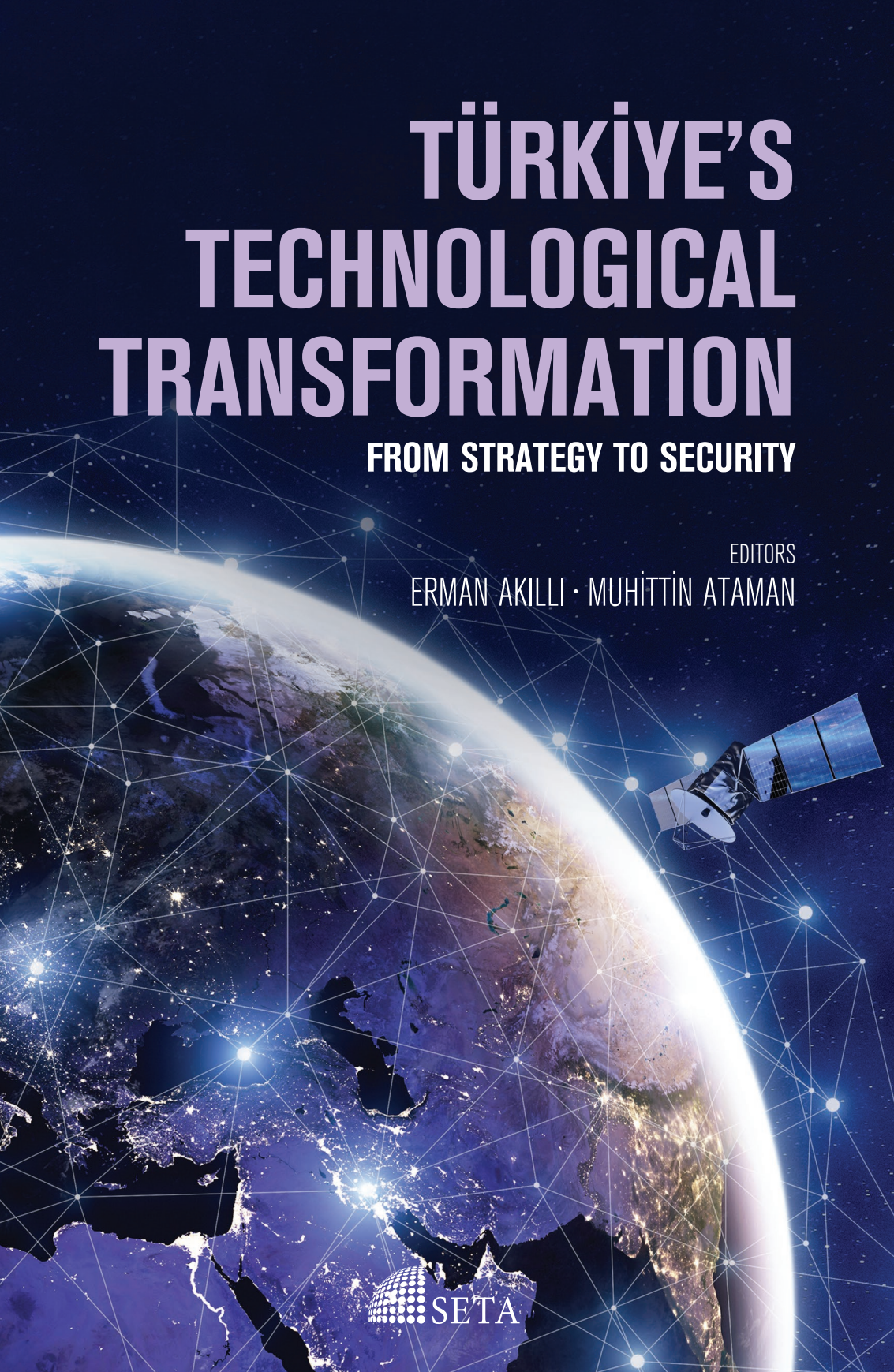
TÜRKİYE'S TECHNOLOGICAL TRANSFORMATION

FROM STRATEGY TO SECURITY

EDITORS
ERMAN AKILLI · MUHİTTİN ATAMAN



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INTRODUCTION

ERMAN AKILLI*
MUHİTTİN ATAMAN**

Each era in modern history has been defined by its prevailing power structures and instruments of deterrence. In the aftermath of World War II, nuclear weapons became the ultimate guarantor of peace through mutually assured destruction; deterrence theory gained prominence during the Cold War as superpowers relied on nuclear arsenals to maintain a fragile balance. The post-Cold War 1990s brought hopes of a "New World Order" underpinned by economic globalization and U.S. unipolarity, yet even then power struggles persisted beneath a veneer of optimism.

Today, we stand at the cusp of a new epoch – the rise of a technopolar world order – in which technological supremacy is emerging as the decisive factor in international power dynamics. Just as earlier decades were shaped by industrial strength or military might, the 2020s are being shaped by digitalization and technological prowess as key sources of national security and influence. Yet this new balance is already marked by digital asymmetry, where disparities in access to innovation, algorithmic power, and data sovereignty create uneven vulnerabilities and hierarchies among states. In this environment, those who fail to keep pace risk marginalization, while those who master frontier technologies gain disproportionate leverage over international outcomes.

The contemporary international system is undergoing a historic transformation in which technology and innovation have become the currency of power in global affairs. This transformation, however, is not limited to material capabilities. It also encompasses the cognitive dimension of statecraft. The emergence of *cogni-*

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tive diplomacy[1]—the strategic integration of digital tools, AI-driven insights, and narrative-shaping practices into diplomacy—demonstrates how technology now influences not only what states can do, but also how they are perceived and how they shape the perceptions of others. In this technopolar era the world's largest technology companies and tech-leading nations wield unprecedented influence alongside traditional state actors. This emerging order is characterized by an erosion of the old dichotomy between public and private power: big tech firms now operate like geopolitical players, controlling digital infrastructure, data, and algorithms in ways that rival the reach of many states. Sovereignty and influence are no longer determined solely by territory or GDP, but increasingly by mastery of critical technologies and control over cyberspace.

Technological supremacy thus functions as a new form of deterrence and strategic balance. Innovations in artificial intelligence, quantum computing, cyber capabilities, and space systems confer strategic advantages analogous to the role of nuclear arsenals in the past – acting as both enablers of power and shields against coercion. The ability to develop and master frontier technologies has become indispensable for nations striving to secure economic growth, resilience, and international clout.

Indeed, states across the world have recognized that falling behind in the digital revolution can leave them vulnerable; many are responding by reshoring supply chains, "friend-shoring" partnerships with allies, and asserting claims of technological sovereignty to reduce dependence on foreign tech. This dynamic also reveals a deeper structural reality: the emergence of digital asymmetry. Unlike classical asymmetry, which rested on differences in conventional or nuclear power, digital asymmetry refers to the uneven distribution of technological capabilities, data access, and algorithmic dominance among states. Those nations that master frontier technologies such as artificial intelligence, quantum systems, and space-based infrastructure can exert disproportionate influence over others, while technologically dependent states risk strategic marginalization. In this sense, digital asymmetry is both a driver of competition and a determinant of vulnerability, making the pursuit of digital autonomy and technological sovereignty an existential priority for contemporary states.

This push for digital sovereignty reflects a stark new reality: in an age of cyber warfare, AI arms races, and information dominance, only those who can wield

[1] Erman Akıllı, *Cognitive Diplomacy and Digital Autonomy: Statecraft in the Age of Artificial Intelligence*, Palgrave Macmillan, 2025.

digital autonomy can truly safeguard their national sovereignty. Technological self-reliance – whether in semiconductors, software, or defense industry – has become synonymous with strategic autonomy.

Crucially, the technopolar moment is not just about state power but also about how technology is redefining diplomacy, economics, and society. Cyberattacks, control of social media narratives, and access to satellite communications can all impact global events as much as tanks or diplomacy could in previous eras. We have seen private tech actors influence battlefields and governance: for example, satellite internet and private cyber defense played roles in recent conflicts, blurring the line between state and corporate influence. Governments, in turn, are racing to update policies – from data governance to AI ethics – to regain some control over this digital domain. The technopolar world order is thus marked by both great opportunity and great uncertainty: it "turbocharges" innovation and empowers new actors, yet it also introduces volatility as states and tech giants jostle for primacy. Amid this flux, nations that can harness technology for the public good while protecting their infrastructure and data will set the rules of the new era.

TÜRKİYE'S TECHNOLOGICAL TRANSFORMATION AND STRATEGIC AUTONOMY

On this turbulent global stage, Türkiye has embarked as an strategic technological transformation to secure its place as a digital power. Turkish policymakers recognized early that technology is now a core pillar of national security, economic development, and geopolitical influence. As President Recep Tayyip Erdoğan has underlined, *"the future belongs to those who design it."*[2] This perspective captures the essence of Türkiye's technological transformation: designing sovereign capacities today in order to secure independence, resilience, and influence in the international system of tomorrow.

Over the past two decades, Türkiye has systematically invested in building an indigenous innovation ecosystem – branded as "National Technology Move" (Milli Teknoloji Hamlesi) – to achieve technological sovereignty and reduce dependence on external powers. Far from being a mere industrial policy, this is a comprehensive national strategy aiming to reinvent Türkiye as a high-tech producer across defense, industry, and emerging digital sectors.

[2] "Cumhurbaşkanı Erdoğan: Önümüzdeki dönemi bir dijital seferberlik dönemi olarak ilan ediyorum" https://www.iletisim.gov.tr/turkce/haberler/detay/cumhurbaskani-erdogan-onumuzdeki-donemi-bir-dijital-seferberlik-donemi-olarak-ilan-ediyorum

Türkiye's strides in defense technology illustrate this transformation. Once reliant on imports, the country now designs and produces a range of indigenous weapon systems. Notably, Turkish unmanned aerial vehicles such as the Bayraktar TB2 and Akıncı have proven their effectiveness in recent regional conflicts such as Nagorno-Karabakh, and gained international reputation. These drones have not only given Türkiye a tactical edge but also became a successful export; by 2024 Türkiye commanded an estimated 70% of the global market for military tactical UAVs. Alongside drones, Türkiye has developed other strategic platforms as attack helicopters, frigates, precision missiles, and even begun production of a 5th-generation fighter jet namely "KAAN" by showcasing a breadth of capability. The result is a defense sector that strengthens Türkiye's strategic autonomy while bolstering its economy through record defense exports (over $7 billion in 2024).

This technological drive extends beyond the military realm. In civilian industries, Türkiye is nurturing local innovation in areas like electric vehicles (e.g., the TOGG car project), smart cities, fintech, and health tech. Critical infrastructure is being fortified with domestic solutions in energy and communications. Most visibly, Türkiye has entered the space arena: in July 2024, TÜRKSAT 6A launched, which is first fully indigenous communications satellite, catapulting Türkiye into the select group of 11 countries capable of building and operating their own satellites. This milestone not only expands secure communications for the country but also stands as a symbol of technological sovereignty – a guarantee of independent access to space-based services and strategic information. Investments in a national satellite program, a Turkish Space Agency (founded 2018), and projects like a Regional Positioning System all aim to ensure Türkiye is not left behind in the new space-tech race.

Underpinning these achievements is an evolving research, development, and innovation (RDI) ecosystem. Guided by institutions like TÜBİTAK (the Scientific and Technological Research Council) and supported by strategic state incentives, Türkiye has dramatically expanded its R&D capacity. In 2002, the country had only 29,000 R&D personnel; by 2023 this had grown to nearly 291,000, accompanied by a surge in R&D spending to over $16 billion annually. Dozens of technoparks, hundreds of R&D centers, and nationwide events like TEKNOFEST (the aerospace and technology festival) have established a vibrant culture of innovation. These efforts are cultivating a new generation of engineers and entrepreneurs, aligning with the government's vision that technological self-reliance and high-value production are the keys to sustained growth.

At the policy level, this push is encapsulated in high-level strategy documents and initiatives. The National Technology Move agenda provides the framework for coordinating efforts across sectors, ensuring that defense advancements spill over into civilian applications and vice versa. The government's developmental plans (such as the 12th Development Plan) emphasize enabling the digital and green transition, fostering AI and quantum technologies, and achieving "smart" economic growth. There is also a clear diplomatic and geopolitical rationale: Turkish leaders see technological strength as essential for true strategic autonomy – the freedom to make independent foreign policy choices without undue pressure. By becoming a trusted producer of advanced technology, Türkiye aims to bolster its role as a global partner and an inspiring example for other emerging states navigating the 21st century tech order. In short, Türkiye is repositioning itself from a technology *consumer* to a technology *creator*, with ambitions to help shape the norms and rules of the emerging digital world.

STRUCTURE OF THE BOOK

This book, *Türkiye's Technological Transformation: From Strategy to Security*, examines in depth how Türkiye is adapting to the technopolar era and leveraging technology for national power. The volume is organized into five thematic parts, each shedding light on different facets of Türkiye's tech-driven strategy – from high-level policy vision to sector-specific developments and security implications. Below we outline each part and chapter:

The first part of the book titled as, "Strategic Vision and National Technology Policy", provides the big-picture overview of Türkiye's national tech strategy amid global shifts. In Chapter 1, Mehmet Fatih Kacır, Türkiye's Industry and Technology Minister, articulates *Türkiye's National Technology Move* as a bold response to worldwide industrial and geopolitical changes, highlighting progress in indigenous defense systems, electric mobility, satellites, AI, and the twin digital-green transformation. In Chapter 2, by Orhan Aydın, President of TÜBİTAK, details the advances in Türkiye's research, development, and innovation ecosystem, including the establishment of a national supercomputer, a Turkish large language model, and breakthroughs in quantum technologies. Together, these chapters show how coherent policy and investment in innovation are reinforcing Türkiye's technological capacity. Apart from them, Chapter 3, by Erman Akıllı and Gloria Shkurti Özdemir, takes a theoretical lens to argue that Türkiye's pursuit of technological sovereignty is fundamentally about enhancing strategic autonomy in the emerging

technopolar order. Using frameworks from realism to constructivism, they discuss how Türkiye's technological gains – as captured in the *TechPulse Türkiye 2025* report – are recalibrating its foreign policy options and regional influence.

As technology opens new domains for statecraft the second part of the book titled as "Emerging Frontiers of Diplomacy and Cyber Power", explores Türkiye's approach to digital diplomacy and cybersecurity. Chapter 4, by Erman Akıllı, envisions the role of the Metaverse in diplomacy, pondering whether a "Turkoverse" – a metaverse platform for Turkic states – could enhance regional integration and overcome geographic distances in diplomatic engagement. This forward-looking piece reflects on how virtual reality and digital platforms might transform international relations, with Türkiye aiming to shape norms in this nascent space. In Chapter 5, Nezir Akyeşilmen examines Türkiye's role in the global cybersecurity arena, analyzing strategies to reconcile growing geopolitical competitions in cyberspace with the need for cooperative digital governance. He applies Joseph Nye's regime complex theory and the UN's Internet Governance Forum model to assess how Türkiye can navigate between cyber competition and collaboration. Chapter 6, by Kamil Tarhan, focuses on Türkiye's domestic efforts to secure cyberspace and critical infrastructure in a technopolar world. It discusses national initiatives like the creation of a Cybersecurity Presidency, new defense agencies, and investments in local cyber technologies, as well as measures to protect key sectors (energy, finance, transportation, defense) against cyber threats. Together, these chapters illustrate how Türkiye is both shaping and safeguarding the digital domain, balancing innovative uses of technology in diplomacy with robust cybersecurity for national resilience.

Technological innovation is also redefining the tools of intelligence and the landscape of national security. Third part of the book titled as "Intelligence, Security, and AI Strategy", delves into Türkiye's use of high-tech in intelligence and its broader AI strategy. In Chapter 7, Ali Burak Darıcılı evaluates the operational capacity of Turkish intelligence enhanced by cutting-edge products developed in Türkiye. He highlights how armed and unarmed drones (UAVs) have become pivotal in Turkish counter-terrorism operations – allowing real-time surveillance and precision strikes – and discusses the deployment of Türkiye's first intelligence-gathering ship, *TCG Ufuk*, which expanded signal intelligence capabilities. This chapter underscores that indigenous tech like UAVs has multiplied Türkiye's intelligence reach and effectiveness. Chapter 8, by Fatih Sinan Esen, examines Türkiye's national initiatives in artificial intelligence, outlining the country's tran-

sition from an AI technology adopter to an innovator. He discusses how Türkiye is leveraging AI for both economic development and defense modernization, emphasizing the importance of investing in human capital (training a skilled AI workforce) and fostering cross-sector partnerships. A key theme is Türkiye's effort to pursue inclusive AI – ensuring that AI deployment bridges the digital divide and serves social equity, not just military or economic interests. In Chapter 9, Ozan Ahmet Çetin and Abdullah Keşvelioğlu provide a comparative analysis of AI in national security by looking at Türkiye and the UAE. They argue that states seek both long-term and short-term gains from AI: while aiming to stay ahead in the long run, they prioritize current, proven AI applications for immediate needs. The chapter notes that Türkiye has applied AI to enhance counter-terrorism and military autonomy, whereas the UAE has focused on AI to compensate for manpower limitations. This comparison sheds light on how different states' strategic priorities shape their AI investments.

The fourth part of the book titled as "Space, Dual-Use Innovation, and Sectoral Autonomy", explores how Türkiye is expanding its technological frontier into space and leveraging dual-use technologies to boost other sectors. In Chapter 10, Itır Toksöz discusses *Turkish Space Policy in a Technopolar Paradigm*, outlining a roadmap for Türkiye as an emerging spacefaring nation. She situates technopolarity in the context of outer space by noting that not only States, but also private tech companies (e.g. SpaceX, Blue Origin) are now major players in space, potentially challenging state power. The chapter examines how Türkiye can navigate this environment – from satellites (as seen with TÜRKSAT 6A's success) to plans for a spaceport – to ensure it remains competitive and secure in the space domain. Chapter 11, by Gökhan Bozbaş, turns to dual-use technologies in Türkiye's defense sector and how they can advance agricultural modernization and strategic autonomy. This chapter highlights an innovative angle: technologies originally developed for military purposes (like drones, sensors, AI systems) are being repurposed to improve agricultural efficiency, sustainability, and food security. By transferring defense innovations to civilian use, Türkiye not only maximizes return on R&D investments but also strengthens its technological sovereignty in critical areas like food production. The chapter presents case studies and data showing improvements in precision agriculture and reduced import dependence thanks to these dual-use applications. Together, Part IV's chapters demonstrate Türkiye's intent to be a player in *new domains* (space) and to achieve *self-reliance across sectors* by cross-pollinating tech innovations.

The final part of the book titled as, "Military Power and Regional Security Dynamics", examines how technological advances are affecting military strategy and regional security balances, with a focus on Türkiye's neighborhood. Chapter 12, by Ahmet Özkan and Meysune Yaşar, analyzes the technological extensions of the offense-defense balance through the case of the *Turkish Navy in the Eastern Mediterranean*. It discusses how the level of naval technology – such as advanced sensors, missiles, unmanned systems, and network-centric warfare capabilities – influences the offense-defense posture of regional actors. The authors apply offense-defense theory to assess whether Türkiye's naval modernization (e.g., new stealth frigates, armed UAVs like the TB2 and upcoming TB3 on its amphibious carrier *TCG Anadolu*) shifts the balance towards offensive advantage or defensive stability in the Eastern Med. This has implications for regional peace and deterrence, as high-tech naval assets could deter aggression but also spark competitive buildups. Finally, Chapter 13 by Javadbay Khalilzada explores *The Proliferation of Combat Drones in Civil and Interstate Conflicts* with a case study on Türkiye and Azerbaijan. This chapter notes that Türkiye's combat drones (particularly the Bayraktar TB2) have not only been pivotal in its own military operations but have also been exported and used decisively by allies like Azerbaijan, as seen in the 2020 Nagorno-Karabakh war. The widespread availability of drones is changing warfare: drones can provide smaller states with a tactical edge and precision strike capability previously limited to great powers. However, the chapter also raises concerns that the proliferation of drones might lower the threshold for conflict and make regional security more fragile, as states feel emboldened by their new capabilities. In essence, this chapter captures the double-edged sword of accessible high-tech weaponry – it can level the playing field but can also increase the risk of escalation.

Chapters in this volume collectively illustrate how Türkiye is navigating the challenges and opportunities of the technopolar age. From high-level strategic vision to concrete sectoral implementations, Türkiye's experience demonstrates how a digital power can leverage technology not only to enhance strategic autonomy, economic resilience, and national security but also to shape norms in an increasingly contested global system. The Turkish case highlights a broader lesson: in a world where bits and bytes rival bullets and bombs, states that anticipate disruptive transformations, invest in indigenous capacity, and adapt with agility will be those that secure their sovereignty and influence.

Yet, this transformation in the international system is neither linear nor evenly distributed. The global order is increasingly marked by digital asymmetry, where-

by disparities in technological capability, data access, and algorithmic power produce new hierarchies of dependence and vulnerability. Those who fail to close the technological gap risk strategic marginalization, while those who achieve digital autonomy gain the capacity to redefine deterrence, resilience, and agency within the international system. Türkiye's "National Technology Move" and related initiatives seek precisely to counter this asymmetry by embedding sovereignty into digital infrastructures, from AI to space systems.

At the same time, Türkiye's technological trajectory also speaks to the emerging practice of cognitive diplomacy. As diplomacy itself is reconfigured by digital tools, AI-driven analytics, and algorithmic influence, cognitive diplomacy emphasizes the interplay between technological innovation and the human cognitive domain. Türkiye's integration of technology into diplomacy, whether through cyber resilience, digital public diplomacy, or Metaverse-based initiatives, represents a deliberate effort to project not only hard power but also narrative authority, presence, practice, and resilience in the digital sphere. This dimension ensures that technology is not just an instrument of defense or economy but also a medium through which norms, identities, and perceptions are constructed in global politics. In this regard, President Recep Tayyip Erdoğan's vision situates technology not merely as an instrument of power but as a tool of statecraft that binds strategic autonomy with cognitive influence.

Türkiye's technological transformation, spanning policy design, digital diplomacy, defense innovation, and societal adaptation, exemplifies a cognitive model of statecraft in the new world order defined by technology. As the international system crowns this technopolar reality, Türkiye's journey from strategy to security through technology offers lessons for policymakers and scholars seeking to understand the evolving intersection of power, innovation, and diplomacy. The chapters that follow explore these themes in depth, providing evidence, theoretical insight, and policy reflections at a moment when technological prowess has truly become the paramount currency of global influence.

PART ONE

STRATEGIC VISION AND NATIONAL TECHNOLOGY POLICY

I. TÜRKİYE'S NATIONAL TECHNOLOGY MOVE AMID GLOBAL SHIFTS*

FATİH MEHMET KACIR**

INTRODUCTION

The contemporary international system is undergoing profound transformations, shaped by intensifying geopolitical competition, the re-emergence of protectionist tendencies, and a significant recalibration of global economic paradigms. In this dynamic environment, the ability to develop and master frontier technologies—such as AI, quantum computing, space systems, and autonomous technologies—has become indispensable for nations striving to secure sustainable economic growth, strategic resilience, and greater influence on the global stage. At the same time, multilateral frameworks and cooperative mechanisms are facing growing strains, as states place greater emphasis on technological sovereignty. As a result, there is rising trend of re-shoring, "friend-shoring," and the formation of selective technology partnerships to mitigate emerging geopolitical risks.

In response to changing landscape, many countries are revisiting and strengthening their national industrial strategies. Initiatives targeting advanced manufacturing, next-generation mobility, green technologies, and digital innovation continue to reshape the global technology map. Countries that fail to read these global dynamics in time risk falling behind in their development journeys. One of the most striking examples of this is the European Union.

As highlighted in Mario Draghi's report on the future of European competitiveness, Europe's relative lag in driving innovation over the past two decades has left tangible marks on its economic trajectory. Despite having strong industrial

* This article was previously published in Insight Turkey (Vol. 27, No. 2).

** Minister of Industry and Technology of the Republic of Türkiye.

heritage and high-quality workforce, Europe has not led the development of the most transformative technologies of the past two decades. The region fell behind in the digital revolution, and today has limited representation among the world's top technology firms.

Similar to the EU, many countries are only now beginning to fully grasp the scale of this global transformation. Unlike those countries, Türkiye's own experience has long demonstrated that sustainable growth and enduring competitiveness rely on developing original national technologies and building strong, high-value, innovation-driven production capacity. In the 1970s, Türkiye launched its Heavy Industry Initiative with the aim of establishing an independent industrial base, but this effort ultimately fell short of its ambitious goals. During the 1980s, export-oriented strategies enabled deeper integration into global value chains; however, the capacity to generate high-value, technology-intensive production remained limited. In the 1990s, just as the global expansion of the internet and platform-based business models was transforming the world economy, domestic political and economic instability constrained Türkiye's ability to invest adequately in research, innovation, and critical infrastructure. It was not until the restoration of political and macroeconomic stability in the early 2000s that the country was able to lay the foundations for coherent long-term policy planning and create an environment conducive to private sector dynamism and entrepreneurship.

Over the last two decades, Türkiye recorded significant progress across all industrial and technology indicators. The number of firms operating in the manufacturing sector and the expansion of organized industrial zones increased sharply. National institutions like TÜBİTAK (The Scientific and Technological Research Council of Türkiye) and KOSGEB (SME Industry Development Organization) expanded their programs and budgets, while newly established Development Agencies took on a catalytic role in supporting regionally balanced growth. In parallel, the growth of the production and R&D workforce contributed to a measurable rise in the country's intellectual property capacity.

Türkiye's National Technology Move has been designed as a comprehensive framework to further strengthen the country's technological capabilities and global competitiveness. By deepening its critical technological competencies, investing strategically in research, innovation, and human capital, and addressing structural barriers to entrepreneurship, Türkiye seeks not only to keep pace with global technological trends but also to contribute actively to the generation and dissemination of new technologies worldwide.

RESEARCH, DEVELOPMENT AND INNOVATION: BUILDING THE FOUNDATIONS OF THE NATIONAL TECHNOLOGY MOVE

Türkiye has consistently prioritized research and development as a cornerstone of its national development agenda. Supported by one of the world's most effective incentive frameworks for R&D, the country has successfully built a dynamic innovation ecosystem virtually from scratch.

An important policy shift in the early 2000s focused on expanding private-sector R&D capacity and building a collaborative ecosystem based on robust university-industry cooperation. In this context, Technology Development Zones—known as technoparks—alongside dedicated R&D Centers and Design Centers, were established to drive innovation-led growth. Firms conducting R&D activities benefit from generous tax and social security premium incentives, as well as wage support for personnel trained in core scientific disciplines. Today, more than 1,600 private-sector R&D and Design Centers employ skilled engineers and technicians who develop high value-added, innovative solutions. In addition, 106 technoparks across the country host over 11,500 firms actively conducting research, development, and technology commercialization projects.

Thanks to supportive regulations and a clear national vision, Türkiye has steadily expanded both its R&D human capital and its overall investment in innovation. In 2002, the country counted only 29,000 full-time equivalent (FTE) R&D personnel; by 2023, this figure had reached nearly 291,000. With this rapid growth, Türkiye has become the second-fastest-growing OECD country in terms of expanding its R&D workforce. In parallel, annual R&D expenditure has increased dramatically—from just USD 1.2 billion to over USD 16 billion—two-thirds of which now comes directly from the private sector, demonstrating the strength of industry's role in driving innovation-led growth.

The country's commitment to R&D and innovation has already delivered concrete results. Over the past two decades, Türkiye's portfolio of registered industrial property rights has expanded from just 93,000 to more than 2 million. exports of medium-high and high-technology products have increased nearly tenfold—from USD 10.3 billion in 2002 to USD 101.2 billion. Backed by this expanding R&D-driven production capacity, Türkiye now plays a stronger role in global supply chains. It serves as a trusted source for high-value manufacturing, technology-intensive components, and advanced engineering solutions that meet the demands of today's rapidly changing world economy.

HUMAN CAPITAL: EMPOWERING THE NEXT GENERATION OF INNOVATORS

Achieving technological sovereignty and sustaining high value-added production fundamentally depends on a dynamic, highly skilled, and adaptable workforce. With a median age of 34, Türkiye benefits from a demographic profile that is not only younger but also more energetic and entrepreneurial than many advanced economies. To fully harness this demographic advantage, the country has prioritized comprehensive talent development strategies to equip its young population with the skills and opportunities needed to shape the technologies of the future and contribute actively to national and global innovation.

A flagship example of this vision in action is TEKNOFEST, which since 2018 has provided millions of young people with a unique platform to experiment, learn, and bring ideas to life. More than just the world's largest aerospace and technology festival, TEKNOFEST has grown into a nationwide movement that nurtures a culture of curiosity, experimentation, and teamwork. By connecting students, engineers, startups, and industry leaders under a shared vision, it plays a critical role in cultivating new generations of innovators and entrepreneurs who will drive Türkiye's technological transformation forward. This strong social foundation ensures that the country's innovation capacity is not limited to institutions alone, but deeply rooted in the talent, creativity, and ambition of its people.

The Deneyap Technology Workshops offer comprehensive three-year programs in cutting-edge fields ranging from robotics and coding to IoT applications, design, aerospace, and advanced programming — all provided free of charge to talented young students across Türkiye. Alongside Deneyap, new flagship initiatives such as Sector On Campus and the National Technology Academy have been launched to expand the country's talent pipeline even further. These programs bring industry directly into universities and training centers, provide hands-on experience in real-world production environments, and equip participants with advanced technical and managerial skills tailored to the needs of strategic sectors.

In addition, TÜBİTAK plays an increasingly active role in developing human capital through nationwide science festivals, science centers, project competitions, and scholarship programs that inspire young people to explore, experiment, and transform ideas into practical solutions. Together, these complementary efforts ensure that Türkiye's innovation ecosystem is continuously supplied with a diverse, skilled, and forward-looking generation — ready to drive high-value technological production and sustain the momentum of the National Technology Move.

Türkiye's Technological Transformation: From Strategy to Security offers a comprehensive analysis of how Türkiye is repositioning itself in an increasingly technopolar international system. As technology reshapes power, security, and diplomacy, the book examines Türkiye's pursuit of strategic autonomy through indigenous innovation, digital infrastructure, artificial intelligence, cyber resilience, space policy, and defense technologies.

It situates Türkiye's National Technology Move within a broader context of digital asymmetry, where control over data, algorithms, and technological capacity defines new hierarchies of power. Beyond material capabilities, the volume highlights the rise of cognitive diplomacy, emphasizing how technology influences perception, narrative authority, and diplomatic practice. By linking technological sovereignty to national security, economic resilience, and normative influence, the book demonstrates how Türkiye seeks not only to adapt to systemic change but to shape it.

This work provides critical insights for scholars and policymakers interested in the evolving intersection of technology, strategy, and statecraft in the twenty-first century.

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