guarantee for the establishment, functioning and wide acceptance of digital public infrastructure. Any security breach in or attack against digital public infrastructure, once occurred, would have negative impacts beyond estimation on citizens, industries, society and the country. For this reason, digital public infrastructure requires a matching, all-round, multi-level security safeguard system. Technically, the idea of secure by design should run through the full lifecycle of digital public infrastructure, from design, development to deployment. Governance-wise, relevant mechanisms need to be created and improved to identify the responsibilities of actors and ensure that the operation of digital public infrastructure complies with such requirements as laws and regulations and personal privacy protection. Specific security safeguards include laws and regulations, security management mechanisms and technical protective measures. A full-range security safeguard system covering networks, clouds, data, applications and terminals can support the secure, stable delivery and operation of digital public services.

d. Public-private partnerships

Public-private partnerships (PPPs) are an engine for digital public infrastructure to develop and stay vibrant, paving the way for its sustainable development. The private sector can offer mature digital solutions, inject social capital, sustain the vigor of technological innovation, and deliver efficient operations management services. While the government can fully play its role in institutional design and standardized supervision, among other areas, to maintain the public value orientation of digital public infrastructure and create a healthy competitive ecosystem for digital industries.

On the front of efficient provision of digital public services, China has made positive progress, with extensive experience, technologies and solutions and cultivated an array of competitive enterprises. with unique strengths in such areas as technological research, software application and platform operation There are competitive companies in a full range of areas (e.g., network, cloud services and software), including large enterprises with full-stack capabilities and SMEs specializing in database, middleware or other services. In the area of government clouds, China has shaped a market landscape with multiple competing players,

including basic telecommunications operators, Internet companies, system integrators, and government cloud companies established by local governments. In the area of large government models, China has about 56 large model vendors covering foundation, model and large model application layers, which constitute a rather complete industrial ecosystem. In terms of applications, users can access digital government services offered by the national government service platform and the State Council client, among others, via official or third-party applications.

Local governments have been developing digital government tailored to their local conditions and needs in a flexible, creative way. The government-led PPP model, which separates management from operation, has gone mainstream. Under the PPP model, the government retains administrative functions, while private companies provide digital capabilities by such means as injecting social capital, public-private cooperation and rendering services. This model can make the best use of the technical and innovation strengths of companies to create a sound environment for the growth and competition of relevant industries. Chinese provinces including Guangdong and Zhejiang have given full play to their own ecological strengths in digital industries to create efficient, convenient and creative digital government service systems, further enabling the provision of public services.

By calling and accessing APIs, companies can use relevant services creatively to lower costs and technical thresholds. The free-of-charge authentication services offered by the national cyberspace ID authentication public service platform can effectively reduce the costs of and pressures on companies and government agencies in identity authentication and data security protection. This national platform can be easily accessed by Internet platform companies. All they need to do is make simple changes to their existing ID authentication systems by adding a digital ID operation and management module and deploying secure access equipment or creating encrypted secure access channels via a cloud access platform.

IV. Digital Public Infrastructure Solution

(i) Government Services

A: National Government Cloud (Government Service) Solution

1. Overview

The national government cloud, integrating unified platforms of cloud computing, big data, and artificial intelligence technologies, has become a key infrastructure driving the coordinated development of digital government, digital economy, and digital society.

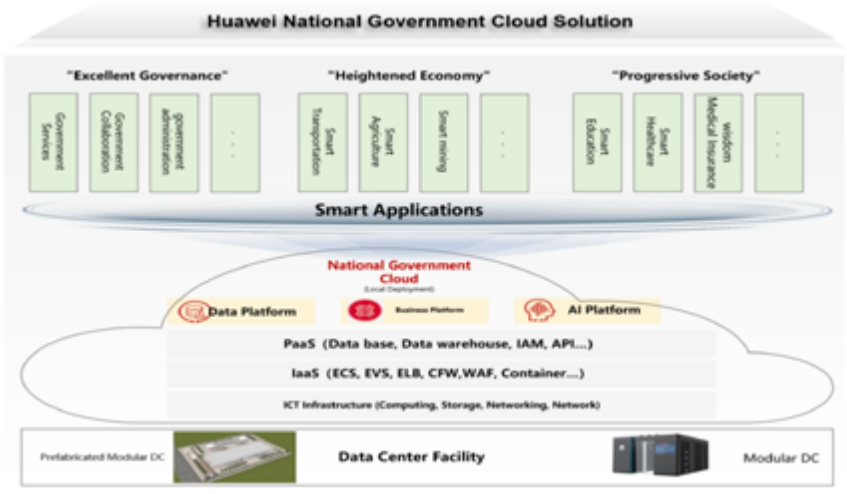

Figure 7 . Solution Architecture Diagram

Data Center Infrastructure: Supports flexible deployment both indoors and outdoors, enabling rapid construction; modular design allows for flexible expansion; green and energy-efficient, optimizing PUE from 1.5 to 1.2.

National Government Cloud: Centralized construction can provide over 120 cloud services including IaaS and PaaS, integrating application enablement platforms, data enablement platforms, and AI enablement platforms, comprehensively supporting national digital transformation.

a. Application Enablement Platform:

Focuses on rapid development and integration of government applications, offering one-stop low-code tools, cloud-native architecture, and standardized API interfaces, supporting efficient inter-departmental system interoperability, and helping the government achieve agile business innovation.

b. Data Enablement Platform:

A government data sharing and open platform, supporting efficient and secure data sharing between government agencies and between the government and enterprises; a government data governance platform, integrating data lake and warehouse, supporting PB-level data storage governance and visual insights, enhancing the quality and usability of government data, and supporting efficient and precise government decision-making.

c. AI Enablement Platform:

Provides full-stack AI capabilities, compatible with mainstream global open-source large models, covering model training to scenario-based applications, combined with security governance to ensure AI compliance and trustworthiness, improving government service and regulatory efficiency.

Smart Applications: The cloud platform adheres to open cooperation, widely collaborating with industry and local ecosystem partners, jointly building a sustainable and evolving national government cloud application system, targeting various scenarios such as " Good Governance, Boost Economy, and Benefit Society," creating an efficient and collaborative cloud service ecosystem, and solidifying the application foundation for digital transformation.

a. "Good Governance":

Building a unified government service platform to make public affairs more convenient and efficient; by integrating public service resources, promoting service equality and inclusiveness, enhancing public happiness; through data sharing and business collaboration, assisting in scientific government decision-making and precise social governance; promoting cross-departmental and cross-level collaborative office work, improving administrative efficiency and emergency response capabilities.

b. "Boost Economy":

The national government cloud is the foundation of digital economic development, promoting the digital transformation and upgrading of traditional industries, and cultivating new economic growth drivers.

3)"Benefit Society ": By building inclusive platforms such as smart education and smart healthcare, narrowing the urban-rural digital divide, improving the accessibility of

basic public services, and enhancing public welfare.

Data Sovereignty: The national government cloud is deployed locally, ensuring that all core data can be stored and operated on controllable cloud platforms within the country.

2. Implementation Cases

The establishment of the Uzbekistan government cloud, serving as a national data center, was made a top priority for the government over the next two or three years. A countrywide e-Government system based on Huawei Cloud Stack, a secure, reliable cloud platform, was deployed in this DC to quickly launch 307 public services on the government's web portal. It provided government services for 34 million users throughout the country. Centralized deployment and multi-level VDCs enabled rights- and domain-based management and allowed the system to adapt to the multi-level organizational structure of Uzbekistan's government agencies, and promoted precise resource quota management. Plus, using intelligent O&M tools, two or three onsite engineers were just needed to handle routine problems. After visiting the national government cloud in September 2022, the president of Uzbekistan called it the "heart" of Uzbekistan's digitalization. Since then, the national government cloud has become a benchmark project for Uzbekistan's national digital transformation and been visited by many foreign customers. Moving forwards, the Uzbekistan government cloud will continue to add new cloud services and serve Chinese enterprises going global, carriers, and local large enterprises.

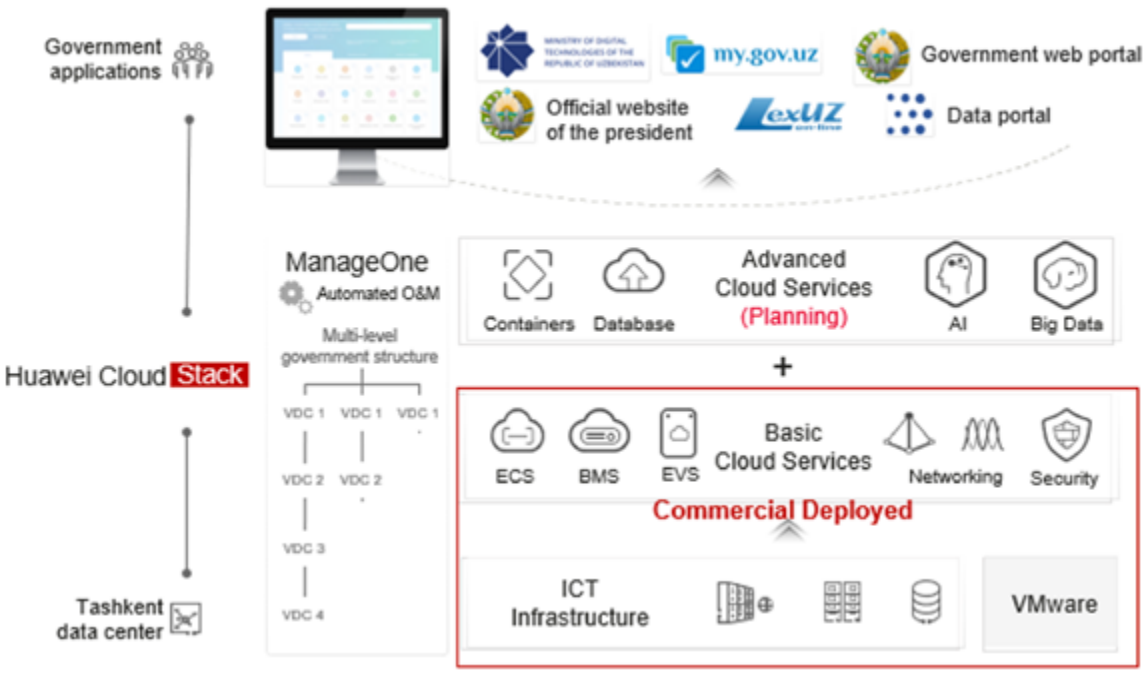

Figure 8. Case Architecture Diagram

B: Provincial and ministerial government cloud solutions

1. Overview

This project proposal is to undertake the cloud service platform development for an overseas provincial and ministerial cloud computing center. To meet the intensive development needs of various departments, and in the process of increasing capacity and expanding capabilities, the government cloud infrastructure, purchased from private sources, will provide infrastructure support services, including network access, computer room environment, hardware, basic software infrastructure, and related management.

This proposal utilizes a software-defined technology approach and a hyper-converged architecture. Compute virtualization, storage virtualization, network virtualization, and cloud management systems must all meet these basic requirements and incorporate extensive security capabilities. The scope of implementation includes resource pools and cloud management systems for computing, storage, and networking in the headquarters computer room. This includes the design and implementation of each resource pool, the overall network topology, and the design and implementation of storage architecture and specifications based on storage virtualization.

The overall goal is to integrate the existing physical system environment supporting internal and external business systems, build a unified government cloud platform, and connect e-government networks and internet business systems to the cloud platform. This will also enable provincial and municipal departments and bureaus to access internal network application systems, and comprehensively strengthen the security of existing networks and links. After the construction of the government cloud platform is completed, the e-government networks and the Internet of various provincial and municipal departments will gradually be migrated to the cloud platform architecture. In the future, new business needs will also be horizontally expanded through the cloud platform architecture, simplifying the difficulty of platform expansion.

2. Implementation Cases

It is currently being implemented in public industries in China, Hong Kong, and Southeast Asia, helping more than 50 provincial and ministerial customers to complete the construction of digital government cloud platforms. A cloud client of a Malaysian municipal government has integrated virtualization platforms and physical servers through this solution, significantly reducing software licensing and costs. The overall resource TCO has been reduced by about 50%, and the resource utilization rate has been increased by about 30%. At the same time, the solution comes with a built-in backup solution that can help protect customer data when it is damaged or infected by malicious software. The data can be easily restored through the management platform. When a node fails, the virtual machine is equipped with automatic switching function, which shortens the recovery time to about 2 minutes and ensures high availability of the solution.

C: AI Government Consultation Assistant

1. Overview

This solution leverages key technologies such as artificial intelligence and large language models, building upon real-time data resource sharing to deliver more intelligent, precise, and user-friendly government service consultation and guidance capabilities. It addresses challenges faced by enterprises and citizens—including difficult access to services, slow processing, and cumbersome procedures—thereby enhancing the digitalization and intelligent service levels of government administration. Key functional features include:

Intelligent Consultation: Integrating government knowledge bases, the AI-powered consultation assistant enables enterprises and citizens to pose inquiries and automatically receive replies containing relevant policies and procedural requirements, delivering highly accurate and tailored responses.

Service Recommendation: Based on user queries, the system automatically identifies regional specifics and service categories to provide proactive recommendations for relevant procedures, achieving "direct answers to your questions, anticipation of your needs."

Intelligent Guidance for Ambiguous Queries: For colloquial or vague descriptions provided by users, the system analyzes business attributes and contextual scenarios to automatically navigate relevant procedures. Users can then select services aligned with their actual requirements.

The AI-powered Government Service Consultation and Guidance maintains compatibility with Spark large models and DeepSeek multi-model engines, while integrating specialized capabilities such as traditional voice recognition and intent recognition. Through engineering-oriented reasoning chains for government service workflows, it delivers Q&A guidance services to citizens and enterprises.

This solution not only delivers convenient and human-centered service experiences to businesses and citizens through large language model (LLM) technology, but also establishes a domain-specific knowledge architecture for government services. This infrastructure provides foundational data support for cross-departmental scenarios. Featuring industry-standard open APIs, the system enables rapid integration with external platforms to deliver unified service ecosystems, thereby elevating end-to-end service satisfaction throughout business processing cycles.

By leveraging optimized integration of LLMs with domain-specific knowledge repositories and industry corpus datasets, the solution achieves >90% accuracy in governmental Q&A and service recommendation scenarios. Through dual content auditing mechanisms (input validation + output verification), it ensures enhanced controllability of AI-generated responses while maintaining compliance with stringent security protocols.

2. Implementation Cases

Within China, this solution was deployed in Hefei, Anhui Province in 2025. Leveraging dual AI engines (Spark + DeepSeek), it mastered professional terminology for 4,500 government service standards while demonstrating 90% accuracy in service item recommendation,93% accuracy in procedural consultation responses.

Within China, this solution was deployed in Huangshi City, Hubei Province in 2024. The Xiaohuang Online platform has mastered 1,000+ local policy documents specific to Huangshi,assimilated 20,000+ colloquial expressions through continuous learning, covered 1,800+ service inquiry scenarios,developed 25 one-stop service guidance modules, supported 5 major high-frequency service categories, and processed 260,000+ cumulative Q&A interactions

(ii) Education

A: Global AI-Powered Smart Education Solution

1. Overview

This solution is designed for primary and secondary schools, vocational colleges, higher education institutions, and adult education organizations worldwide. It systematically addresses key challenges such as unequal resource allocation, lack of personalized teaching, low interaction efficiency, and subjective evaluation, driving the transformation of education from "standardization" to "intelligentization."

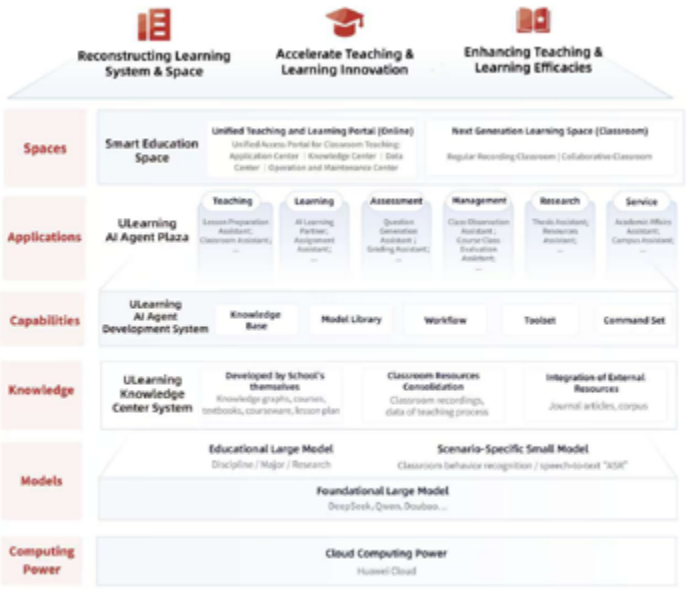

Figure 9. AI-Powered Smart Education Solution Architecture Diagram

This solution is driven by the deep integration of AI and education, providing an end-to-end intelligent solution for institutions across different educational stages and types worldwide. Its value lies in four main aspects:

Promoting Educational Equity – By leveraging global resource allocation and interconnected cloud platforms, the solution enables cross-regional sharing of quality educational resources, narrowing educational gaps between urban and rural areas, regions, and countries.

Enhancing Teaching Quality – With AI smart classrooms, ULearning management system, and AI smart course development, it precisely matches learning needs, fostering personalized learning and skill enhancement.

Optimizing Management Efficiency – The all-in-one server

removes barriers between data, content, and applications, enabling full visibility, control, and evaluation of the education process.

Supporting Sustainable Education Development – Through a global operational support service system, it continuously empowers teachers and institutions with digital capabilities, driving the transformation of education from standardization to intelligentization, and contributing to the high-quality development of global education systems.

2. Implementation Cases

In China, this solution has been deployed in more than 100 universities, including Tianjin University, Shandong University of Technology, Dongguan University of Technology, and Zhejiang Shuren University. For example, Zhejiang Shuren University has built or upgraded 238 AI classrooms and launched the integrated "ShuZhi Learning Platform" and the "MiaoMiao" institutional AI platform. Leveraging eight core teaching applications and six key capabilities—such as intelligent lesson preparation, dynamic test generation, in-class interaction, learning diagnostics, resource recommendations, and AI-generated micro-lectures—the university has realized AI empowerment across all teaching scenarios, covering "teaching, learning, management, assessment, and evaluation."

Internationally, the solution has served over 800 institutions across the Asia-Pacific, Middle East, Africa, and Latin America, benefiting more than 5 million teachers and students.

In Africa, the most representative case is the smart teaching solution developed for UnISCED University in Mozambique. The solution includes the construction of smart classroom, the deployment of smart classroom interactive teaching system (including AI enhanced online exam system) and smart lecture capture management system which can realize remote or hybrid interactive classroom teaching, live session with recording and smart normalized recording of physical class sessions from multiple POVs. This solution has further strengthened UnISCED University's operational capacity as a leading professional distance education institution in the Portuguese-speaking region of Africa, ensuring educational equity and quality while improving teaching efficiency and effectiveness.

Figure 10. The Smart Classroom Built for UnISCED University

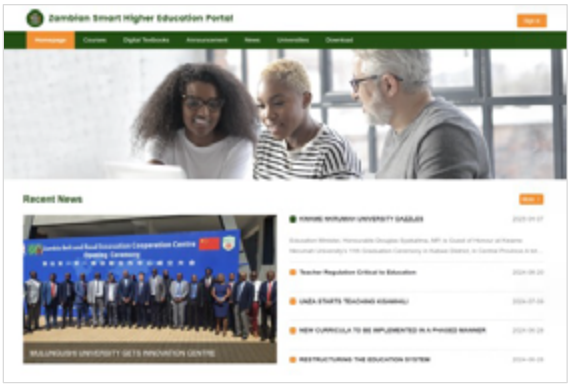

Figure 11. Zambian Smart Higher Education Portal

Meanwhile, Wenhua Online also developed the National Smart Higher Education Portal for the Ministry of Education of Zambia, integrating 12 higher education institutions, facilitating resource sharing and inter-connection among universities and colleges. Teachers and students can log in via the cloud to conduct online and blended learning, helping the country promote educational equity and enhance the digital learning capabilities of both faculty and students.

Similarly, Wenhua Online in collaboration with Huawei and Ethio Telecom, jointly built a national cloud-based smart education platform for Ethiopia. The platform supports the implementation of online and blended teaching models, helping Ethiopia drive the digital and intelligent transformation of higher education, primary and secondary education, as well as vocational training.

B: Inclusive Education Solutions

1. Overview

This solution achieves the digital inclusion of education through cloud-network integration technology, effectively addressing issues such as uneven distribution of educational resources and significant disparities in teaching quality. The main functional features include: an educational cloud platform that facilitates the sharing of high-quality educational resources, integrating courses across various subjects from elementary to high school, lectures by renowned teachers, and experimental teaching videos, available for use by various educational institutions as needed; secondly, remote teaching interaction, utilizing real-time audio and video transmission technology to enable online interactive teaching between teachers and students in urban and rural schools, supporting functions such as online Q&A, classroom hand-raising, and homework submission; thirdly, personalized learning guidance, leveraging big data analysis technology based on student learning data to push personalized learning resources and

suggestions to students; and fourthly, the informatization of educational management, achieving intelligent management of student enrollment, teacher teaching evaluations, and teaching resource scheduling.

Inclusive education solution is centered around the "One Cloud, Two Networks, N Classrooms" core architecture. The technical framework includes: one educational cloud (educational platform and resource library), two universal education networks (5G/fiber optic networks connecting the cloud platform with school networks), and N smart classrooms (for remote teaching, VR training, dual-teacher classrooms, and other scenarios).

Through cloud-network integration technology, the solution enables digital education in remote areas, supporting remote interactive teaching, educational resource sharing, intelligent classroom management, and learning analysis functions, thereby breaking geographical barriers and delivering high-quality educational resources. For network interconnection across all schools, SD-WAN technology is used to build a dedicated educational network covering over 200,000 devices in 5,000 schools; for Wi-Fi 6/7 in all campuses, the solution ensures full coverage of wired/wireless local area networks within schools, allowing every student and teacher to access online digital content and

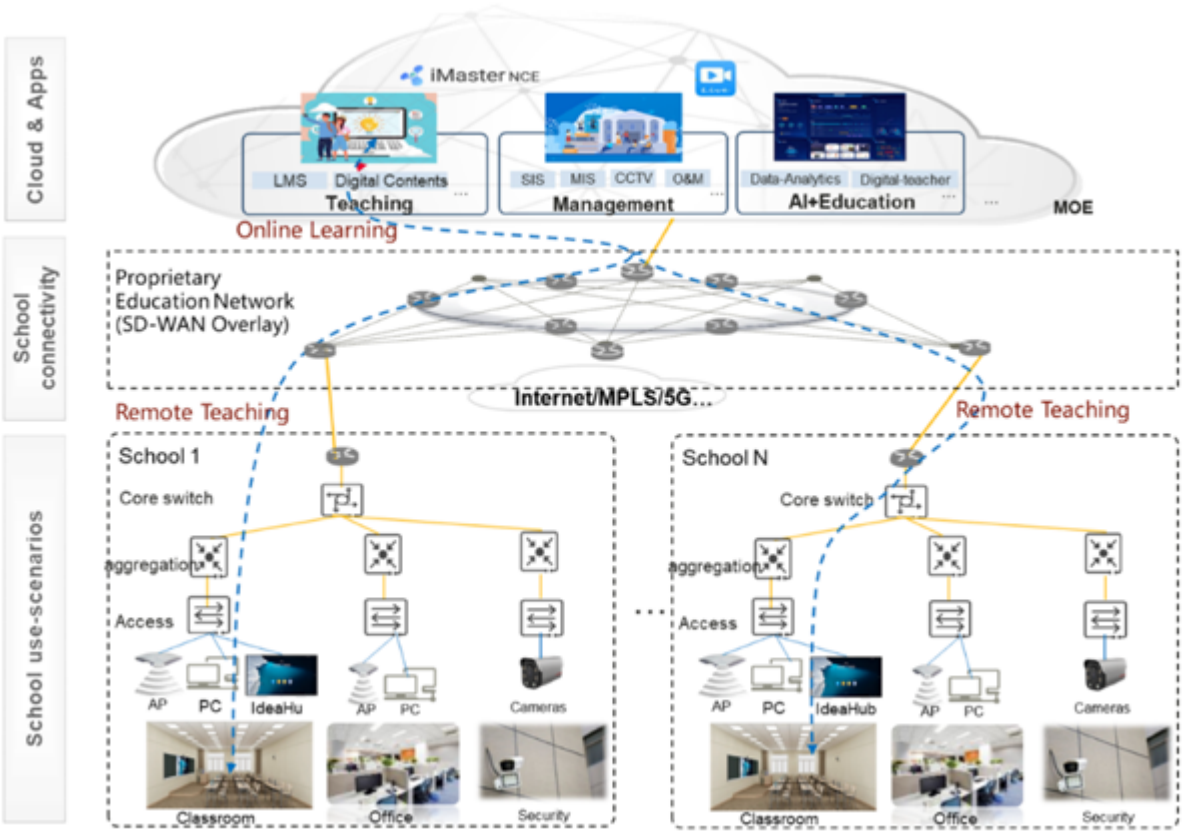

Figure 12. System Architecture Diagram

applications. Smart classrooms enable digital teaching and remote interactive learning, promoting educational equity and quality improvement.

This solution addresses the weak infrastructure in remote areas by establishing highly reliable network connections and a standardized education cloud platform. Network coverage ensures equitable access to educational resources, while the cloud platform facilitates the open sharing of teaching materials, thereby promoting educational equity.

The education cloud platform is compatible with applications and resources from multiple vendors, supports standardized interfaces, and promotes collaborative innovation within the educational ecosystem. This solution leverages 5G private networks and edge computing to enable localized data processing, ensuring the privacy of teaching data and the stable operation of the system.It also supports collaboration among the government, operators, and enterprises. For instance, Belarus Telecom has promoted smart home solutions through a master integration model, which can learn from to facilitate inclusive education.

2. Implementation Cases

In "Smart School Networking Project" in Ghana, Africa, fiber-optic networks and an educational cloud platform have been deployed in remote primary and secondary schools, covering over 100 institutions, enabling teachers and students to conduct synchronous online teaching and access resources.

(iii) Healthcare

A: National Social Security and Medical Insurance Digital Solution

1.Overview

This solution is applicable to countries and regions with uneven medical insurance coverage, funding shortages, inefficient governance, and lagging digitalization. It is particularly relevant to developing countries with significant urban-rural disparities and underdeveloped social security systems. It can effectively address issues such as coverage gaps, fund fraud risks, and inefficient services. The key features of this solution include:

Fully electronic processing: enabling online processing of insurance registration, payment settlement, and other processes, so that it an improving the work efficiency;

Identity Registration and Verification: The platform establishes comprehensive personal profiles by recording individuals' core information, contribution histories, and entitlement data. Through integration with the national population registry and the public security ID authentication system, it ensures the authenticity and validity of identity documents. Hospitals, pharmacies, and social security service points can authenticate identities instantly, thereby ensuring secure access to services, preventing fraud, and enhancing the efficiency of social security and healthcare management.

Convenient public services: integrating online and offline channels to provide one-stop services for inquiries and processing;

The big data analytics and AI-powered digital foundation created by this solution provides tangible support for the digital transformation of the social security system. To enhance openness and interoperability, the integrated platform breaks down departmental and institutional barriers, enabling data interconnection and interoperability among departments such as social security, medical insurance, finance, human resources and social security, and health and medical care. This provides real-time and accurate data support for policy formulation, risk prevention and control, and budget planning, promoting scientific and intelligent decision-making. To enhance security, intelligent anti-fraud and data encryption mechanisms effectively reduce the risk of fund fraud losses. The system automatically identifies violations such as duplicate insurance enrollment, false medical treatment, and insurance fraud, thereby ensuring the efficient and scientific use of medical insurance funds.

At its core, the platform focuses on the data assetization of national healthcare and social security information. By aggregating, cleansing, and managing multidimensional data — including population demographics, employment records, contribution histories, medical treatment data, and benefit payments - the system establishes an authoritative, comprehensive, and traceable national-level social security database. This enables end-to-end collaboration and efficient linkage across the entire process of social security service delivery and governance.

Ultimately, the platform not only facilitates the government's digital transformation in healthcare and social security, but also forms a sustainable and evolving digital infrastructure for national public governance - one that improves citizens' daily service experience while providing data-driven insights for policy optimization.

2. Implementation Cases

In African country A, a system for expanding pension coverage is successfully launched and it increases the pension coverage from 26% to 35% within six months. During the system's development, over 800 government staffs were trained, significantly improving their professional capabilities and earning high recognition from the local social security department.

In African country B, after the launch of a medical insurance and social security anti-fraud system, AI-powered identification of unusual medicine purchases and fraudulent reimbursements reduced the loss rate of medical insurance funds by 22%. These savings benefited 500,000 insured persons in rural

areas, significantly increasing their satisfaction to the government authority.

In African country C, the system's integrated collaborative platform enabled data exchange between medical insurance, tax authorities, and medical institutions, reducing inter-provincial medical settlement times by 80%, laying a solid foundation for achieving the country's goal of achieving 50% medical insurance coverage by 2030.

Based on the practical experience of African countries, this solution is designed to align with the government's current foundations and needs, and to build a unified social security and healthcare collaboration platform. Without disrupting the existing system landscape, the platform enables the integration, consolidation, and sharing of current information systems, databases, and applications, thereby gradually breaking down data silos across departments.

(iv) Taxation

A: Smart Taxation Solutions

1. Overview

The construction of smart taxation is guided by the needs of taxpayers, based on intelligence and data-driven approaches, and supported by risk and credit management. It aims to facilitate taxpayers in handling tax matters and enable tax authorities to manage taxes intelligently, thereby building a smart, fast, efficient, and secure smart taxation ecosystem.

For corporate and individual taxpayers, simplified procedures and personalized precision services can greatly optimize the tax service experience and reduce the tax compliance cost.

This solution is centered around a core architecture of "One Cloud, One Network, and N Applications," powered by data governance and AI capabilities, to deliver intelligent, precise, and personalized services.

"One Tax Cloud" provides application enablement, data enablement, and AI enablement for the cloudification and mobilization of tax applications, accelerating the intelligent transformation of customer applications. The business launch

cycle is shortened from months to weeks, with smooth evolution of both new and old applications. It unifies data standards and governance tools, accumulates data assets, and avoids data silos and redundant construction. It injects intelligent capabilities into applications to achieve intelligent services and processes.

"One Tax Network" enables intelligent and visual network management and maintenance, significantly reducing network failures and security risks. Through flexible multi-path combinations, it greatly enhances network bandwidth utilization, thereby reducing network usage costs and providing tax bureaus with high-speed, stable, and comprehensive network connectivity.

“N Applications” mainly include the Core Tax Administration System, the E-Invoice System, and Tax Big Data Applications.

2. Implementation Cases

This solution assisted the Moroccan Tax Authority in upgrading its system architecture in North Africa, addressing performance bottlenecks during peak business periods. This upgrade resulted in a 20% increase in business processing efficiency, ensuring no significant delays or lags during peak operations. The system achieved "0" interruptions in online business operations and utilized AI-based predictive maintenance tools, reducing potential faults by 80% and ensuring smooth business operations.

B: National Digital Tax Solutions

1. Overview

Driven by the vision of building “digital public infrastructure”, GSAFETY is actively engaged in shaping the global digital governance landscape, providing global governments with full-lifecycle, end-to-end intelligent taxation solutions. By establishing a unified tax informatization platform, the solution streamlines tax collection and administration, taxpayer services, supervision, and decision-making support, creating an integrated and intelligent tax ecosystem that lays a solid foundation for national-level digital finance development. The solution portfolio includes a tax administration platform, invoice management platform, audit and investigation Platform, decision-support platform, taxpayer service platform, risk warning and data analysis tools. It integrates core capabilities such as identity authentication, data security, business process automation, and reporting and decision-making support. It is widely applicable

to key scenarios such as fiscal taxation and economic regulation, playing a vital role in combating tax evasion, while enhancing tax risk prevention and control.

The project is characterized by "business closed-loop, convenient interaction, data intelligence, technological flexibility, and systematic security." It delivers a full-process closed-loop workflow covering both tax services and tax administration—spanning registration, filing, collection, and archiving—while leveraging intelligent management to support decision-making and risk oversight. The system serves multiple roles and terminals, ensuring convenient access via both PC and mobile. Through robust data governance and intelligent analytic models, it transforms raw data into actionable, precision-driven tax enforcement capabilities. A high-availability, scalable distributed architecture ensures resilience under high concurrency and rapid business evolution. End-to-end security safeguards protect sensitive tax data and maintain stable, uninterrupted system operations.

The project adopts a "Layered Architecture + Dual-Safeguard" design to provide comprehensive digital support for the full tax administration lifecycle. From the infrastructure layer, which delivers core hardware resources such as data centers, network connectivity, and storage, to the data layer, which integrates transaction databases, data warehouses, and digital archives for real-time processing and record digitization, each tier is built for efficiency and scalability. The support layer leverages middleware, ETL processes, GoldenGate replication, Redis caching, and other core components to ensure stable operations, while the application layer incorporates tax calculation rules, transaction processing engines, risk analytics models, and end-to-end business and management applications. At the top, the presentation layer enables seamless access across both desktop and mobile devices. Complementing this architecture is a robust information security and operations assurance framework that protects data integrity, system stability, and the secure execution of tax administration.

2. Implementation Cases

Under Angola's national tax reform initiative, GSAFETY implemented the Angola SIGT Project (Integrated Tax Management System), becoming a key technological support in the country's tax system transformation. As a flagship project of Angola's national-level "digital public infrastructure," it covers 7 tax districts and 130 tax offices nationwide, manages 11 core tax categories, and serves more than 3 million taxpayers and a population of over 30 million. The system successfully integrates petroleum and non-petroleum tax source data, enabling inter-department information sharing and providing the General Tax Administration, the Ministry of Finance, and taxpayers with a unified, efficient, and transparent information service and regulatory platform.

Since its deployment, Angola has achieved significant improvements in tax administration efficiency, taxpayer service experience, and fiscal data transparency. Tax authorities can now monitor tax source dynamics in real time, conduct risk alerts, facilitate online filing and automated audits, effectively reducing labor costs and closing gaps in tax collection and administration. The Ministry of Finance now benefits from data-driven budgeting capabilities, accelerating the country's shift from "resource-dependent" to "digitally driven" fiscal management. Leveraging

AI technology, the project enables faster and more accurate tax data processing, streamlining taxpayer service workflows and improving the overall user experience. It also provides governments with powerful tools for tax risk prevention and data-driven policy-making, accelerating the intelligent transformation of the tax system and laying a solid foundation for the growth of the digital economy. As a practical sample of Chinese enterprises supporting African nations in building digital public infrastructure, the project offers valuable insights for Belt and Road Initiative countries seeking to develop sovereign, sustainable, and secure digital governance capabilities.

As a model of national "digital public infrastructure," the Angola SIGT Project fully demonstrates the deep empowerment of public governance through digital technology. By introducing China's advanced tax administration concepts, the project has significantly enhanced Angola's fiscal collection efficiency and transparency, achieving digital collection for over 95% of taxes, 13.7 trillion kwanzas tax revenue in 2022, and non-oil revenues growing by 40% year-on-year. Meanwhile, the establishment of the invoicing system, intelligent risk control, and online service framework has effectively curbed tax evasion, driving tax system reform and government process reengineering. The project has not only enhanced national governance capacity, but also promoted technology localization and capacity transfer, making it a model of collaborative digital governance under China–Africa cooperation, BRICS partnership, and the Belt and Road Initiative framework.

(v) Digital Payment

A: Open Source Operation System

1.Overview

OpenAtom openEuler ("openEuler" for short) is an open source project incubated and operated by the OpenAtom Foundation. It is a secure, stable, and easy-to-use OS for digital infrastructure that fits into any server, cloud, edge, and embedded environments, across diverse computing architectures.

The main technical architecture is as follows:

The openEuler community is a portal available to global developers, with the goal of building an open, diversified, and architecture-inclusive software ecosystem for all digital infrastructure scenarios. It has contributed significantly to the development of enterprise software, hardware, and applications. openEuler adheres to global standards like SPDX and is the first open source community to achieve conformance with OpenChain ISO 18974 certification, reflecting openEuler's unwavering commitment to security and compliance.

2. Implementation Cases

As of August 2025, openEuler has surpassed 4 million downloads worldwide, reaching over 2,000 cities across 155 countries and regions. With 39 mirror sites, it is available on Alibaba Cloud, AWS, Azure, and Tencent Cloud, and is accepted as the Docker-Sponsored OSS.

openEuler has been widely adopted in pivotal sectors such as finance, carrier, energy, and public services. According to IDC, openEuler was expected to take a leading position in new market share across the above industries.

The digital infrastructure solution, powered by openEuler OS and FinTech 2.0, ensures high reliability and sustainability, meeting increasingly stringent data compliance requirements. The MPA mobile payment, powered by this solution, has achieved remarkable success in Kenya. With cloud-based deployment, the solution enables on-demand resource allocation,

offering refined operations and automated management to support MPA's fast-paced business growth. This solution resolves horizontal scaling and performance challenges, with its application software supporting unlimited horizontal scalability, delivering real-time transaction performance of up to 10,000 TPS to meet MPA's high concurrency needs.

Built on openEuler, MPA supports concurrent access for 56 million users, enabling mobile payments to become more accessible and convenient for people in Kenya. This demonstrates that this openEuler-based solution has been highly standardized and is ready for bulk replication and rapid rollout.

openEuler enhances openness and interactive operations through an LLM-based natural language interaction platform, enabling intelligent scheduling, O&M, and tuning. This effectively simplifies implementation by addressing ecosystem fragmentation, enabling enterprises to quickly turn AI solutions into scalable products and unlocking the innovative value of intelligent data applications.

In addition, openEuler-based solutions have provided a highly reliable digital foundation for diverse industries like finance, driving technological innovation and ecosystem co-construction. These solutions effectively address critical pain points and serve as benchmarks for practical applications of open source operating systems.

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