GovTech & Public Finance Operations

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Outline

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02 Impact: Global Examples

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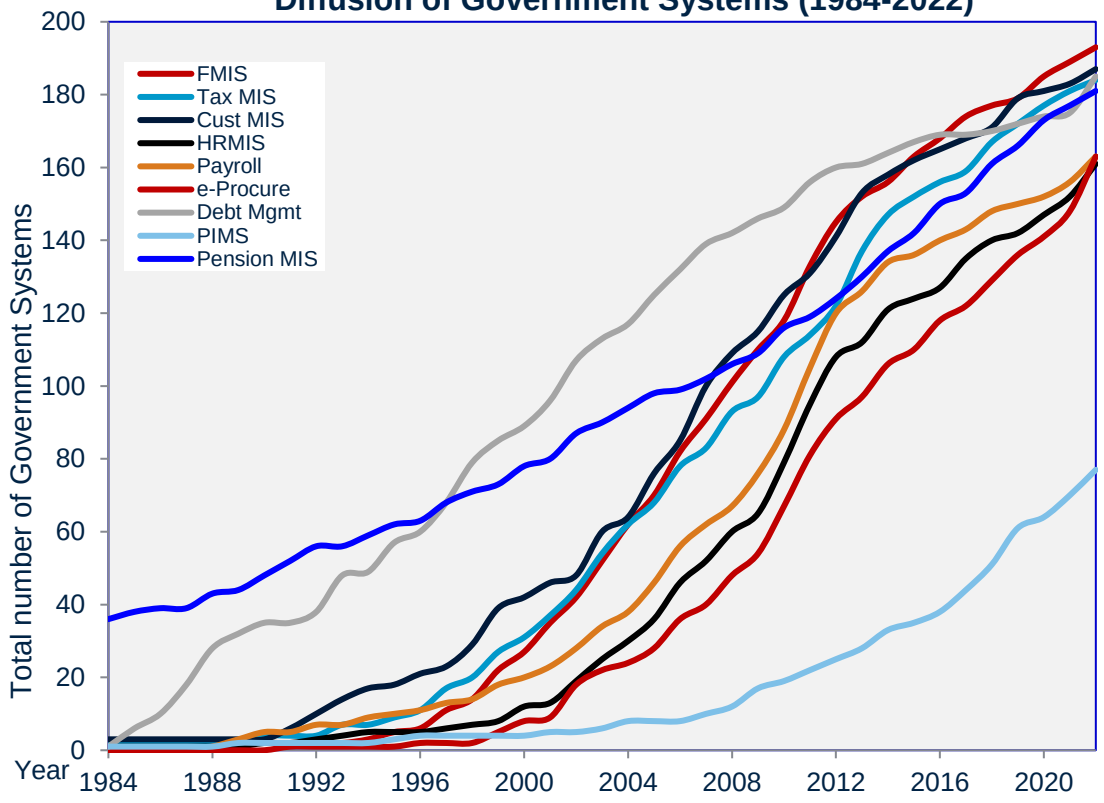
Setting the Stage: GovTech Global Trends

Two Important trends in the GovTech Landscape:

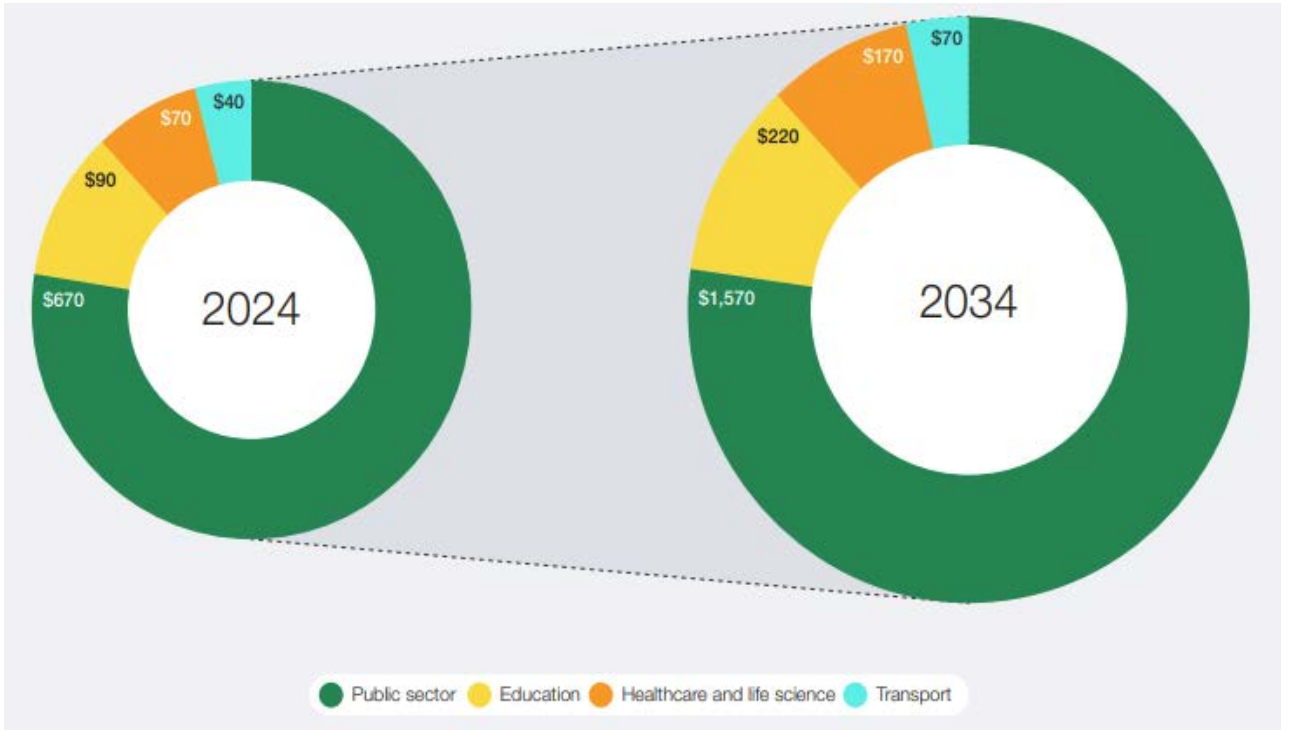
- A sustained, multi-decade diffusion of Core Government Systems
- A rapidly increasing public sector IT spending

Diffusion of Government Systems (1984-2022)



Source: The World Bank Govtech Maturity Index - GTMI (2022)

IT Spending in Various Sectors ($billions) - Estimated growth 8% per annum



Source: World Economic Forum (Global Impact of GovTech 2025)

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Illustrative Examples 1/4

Armenia: AI-based Tax Fraud Detection

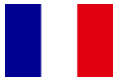
The State Revenue Committee (SRC) has piloted AI-powered tools that leverage natural language processing to analyze invoices, network analysis to detect fraud rings, and predictive modeling to flag anomalies such as duplicate filings and identity mismatches. The system is designed to identify risks of tax fraud and develop data-driven audit plans.

Impact:

Compliance Gains: The government expects AI to improve compliance rates by 15-20% and reduce administrative overhead.

Fraud Detection: AI model pilots predict audits with over 90% accuracy and fraud with over 70% accuracy. Audits based on the top decile of predicted fraud are nearly twice as successful as random audits.

France: AI-based Risk Assessment



France's tax administration has integrated AI and machine learning into its risk management and audit processes. The system uses aerial imagery, social media, and financial data to detect undeclared property, fraudulent grant applications, and unreported income.
AI algorithms analyze large datasets to identify suspicious patterns, prioritize audits, and flag high-risk cases.

Impact:

Fraud detection: Tax fraud investigations and penalties reached €16.7 billion in 2024, a 10% increase from the previous year and more than double the 2020 figure. AI also detected 44,000 fraudulent renovation grant applications in 2024, totaling €230 million in misallocated funds.

Suspicious cases: 60,500 suspicious cases detected in 2024, with 67% confirmed as fraud.

India: GSTN Platform

India's Goods and Services Tax Network (GSTN) is the digital backbone of the country's unified indirect tax system, enabling seamless registration, return filing, payment on a scalable cloud-based platform. GSTN processes over 1.3 billion invoices monthly.

Impact:

Tax Revenue Growth: Gross GST collections rose from ₹7.4 trillion in 2017-18 to ₹20.18 trillion in 2023-24

Fraud Detection: Within three months of launching BIFA (Business Intelligence and Fraud Analytics), tax officers uncovered $50 million in fraud.

Ease of doing business: GST has slashed the preparation, filing and tax payment time to 36 hours, which is almost a third of the 105 hours that were spent earlier

Illustrative Examples 2/4

Indonesia: SAKTI Platform

Integrated planning, budgeting, and treasury on a unified platform with 8 modules.

Launched in 2017, SAKTI consolidated previously disconnected systems, eliminating data duplication. The platform serves over 24,000 government spending units nationwide and integrated data into SPAN (FMIS).

Impact:

Real-Time Data Integration: Enables agencies to monitor budget allocations and spending in real time, reducing the need for manual reconciliation and improving decision-making.

Enhanced Transparency and Accountability: Standardized processes and digital trails increase auditability and reduce opportunities for fraud or mismanagement.

South Korea: dBrain+ Open Fiscal Data Platform

Launched as an integrated financial information system supporting major fiscal reforms (program budgeting, double-entry and accrual-basis accounting). The Open Fiscal Data platform, launched in 2015, allows users to analyze fiscal data. In 2022, a new AI-powered version was introduced, enabling daily treasury balance forecasts and digital execution of all government financial activities

Impact:

Transparency: South Korea consistently ranks among the top countries globally for budget transparency, including being a top performer in the Open Budget Index in the Asia-Pacific region.

Intelligent Forecasting: The dBrain+ system (AI-powered since 2022) provides daily treasury balance forecasts and real-time data for more informed policy decisions

Vietnam: TABMIS

Vietnam's Treasury and Budget Management Information System (TABMIS) is a centralized FMIS that enables the government to plan, execute, and monitor budget in real time across all treasury offices and financial agencies in the country. TABMIS is used by over 1,500 treasury offices and financial agencies across all 63 provinces and cities, providing comprehensive control over budget execution, payment and receipt processing, and accounting.

Impact:
Transparency: TABMIS has improved transparency and control over cash balances, with spending units no longer permitted to maintain their own bank accounts. This reduced fragmentation in government receipts and payments.

Execution Reports: The system allows for detailed out-turn information to be compared with original allocations, supporting more accurate and timely budget execution reports.

Illustrative Examples 3/4

Brazil: Governance Risk Assessment System (GRAS)

The World Bank developed and piloted an advanced data analytics and artificial intelligence (AI) system to promote the identification of fraud and collusion in public expenditures.

To identify risks of control activities, the GRAS surfaces over 200 red flags around Inconsistency with Partners, Conflict of Interest, Inconsistent Corporate Characteristics, Atypical Procurement Patterns, and Bid Rigging Patterns.

Impact:

Shell Companies: Identified over 420 firms that won bids against companies that have a high likelihood of being shell companies.

Conflict of Interest: over 500 firms that are owned by public servants working at the same governmental agency

Colombia: Océano Analytics Platform

Colombia's Office of the Comptroller General developed Océano, an advanced analytics platform designed to detect irregularities and corruption risks within public procurement. Océano leverages Colombia's robust open contracting data infrastructure, primarily drawing from the SECOP II e-procurement system.

Tools like VigIA (developed by researchers and integrated into oversight workflows) use risk indices and predictive models to prioritize audits and investigations.

Impact:

Anomaly Detection: 27% of 7 million large government contracts (2014-2019) were found to be concentrated among a limited number of bidders, highlighting potential risks of collusion or market manipulation.

Ukraine: ProZorro

ProZorro is Ukraine's electronic public procurement system. At its core, it is a hybrid open-source platform that uniquely blends public and private digital infrastructure. The system's architecture is built around a central government-controlled database that stores all procurement data, while accredited private commercial marketplaces provide services.

Impact:

Cost Savings: Since October 2017, ProZorro has helped Ukraine save nearly $6 billion in public funds.

Increased Competition: The number of unique suppliers participating in government procurement tripled, and the proportion of contracts awarded competitively rose from 24.5% in 2015 to over 70% by 2017.

Illustrative Examples 4/4

Albania: AI-Driven Harmonization of Legislation

The initiative is to accelerate and streamline the harmonization of Albanian legislation with the EU acquis by leveraging AI technologies. This aims to reduce the time, complexity, and manual effort traditionally required in the legal transposition process, thereby enhancing Albania's progress toward EU accession while maintaining high legal standards and supporting legal experts with advanced AI tools.

Impact:

Automated translation and analysis: with over 95% accuracy using NLP; Comparative legal analysis between EU acquis and Albanian laws to detect overlaps, gaps, or contradictions; Drafting and alignment of transposed legal acts with national legislation; and Automatic generation of compliance tables to support documentation and monitoring processes.

Italy: pagoPA Smart Verification

pagoPA is an electronic system created to make payments to the Public Administration easier, safer, and more transparent. The platform enables citizens and businesses to make payments to public entities in a standardized manner, both online and offline.

Discovery is an AI Chatbot to help public entities and citizens to share experience and solve problems. It is implemented in the Developer Portal (a digital hub for technical communities) and helps resolve technical issues.

Impact:

Enhance the efficiency and reliability of internal document validation by automating the extraction and verification of key data from payment receipts, reducing manual workload and ensuring consistency at scale.

Uruguay: Data Analytics for Framework Agreements

Framework agreements are efficient purchasing strategies for products that represent low supply risks and that are purchased in large quantities and across many procuring organizations. Analytics can help define efficient purchasing strategies for different products, including by helping prepare framework agreements.

The Agencia Reguladora de Compras Estatalesand the World Bank developed an algorithm that considers the total procurement volume of a product per year, the number of procuring organizations purchasing it, and the number of purchases and procurement procedures per year.

Impact:

Identifying and giving priority to sectors and products with the largest potential for efficiency gains and for targeting the next steps in the preparation of framework agreements (for example, consolidation of purchases and market analysis).

World Bank GovTech Technical Assistance Support

GovTech & PUBLIC SECTOR INNOVATION

Finalized: 30+ Advisory activities: assessments, roadmaps, and strategies


Algeria


Bosnia and Herzegovina


Kenya


Rwanda


Bulgaria


Guatemala


Chile


Vietnam


Egypt


Indonesia


Panama


Solomon Islands


Nepal


Armenia


Zimbabwe


Cambodia

Ongoing: Twenty-two Projects are being supported

Public Financial Management:


Somalia


Ecuador


Ghana


Georgia


Togo


Philippines


Ethiopia


Mongolia

Justice & Rule of Law: Egypt, Ethiopia, Romania, Kenya…

Public Administration: Nigeria, Jordan, Brazil…

Anti-Corruption: North Macedonia, Guatemala, Philippines, Sri Lanka….

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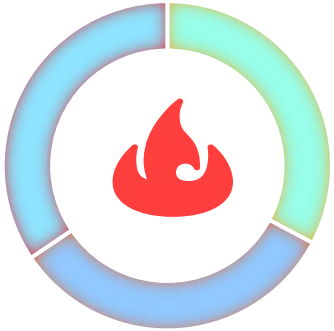
GovTech Lessons: Structural and Emerging Challenges

While there are Good Reasons to be Optimistic, current practices won't solve Structural and Emerging Challenges.

Structural Challenges

- Fragmented & Costly Systems: Lack of integration between core PFM systems
- Weak Data Governance: Absence of systematic processes, poor quality of data, and complex policies for data management.
- Outdated legal & Regulatory frameworks: May not adequately support data sharing or use of AI.
- Limited Skills: Shortage of public officials with the necessary technical and domain expertise.
- Vendor dependency: Vendor lock-in and over-reliance on external technology vendors.



Emerging Challenges

- Ethical use of AI & Algorithmic Bias: Ensuring fairness, preventing discrimination.
- Cybersecurity Threats: Protecting Core Government PFM systems from cyberattacks and data breaches.
- Data Privacy and Protection: Ensure data protection and maintain public trust.
- Procurement of emerging technologies: Rules are ill-suited for acquiring new technologies.
- Accountability: Establishing clear roles and responsibilities to ensure accountability for decisions made by AI.

Opportunity: Ministries of Finance

Five Key Reasons for Ministries of Finance to play a central and more active role in GovTech

01

Enhance Revenue

GovTech interventions can enhance revenue through interventions in Tax & Customs

02

Predictability and Execution of Public Finances

GovTech interventions can improve forecasting, predictability, and monitoring of expenditures

03

Control of Public Finances

GovTech interventions can help curb corruption and poor execution of public resources

04

Efficiency GovTech Investments

~45% of large Public Sector IT projects had cost overruns, averaging 108%, and 81% had delays of almost 50%*

05

Forefront of Data Analytics

Systematic exchange of knowledge that supports project implementation and innovation

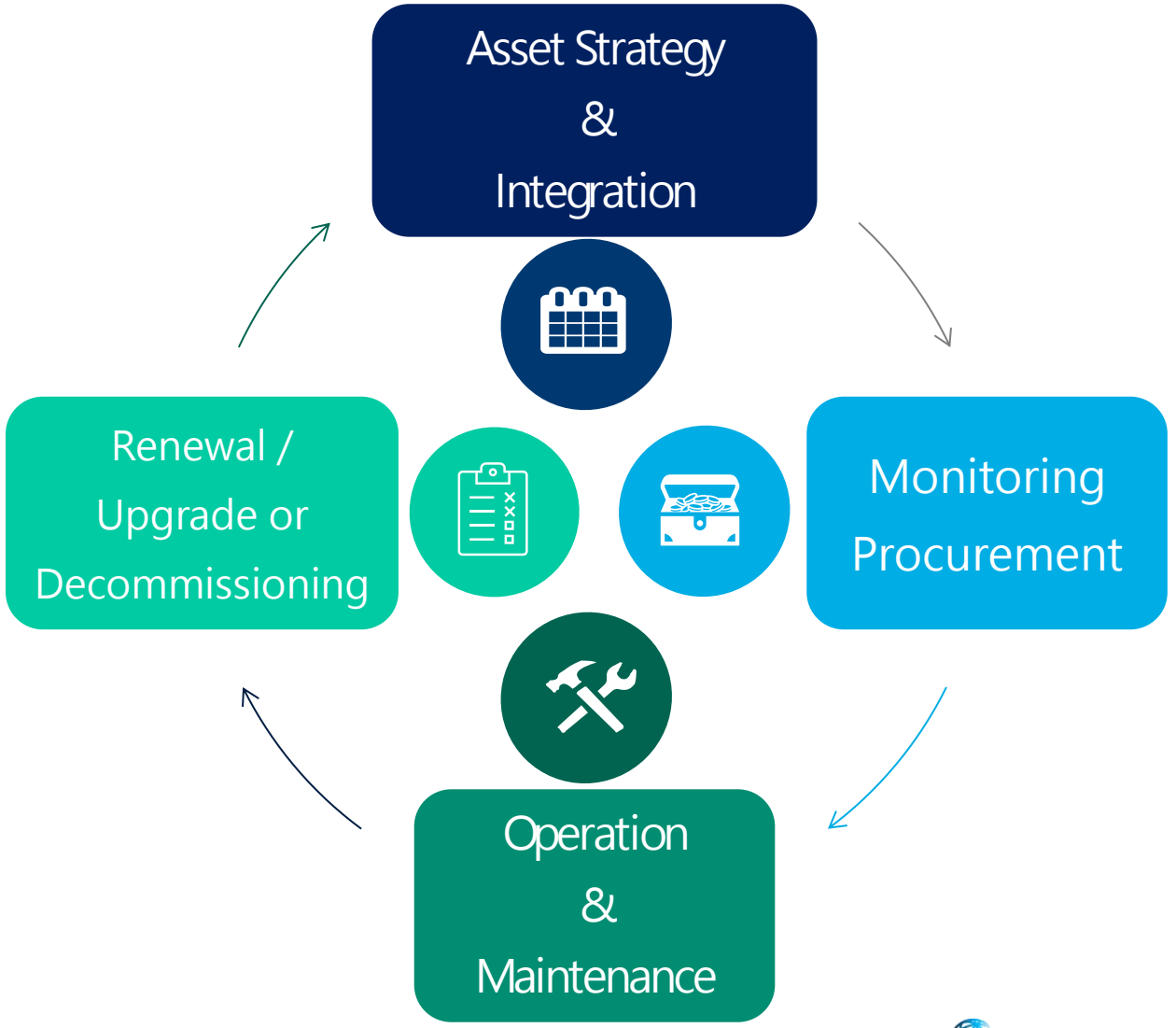
*Source: McKinsey-Oxford Global Projects study on large-IT projects, 2001-2017

Technology: From Tool to a Fiscal Asset – Ministry of Finance Stewardship

- Much like strategic non-financial assets, technology systems require a comprehensive Strategy, monitoring purchases, quantifying investments in operation and maintenance (including staff needs), as well as the decision to renew or decommission.

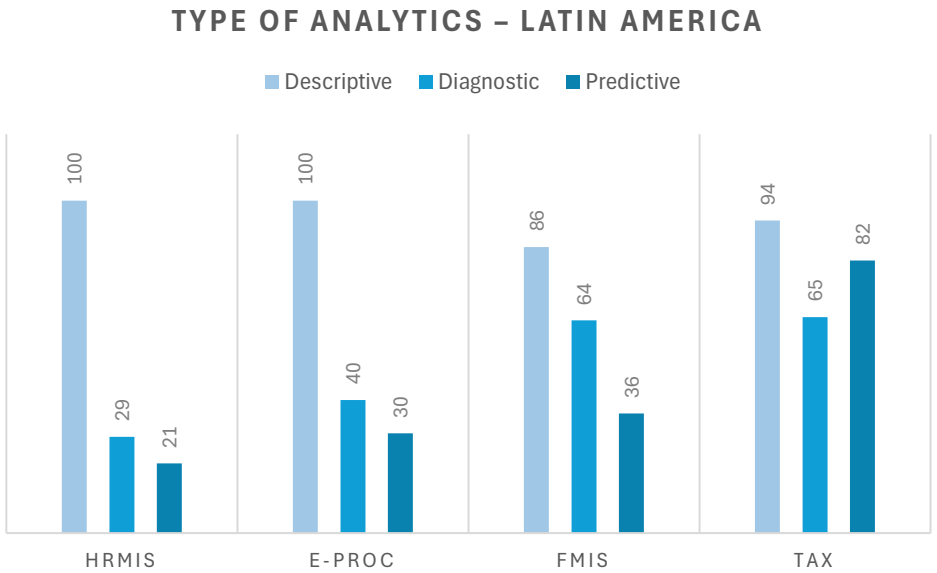
- Basic Monitoring and Stewardship functions emphasize that technology isn't a one-time purchase but a critical asset that must be strategically managed throughout its lifespan to deliver public value and effectively support government operations.

Simplified Monitoring and Stewardship Functions



Data: From Information to a Fiscal Asset – Ministry of Finance Stewardship

Ministries of Finance must treat data like an asset: protect it, manage it, and deploy it for impact.



Source: World Bank, Government Analytics Survey in Latin America and the Caribbean, 2024

Information

- Data trapped in systems and silos
- Poor data governance
- Inadequate staffing and data culture
- Ad hoc data analytics
- Organizational and regulatory constraints for use of data

Asset

- Data inventoried, maintained, and integrated
- Data Management & Technology ecosystem
- Workforce planning and development
- Systematic data analytics
- Organizational design and regulations to ease flow of data

Evidence

Embedding the systematic Use of Evidence for Decision-Making across Public Finance Operations

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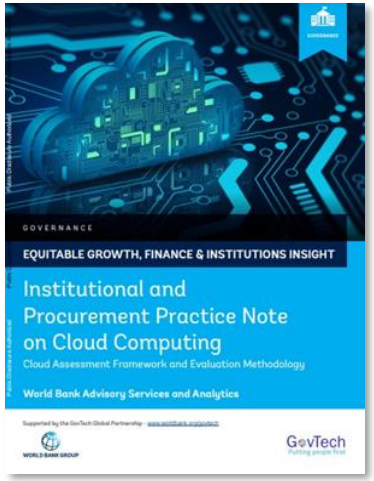
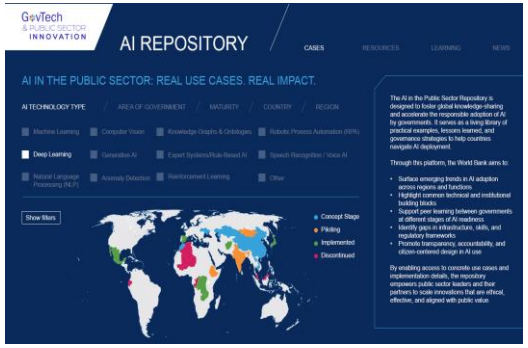
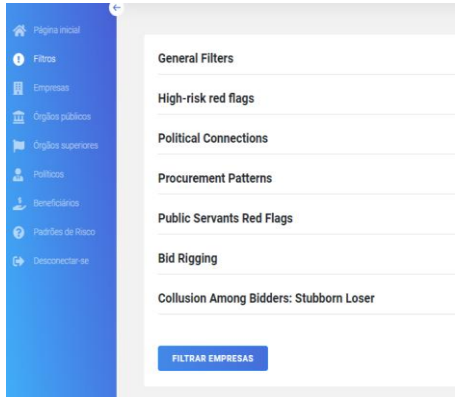
The World Bank: GovTech & Public Sector Innovation

Producing Global Knowledge & Providing Innovative Technical Assistance

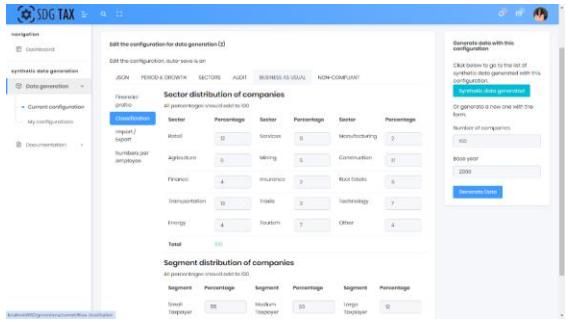




DARA: Treasury, Customs, Tax Administration



Governance Risk Assessment System (GRAS): Data Analytics to Deter Corruption



AI to Select Audit Cases (AISAC) in Tax Administration

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Conclusions

Trends in GovTech:
- A sustained, multi-decade diffusion of Core Government Systems
- A rapidly increasing public sector IT spending

Role of Institutions:
- Adequate institutional arrangements
- Analog is as important as technology

GovTech Lessons:
- Structural Challenges
- Emerging Challenges

Stewardship Role of Ministries of Finance
- Technology: From Tool to Fiscal Asset
- Data: From Information to Fiscal Asset

Thank you

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INNOVATION

https://www.worldbank.org/en/programs/govtech

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