FISCAL AFFAIRS

Digital Tax Administration and the Role of Artificial Intelligence:

Global Issues and Challenges

SEPTEMBER 24, 2025

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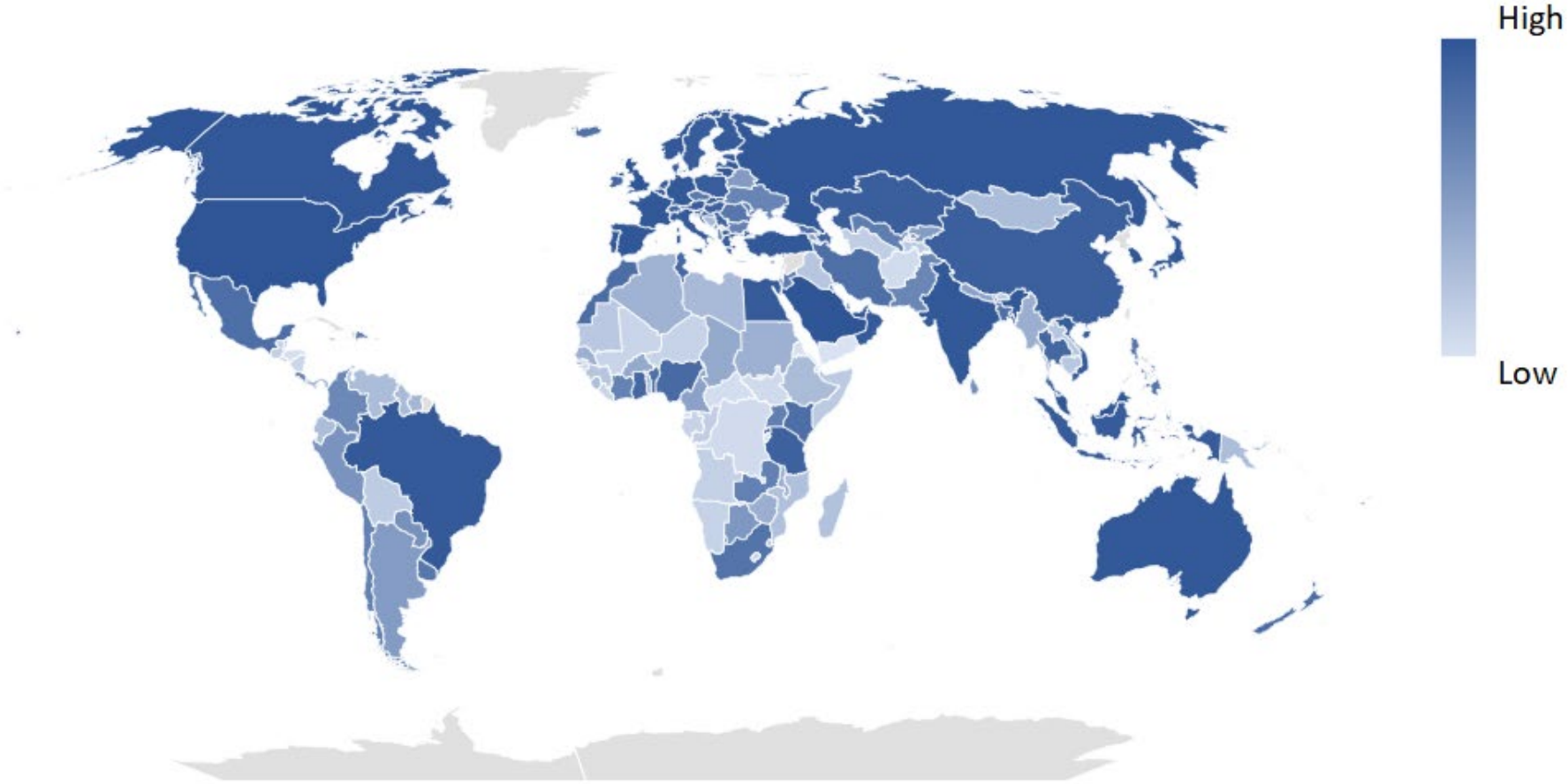
Global Challenge #1: Productively Increasing ICT Expenditure

Country Group	ICT Expenditure[1] (Median % of Op. Exp.)			General Gov. Revenue (% of GDP)		
	2023	2022	2021	2023	2022	2021
Advanced Economies	**12.43**	**9.37**	**11.34**	**35.69**	**37.39**	**36.97**
Euro Area	12.01	6.29	6.79	45.97	46.52	46.91
Major Advanced Economies (G7)	15.15	14.20	13.64	35.48	37.61	37.08
Other Advanced Economies	12.75	14.21	14.58	32.14	33.19	32.65
European Union	**12.12**	**7.72**	**7.80**	**45.41**	**45.90**	**46.43**
Emerging Market and Developing Economies	**4.28**	**4.54**	**5.36**	**26.00**	**25.79**	**25.56**
Emerging and Developing Asia	**5.05**	**5.39**	**5.36**	**23.82**	**23.35**	**23.90**
Emerging and Developing Europe	4.29	4.56	7.64	34.76	34.16	35.24
Latin America and The Caribbean	6.44	6.25	6.85	29.30	30.20	28.79
Middle East and Central Asia	0.36	0.66	1.72	27.45	28.38	25.52
Sub-Saharan Africa	3.57	3.50	1.28	17.39	17.44	16.84
Worldwide	**5.63**	**5.44**	**6.50**	-	-	-

[1] Direct ICT expenditure by tax administrations (excluding DPI, e-government, other shared services).

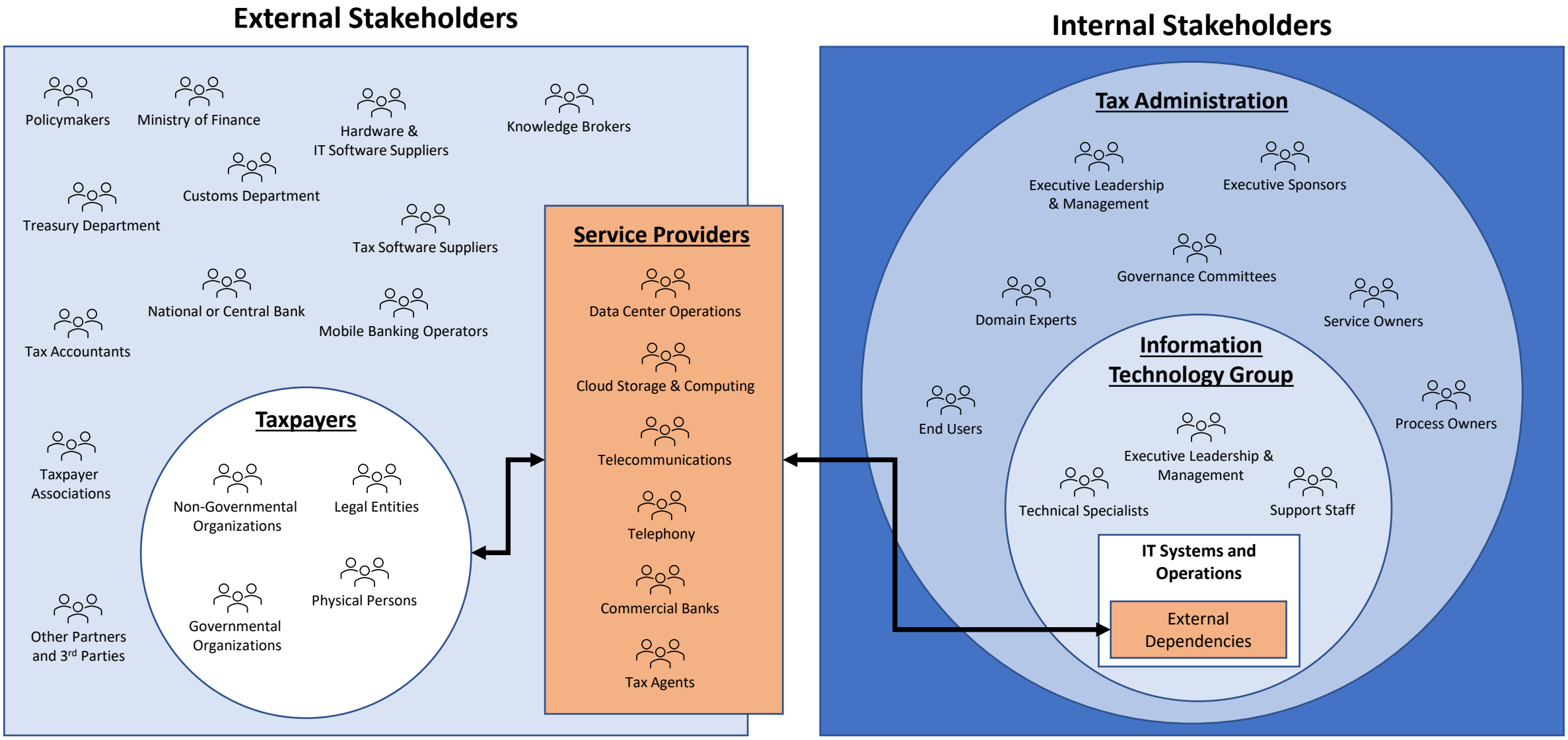
Source: IMF ISORA and WEO Databases. Includes survey results of 172 countries.

Global Challenge #2: Addressing Weaknesses in Cybersecurity



Source: UN ITU Global Cybersecurity Index

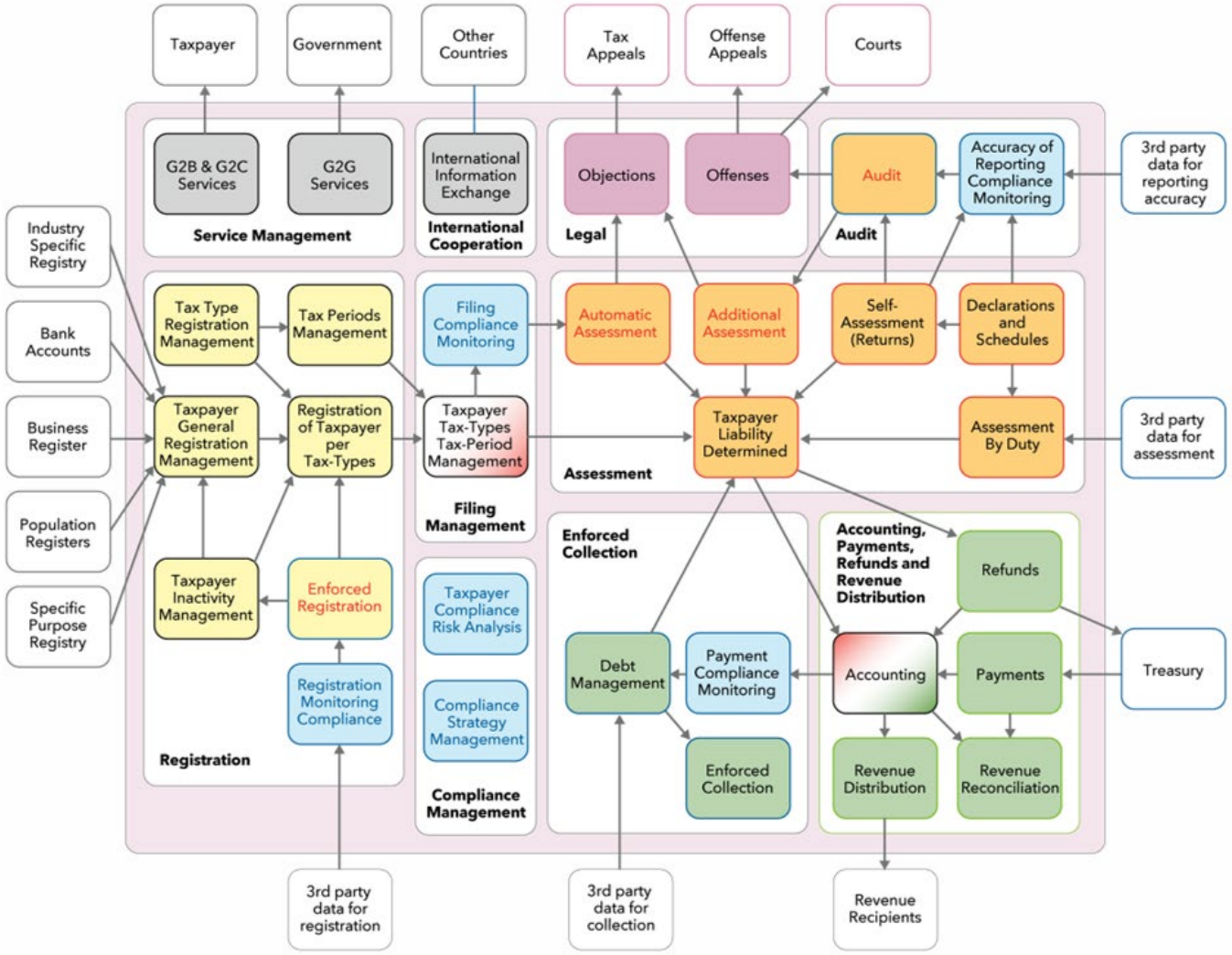
Global Challenge #3: Developing Digital Ecosystems



Global Challenge #4: Accessing Domain Expertise

Digital Business Models

- Capture the complete “business” of tax administration
- Are ideally based on integrated functions and processes
- Require a depth of knowledge to design and translate into effective digital services



Source: IMF Staff

Artificial Intelligence

Autopilot: An Example of Artificial Intelligence?

- Using classical definitions, autopilot is AI (imitation)
- With current definitions, autopilot ***might be AI***…

Can the *machine learn* on its own?

Most autopilot systems are still deterministic ← **Not AI**

- Based on predefined, static rules and logic
- Process input (sensors, navigation, pilot commands)
- Adjust flight controls to maintain a flight plan

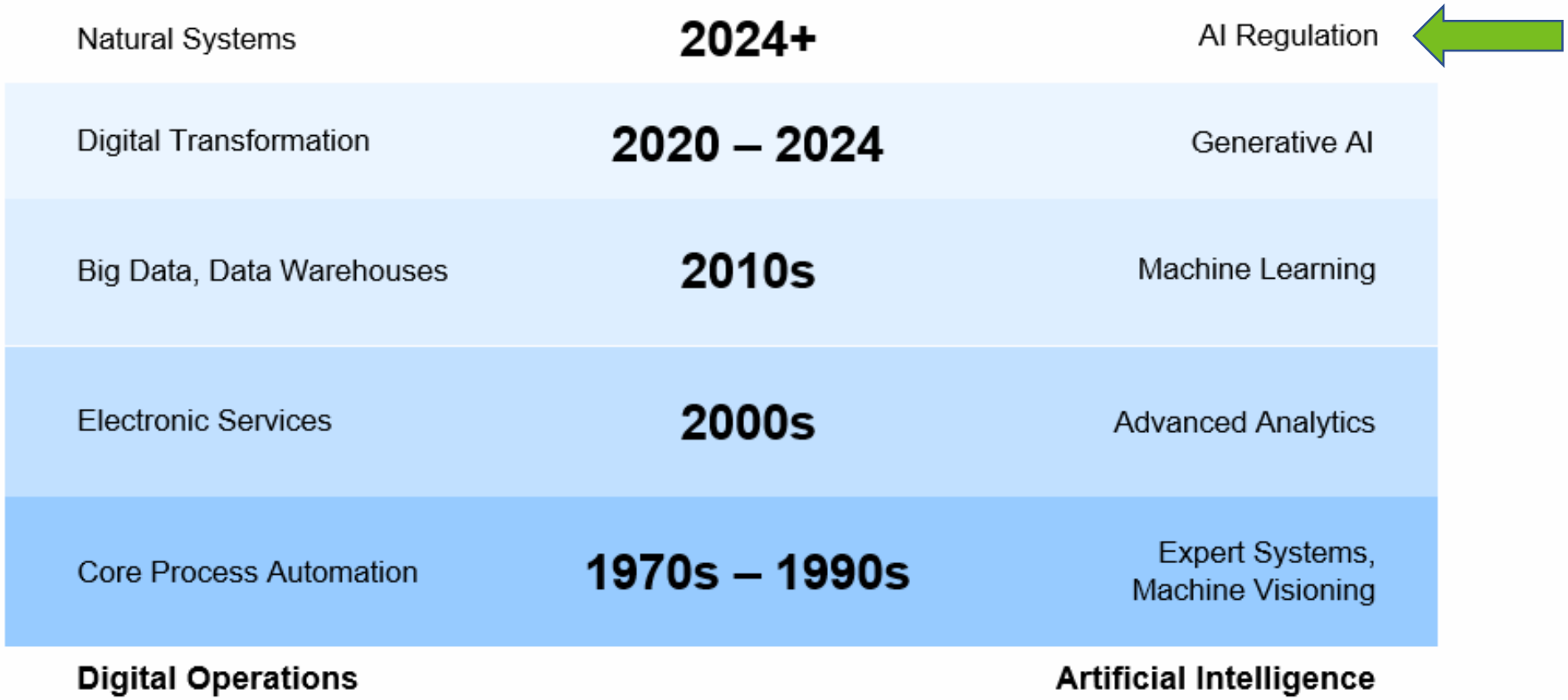
Some autopilot systems *learn and adapt* ← **AI**

- The rules and logic in the systems are dynamic
- Through learning, the systems adapt on their own

AI is Likely to Become Ubiquitous

AI in Tax Administration

Figure 1. Digital Operations and AI: Fifty Years of Thematic History



Remember that Generative AI can interact in *natural language*

What if this analyst was actually an AI bot?

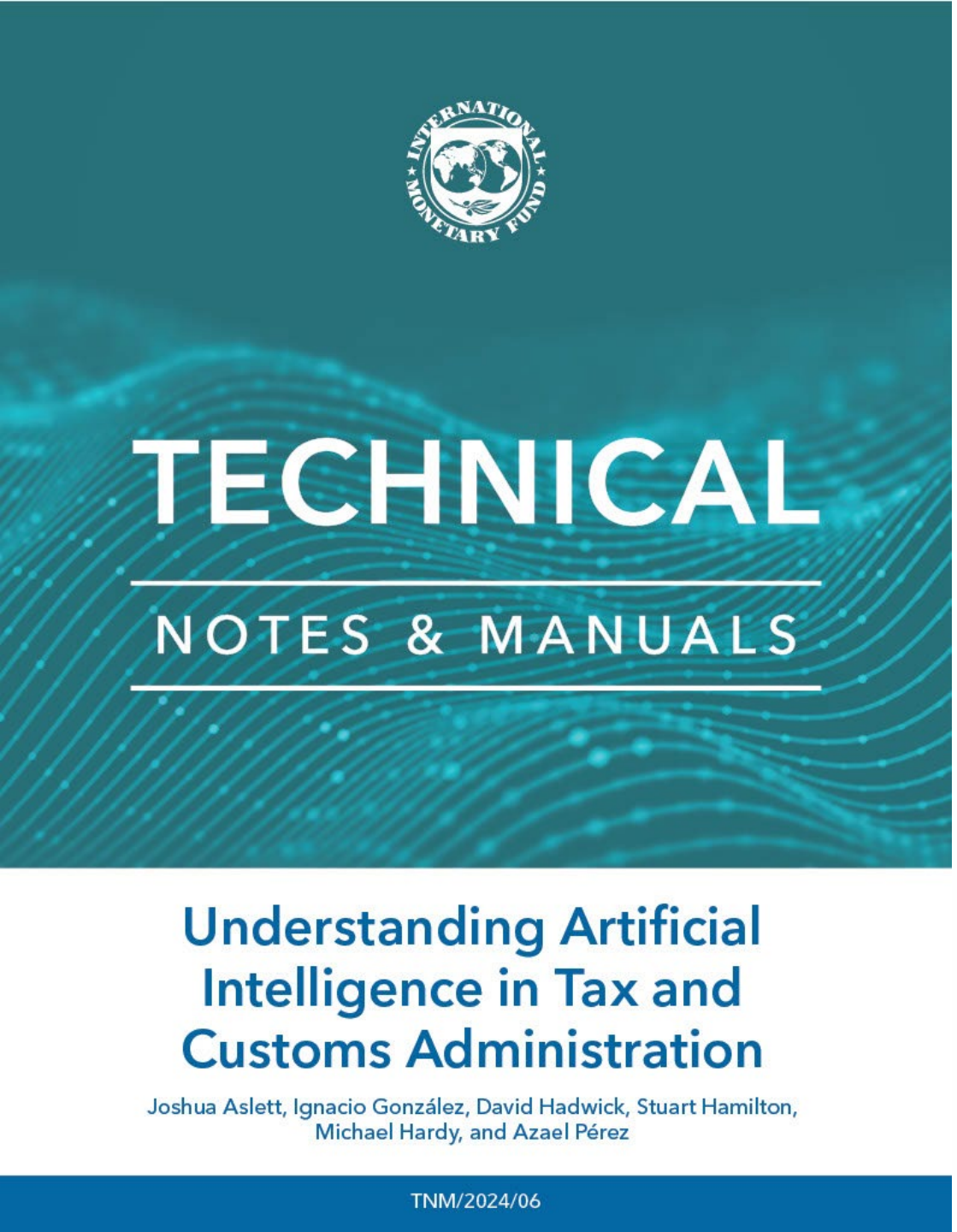
Real examples are emerging and very impressive

And this one too?

Risk Reviews of Large Taxpayers…

The AI Challenge:

How Much AI Can Be Responsibly Administered?

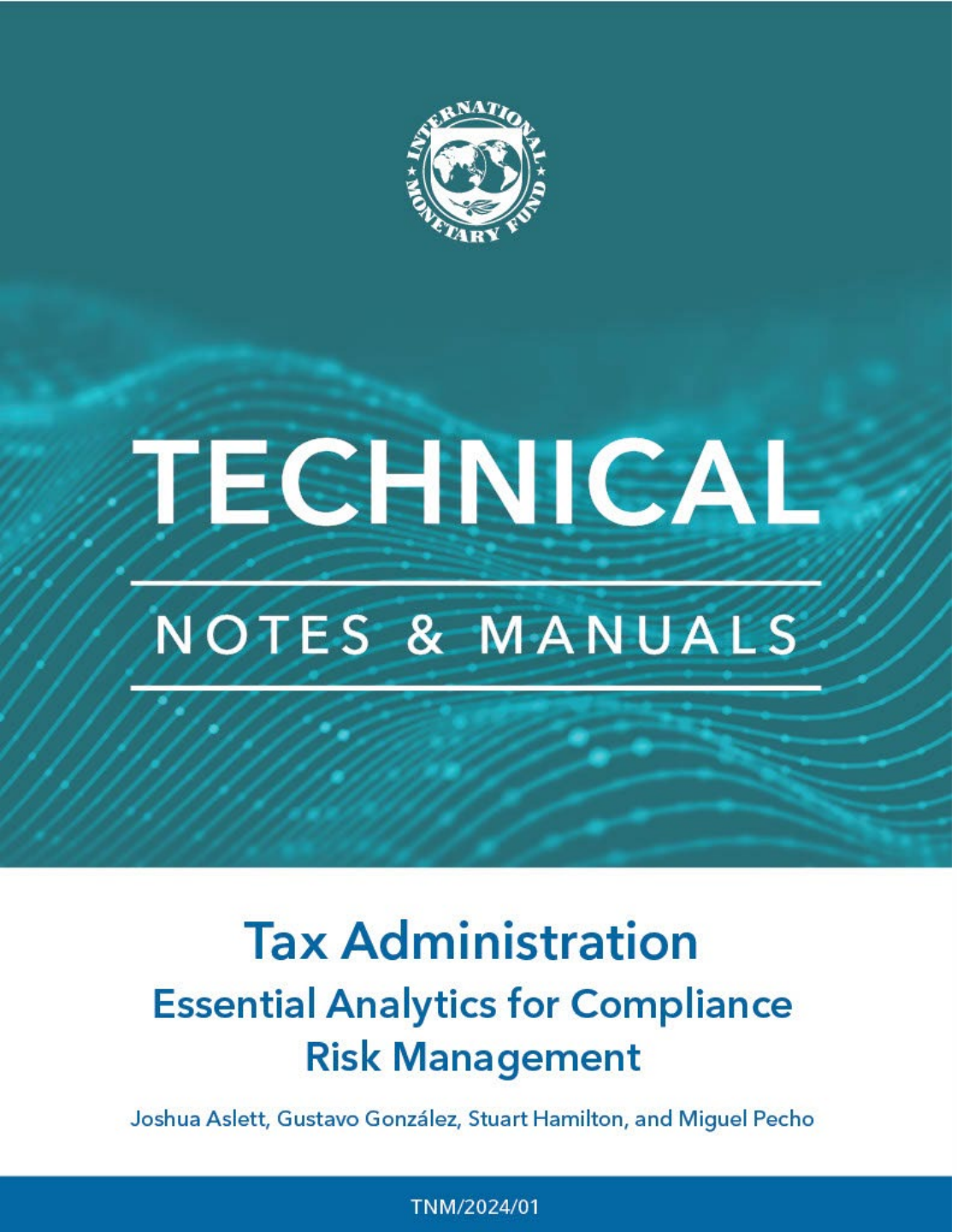


- Written for senior leaders in tax and customs administration
- Useful for understanding the history of AI and how to begin approaching the topic

Digital Operations and AI: Fifty Years of Investment

Natural Systems	**2024+**	AI Regulation
Digital Transformation	**2020 – 2024**	Generative AI
Big Data, Data Warehouses	**2010s**	Machine Learning
Electronic Services	**2000s**	Advanced Analytics
Core Process Automation	**1970s – 1990s**	Expert Systems, Machine Visioning
Digital Operations		**Artificial Intelligence**

Available here: Understanding Artificial Intelligence in Tax and Customs Administration



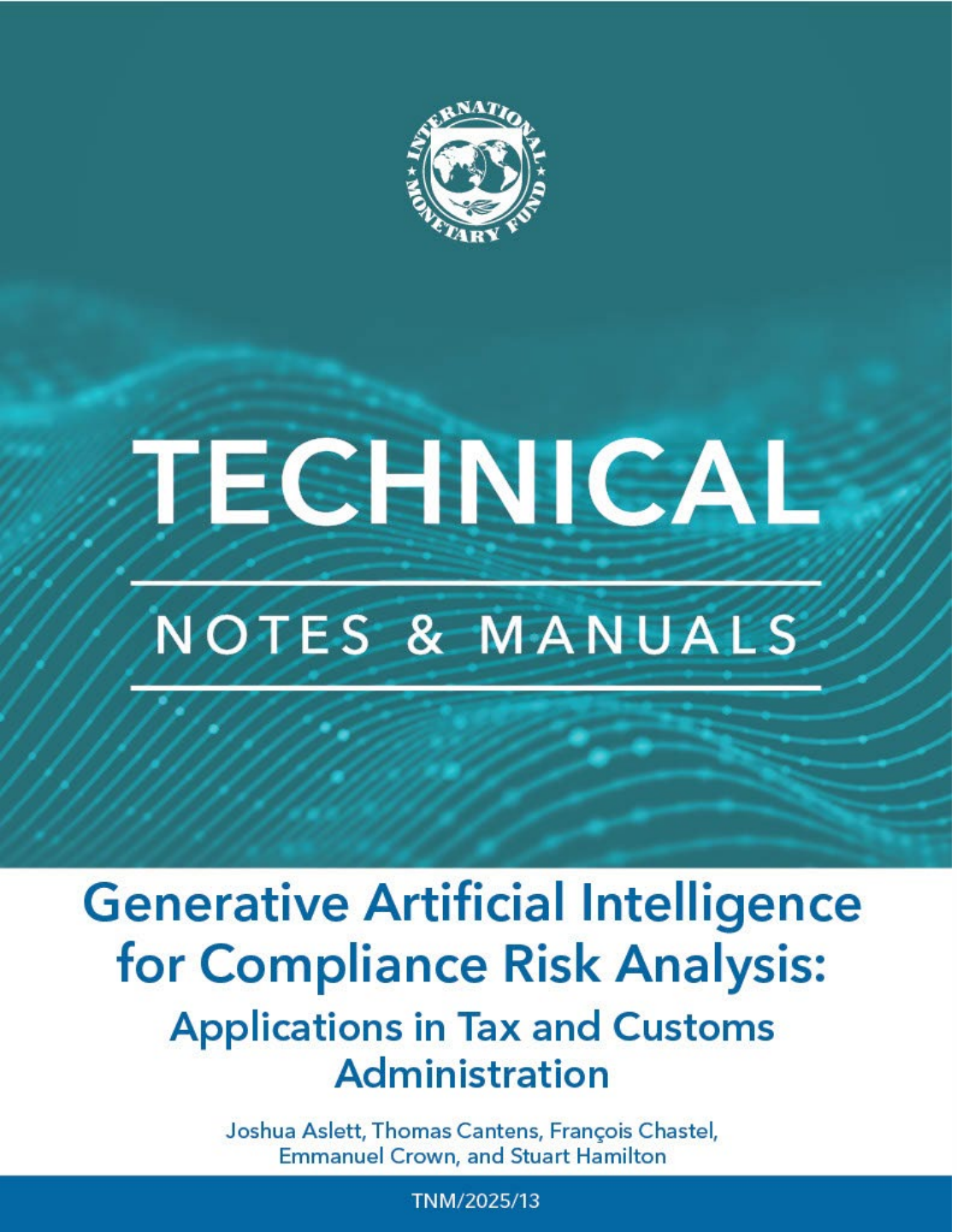
- A starter kit for analysts new to tax administration exploring data science

- Covers important topics:
  - CRM theory and principles
  - Statistics and data science
  - Data, technology, and tools

- Downloadable toolkit includes templates for compliance planning and audit case selection (incl. AI with machine learning)

- ***More downloadable examples planned***

Available here: Tax Administration: Essential Analytics for Compliance Risk Management



- Explains generative artificial intelligence and provides worked examples
- Examples make use of both commercial and non-commercial resources
- They start with hosted configurations but also introduce on-premises configurations that many administrations are likely to use
- Examples for customs administration include agentic concepts

Available here: Generative Artificial Intelligence for Compliance Risk Analysis: Applications in Tax and Customs Administration

Thank you!

Dive into the world of tax and customs with the help of the new IMF portal

IMF.org/RevenuePortal

URLs for IMF Technical Notes

Understanding Artificial Intelligence in Tax and Customs Administration

https://www.imf.org/en/Publications/TNM/Issues/2024/11/21/Understanding-Artificial-Intelligence-in-Tax-and-Customs-Administration-555097

Tax Administration: Essential Analytics for Compliance Risk Management

https://www.imf.org/en/Publications/TNM/Issues/2024/02/22/Tax-Administration-Essential-Analytics-for-Compliance-Risk-Management-541453

Generative Artificial Intelligence for Compliance Risk Analysis: Applications in Tax and Customs Administration

https://www.imf.org/en/Publications/TNM/Issues/2025/08/09/Generative-Artificial-Intelligence-for-Compliance-Risk-Analysis-Applications-in-Tax-and-567429