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Beyond Monetary Policy: Türkiye as a Pioneer of Technology-Led Economic Governance

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Türkiye's economic governance offers an early signal of a global shift. As fiscal and monetary space narrows worldwide, states increasingly rely on technology-enabled coordination to preserve stability. This outlook examines how substitution mechanisms and digital systems sustain policy continuity, while warning that without institutional depth and human capital, stability risks becoming stagnation.

Introduction

Global economic governance is entering a period of structural adjustment. A significant challenge facing both advanced and emerging economies is the diminishing effectiveness of conventional economic policies. For one, monetary policy tightening is becoming increasingly difficult to implement, while the cost of fuelling growth through fiscal expansion is rising steeply. At the same time, the political feasibility of structural reform has narrowed.

Türkiye has operated under such constraints for longer than many advanced economies, some of which are only now beginning to face them. This has encouraged greater reliance on technological, institutional, and administrative mechanisms alongside conventional tools. This policy outlook examines Türkiye as an early adopter in a technology-driven global economic transition. It analyses how states may deploy technology as a functional extension of economic governance when traditional tools are considered insufficient. By situating Türkiye's experience within a broader global shift, the outlook offers practical insights into the emerging playbook of states in constrained policy environments.

A Global Transition Toward Technology-Enabled Economic Management

InIn both developed and emerging economies, there is an erosion of traditional economic manoeuvre space. High levels of public debt, an ageing population, and sluggish productivity growth are exerting sustained pressure on fiscal and monetary systems. Meanwhile, fragmentation in global politics is undermining the stabilisation traditionally provided by highly integrated systems of trade, capital flows, and supply chains. This limits both the resolve and the ability of governments to rely on interest rates, deficits, and/or liberalisation as tools for economic management. In this context, states are increasingly looking to technology as an additional layer of economic management.

Technology is emerging as a pragmatic link between constrained policy space and the need for economic management continuity: when traditional levers lose traction, states look for new tools that maintain coordination, credibility, and capability. For purposes of clarity in this paper, 'substitution' refers to a governance mechanism through which states preserve policy effectiveness when traditional fiscal, monetary, or reform-based tools become constrained or politically infeasible. Rather than altering formal policy frameworks, substitution operates by modifying how policies are executed, relying on administrative coordination, sectoral targeting, and institutional control to compensate for reduced macroeconomic leverage.

'Technology-enabled coordination' is the operational layer that scales substitution. It uses digital systems and strategic technologies to improve targeting, monitoring, execution, and inter-agency alignment. This is being done through data-driven public administration, technology in critical sectors, digital finance, and the application of AI in areas such as taxation, logistics, and energy. Rather than replacing traditional tools, technology is increasingly used to extend their operational effectiveness under political and structural constraints. By increasing precision and responsiveness, technology allows substitution mechanisms to function effectively without resorting to broad-based policy shifts. In constrained environments, substitution defines the strategic response, while technology-enabled coordination determines its viability and durability. Relatedly, and often used interchangeably in the literature, 'technology-driven governance' uses technology to enhance decision-making, engagement and public service delivery, while ensuring equity and ethics.

The key challenge here is not innovation, but coordination without disruption. Technology can then enable the maintenance of continuity in economic management while offsetting the diminished potency of comprehensive system-wide policy tools. These are the main ways technology can help government-level coordination:

Digital Systems and Policy Execution

Digital systems change how policy is implemented rather than what policy is. By improving data collection, integration and real-time feedback, digital platforms enable governments to move away from reliance on coarse macroeconomic signalling toward more granular forms of intervention. From an operational perspective, digitalisation helps improve the monitoring and execution of policies. This is achieved through the integration of databases and administrative systems. This also helps strengthen coordination among different agencies and reduce the lag between policy implementation and its outputs and outcomes. Precision becomes a substitute for scale: targeted execution reduces fiscal leakage, political backlash, and unintended spillovers, particularly in environments where tolerance for broad tightening or expansion is limited.

Strategic Technologies and Industrial Anchors

Beyond administrative execution, strategic technologies also serve as anchors of economic continuity. Sectors such as defence, energy, logistics and advanced manufacturing offer states economic levers that are less influenced by market fluctuations and external financing conditions. Investment in these areas helps support economic growth

and state coordination capacity. This approach aligns closely with global trends toward strategic industrial policy. In most jurisdictions worldwide, strategic technologies are recognised for both economic and strategic purposes. Industrial capacity is used as an economic stabiliser rather than an engine of economic growth. In this context, technology underwrites macroeconomic management rather than replacing it.

This This global shift to preserve economic coordination under constraint is neither uniform nor centrally planned, but it is consistent in direction. In the US, large-scale industrial policy initiatives such as the CHIPS Act rely heavily on advanced manufacturing, automation, AI-based supply chain management, and innovation policy to mitigate labour shortages and strategic vulnerabilities. In the EU, digital public infrastructure, inter-state data frameworks, and regulatory innovation are increasingly framed as tools to sustain competitiveness amid fiscal discipline and demographic decline. China, which has a very different political model, is embedding digital platforms, industrial AI, and state-led data infrastructure directly into macroeconomic and industrial planning to manage growth amid rising debt and external pressures. These cases indicate that governments are not turning their backs on orthodox economics, but are, in effect, fine-tuning the way economic management is delivered via technology.

This situation is described in greater detail in the table below:

System	Core Constraint Environment	Role of Technology	Primary Function	Mode of Substitution
Türkiye	High volatility, external financing sensitivity, political limits on orthodox tools	Digital administrative systems, strategic sector technologies, targeted implementation	Maintain continuity under constrained policy space	Coordinated execution and sectoral focus substitute for textbook policy tools
US	High public debt, political resistance to fiscal consolidation, labor shortages	Advanced manufacturing, automation, AI-enabled supply chain systems	Maintain industrial capacity and strategic autonomy	Targeted industrial policy substitutes for broad macro adjustment
EU	Fiscal rule constraints, demographic decline, fragmented political authority	Digital public infrastructure, regulatory coordination platforms, data frameworks	Preserve competitiveness and policy coherence	Administrative and regulatory coordination substitutes for fiscal expansion
China	Rising debt, external pressure, slowing growth	State-coordinated digital platforms, industrial AI, data-driven governance	Stabilize growth and allocate resources efficiently	Administrative control and technology substitute for structural liberalization

The Turkish, American, European and Chinese cases all point to a shared adjustment logic in contemporary economic governance. Greater coordination and technology-driven governance are no longer unique phenomena. Instead, they are increasingly seen as a new normal through which governments seek continuity in a world where traditional policy space is constrained.

With this in mind, technology-enabled substitution is not without risk. The stabilising role of substitution relies on the capacity of institutions, the integrity of data, and the adaptability of governance. When these factors are undermined, substitution can create new vulnerabilities rather than address existing ones. One of the biggest risks associated with substitution is over-centralisation. With the increasing role of technology in coordination, decision-making power may become centralised, making it difficult for local institutions to adjust policy implementation according to changing circumstances. As technology succeeds in calming volatility and expanding policy space, political will to tackle underlying structural issues may wane. These risks do not diminish the potential benefits of coordinated technology use, but they highlight its conditional nature. Without continued institutional investment and adaptation, substitution can become a source of stagnation rather than resilience.

Sequencing Substitution

In practice, the adjustment follows a consistent sequence in a cyclical pattern:

1. Structural constraints emerge: In this phase, fiscal and monetary policy instruments or reforms stop working or become politically infeasible.

2. Substitution replaces direct adjustment: Governments replace direct adjustment with formal changes in other policies, administrative coordination and mechanisms in sectors to sustain execution and continuity.

3. Technology scales substitution: Digital technologies and strategic technologies improve targeting, monitoring, and interagency alignment, increasing the precision and reach of substituted mechanisms.

4. Institutional limits bind: The achieved substitutability will also be subject to institutional constraints, including data quality, the availability of a skilled workforce, and system interoperability.

5 Pressure re-emerges indirectly: Restraints reappear as reduced dynamism, implementation bottlenecks, or impact disparities.

6. Cyclical recalibration follows: Adjustment becomes iterative, requiring periodic recalibration rather than one-off resolution or permanent stabilisation.

This sequence is observable across diverse political and institutional settings. For instance, in Japan, a period of sustained low growth, deflation, and low interest rates negatively affected the effectiveness of traditional monetary policy. Rather than pursuing disruptive reform, economic management increasingly relied on tighter administrative coordination between fiscal authorities, industrial policy agencies, and the central bank, supported by digital planning and monitoring systems. Technology helped synchronise stimulus, credit allocation, and industrial support, stabilising outcomes. Over time, however, the effectiveness of this coordination became bound by demographic decline, resulting in labour shortages and weak productivity growth, illustrating how substitution can preserve stability without restoring long-term dynamism.

In the United Kingdom (UK), post-crisis fiscal consolidation and political resistance to broad tax increases constrained traditional budgetary expansion. Thus, policy shifted toward digitally mediated targeting in welfare and public service delivery. Technology enabled more granular eligibility assessment and monitoring, allowing execution to substitute for scale. While this was effective in improving cost control, it made claimants increasingly vulnerable to data quality and institutional capacity constraints, which, in turn, necessitated constant attention to regional and social disparities. A similar outcome was found in Brazil, where constitutional expenditure ceilings and persistent fiscal constraints made extending social policy through a conventional budgetary approach difficult, and the state substituted digital social registries and targeted programs to maintain coverage while containing costs. Technology allowed for precise targeting and tracking without reform. However, over time, the impact of the programs was limited by data accuracy, regional-level administrative divisions, and politics surrounding eligibility, thereby reinforcing the cyclical nature of substitution rather than reform under constraint.

In South Korea, exposure to global trade cycles and supply chain disruptions has made market-driven industrial adjustment less feasible amid recent geopolitical turbulence. Instead of market-driven liberalisation and fiscal expansion, the state shifted towards the coordinated industrial strategy enabled by digital infrastructure, advanced manufacturing technology and data integration between the state and industry. Technology-enabled coordination among firms and industries has helped in building resilience and continuity in exports. However, the success of this strategy has increasingly become contingent on the availability of skills, SME integration, and regulatory flexibility, once again shifting the constraints to institutional and human capital capacity.

Cumulatively, these examples illustrate that substitution is not a country-specific phenomenon but a regular pattern of response to limited policy environments. Technology clearly prolongs the life of existing architectures by en-

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hancing coordination and implementation capabilities but does not remove the constraints.

Türkiye as an Early Signal for Emerging Global Practices

Türkiye's economic management has, for an extended period, taken place under under conditions that limit the consistent application of textbook policy solutions. This has been shaped by sustained volatility, external financing sensitivity and political limits on feasible policy responses. At times, operating in such an environment necessitated earlier experimentation with adaptive mechanisms. When stability in the exchange rate, capital inflows, or orthodox tightening itself was insufficient, alternative methods were required to ensure continuous economic coordination. These adaptations emerged incrementally, shaped by repeated exposure to binding structural limits.

The Turkish experience increasingly mirrors the challenges now facing many advanced economies. Increasing debt levels, demographic factors, and political polarisation are also limiting traditional fiscal and monetary policy options in these economies, but via different legal and institutional mechanisms. Admittedly, while sources of constraint may vary, the functional outcome is converging toward reduced policy flexibility in search of supplementary tools to manage economic complexity.

In Türkiye's case, the process of substitution has taken several observable forms. Administrative coordination has become more important to ensure that fiscal, regulatory, and sectoral policies align when market signals are insufficient. Strategic sectors have become more important, and the role of state capacity in planning and policy implementation has a more direct impact on outcomes. Technology has been employed to enhance targeting, monitoring and execution, enabling policy interventions to be delivered with greater precision.

The dynamics of technology-driven governance become clearer when Türkiye's experience is examined alongside those of economies now encountering similar constraints. In the area of fiscal capacity, Türkiye's early move toward a comprehensive digital tax infrastructure reflected the limits of rate-based or enforcement-led approaches in an arguably volatile economic environment. Real-time reporting was a means to extend the state's reach without triggering politically sensitive debates over taxation. This is currently being adopted in Italy, driven by the need to address debt levels and budget controls. The lesson is not

about tax policy design, but about how states preserve fiscal control when traditional levers become politically or structurally unavailable.

The same trend can be observed in financial governance. The formation of the digital payments system and the data-integrated supervision system in Türkiye was heavily influenced by its sensitivity to external financing. Technology has helped ensure continuity through supervision and coordination rather than liberalisation or control. In industrial policy, Türkiye's emphasis on technology-enabled coordination in key sectors was shaped by geopolitical exposure and limited access to external capital. The roles of digital design, system integration, and coordinated procurement have been important for building resilience and export potential, even as macro conditions remained volatile. The current recalibration in Germany, shaped by fiscal rules, demographics, and supply chain risks, has taken a similar turn. Strategic sectors are no longer seen as drivers of expansion but as sources of continuity.

Collectively, these comparisons imply a deeper level of congruence in economic governance. This is because the sequencing of adjustments shifts from pressures on reform to those on management over time. The experience of Türkiye is of particular interest because it allows us to forecast how this form of economic governance develops over time, where it stabilises, where it creates bottlenecks, and where it begins to substitute flexibility for control. As more economies enter this stage, initial experiences in terms of understanding the operational implications of economic governance via substitution become more important. The role of the Turkish experience is, therefore, best understood as an initial signal of the trade-offs that are involved.

Implications for Growth, Stability and Human Development

Looking ahead, the viability of technology-enabled governance in Türkiye (and elsewhere) will hinge on managing emerging constraints associated with substitution mechanisms rather than expanding them. There are a number of pressure points that will shape the next phase, which are as follows:

- As the system becomes more complex, processes will become more challenging.
- Human capital will emerge as another constraint for the system. Technology-assisted coordination will place greater emphasis on human capital, not only in the private sector but also in the public domain.
- With the rise of technology-assisted coordination, its viability will also attach more importance to technical, analytical and management skills.
- Regional and sectoral balance will also assume more importance.
- As precision targeting becomes increasingly important for greater efficiency, the problem of disparities will also become more significant due to uneven absorption capacity.

The increasing use of technology in economic management has important, and sometimes competing, implications for growth, stability, and human development. In the near term, technology mainly supports stability and continuity. By helping coordinate, target, and implement policies, it enables policymakers to curtail volatility and ensure the continuity of basic economic functions when fiscal, monetary, and political constraints make traditional policy options difficult to use. Technology, in this sense, plays a stabilising rather than a growth-promoting role. However, in the medium term, these growth effects will depend on certain conditions. Technology can increase productivity, but only when combined with complementary investments. Digital technologies and strategic sectors such as artificial intelligence do not automatically create sustained growth effects in isolation. Productivity improvements depend on skills formation, institutional learning and the diffusion of capability across firms and regions. Otherwise, technology-enabled governance will fine-tune within existing constraints rather than expanding the production possibilities.

The outcomes of human development are also dependent on similar factors. Technologically driven governance can lead to better access to services and administrative inclusion, but disparities in readiness across populations to benefit from these can increase divergence among regions, sectors and social groups. Skills development emerges as a binding constraint in this scenario. This is directly linked to the education sector, vocational training, and workforce reskilling, which ultimately determine whether the technology available leads to wider inclusion or remains confined to a limited part of the economy. Thus, the central policy challenge for any government is balancing technology-enabled governance with longer-term development goals.

Policy Considerations

As coordination mechanisms become more sophisticated, so too must the balance among regional balance, labour mobility, and institutional capacity. Where these aspects move together, technology can enable continuity under constraint as well as a transition to higher productivity and more inclusive growth. Where they do not, stability may

be preserved at the cost of dynamism and human development. The following considerations outline areas where policy calibration matters most.

Shift from adoption to discipline

With technology integration into economic management, the policy agenda must shift from deployment to responsible governance that promotes stability without limiting future growth and social cohesion.

Deepen investment in strategic and dual-use technologies

Focus on sectors such as energy infrastructure, defence technologies, logistics, high-tech manufacturing, and AI applications. These are enabling infrastructure sectors that contribute to resilience, exports and productivity rather than immediately promoting near-term growth.

Strengthen digital infrastructure interoperability

Achieve greater interoperability between platforms by sharing standards, securing data transfer, and making platforms compatible across agencies. Interoperability maintains flexibility and ensures precision tools are not drivers of administrative rigidity.

Align education and workforce policy with technology-led sectors

Reskill and align the workforce with technology-driven industries.

Monitor distributional outcomes to sustain social cohesion

Monitor the regional effects, labour market transitions and access to new industries. Technology-enabled coordination can stabilise outcomes but may redistribute risks unevenly if left unmanaged.

Build institutional learning and feedback capacity to improve flexibility

Emphasise adaptive monitoring and revision mechanisms that preserve flexibility as coordination deepens. Precision tools need to remain adjustable as conditions evolve so that the benefits of coordination do not get locked into rigid administrative structures.

Conclusion

Technology-enabled coordination is becoming a central feature of economic governance where traditional policy space is structurally constrained. Türkiye's experience is informative because it reflects an earlier encounter with conditions that are now becoming more widespread. At the same time, the limits are clear. Technology-enabled governance can stabilise outcomes and extend policy capacity, but it cannot indefinitely replace structural adjustment. However, as reliance on administrative and digital tools intensifies, bottlenecks arise in institutional capacity, skill availability, and system interoperability. Without complementary investment in human capital and regional balance, as well as institutional development, stability may be sustained at the cost of productivity and inclusiveness.

The policy question, therefore, is not how long stabilisation can be maintained with technology-enabled governance, but how long it can be sustained without a parallel build-up in capacity. Türkiye's experience illustrates both the utility and the boundaries of governing under constraint, offering early insight into the trade-offs that emerge when continuity is preserved through substitution rather than reform. As more states enter this phase, the question is not whether technology can extend policy space, because it evidently can, but whether technology-enabled coordination can be prevented from becoming a new constraint.