Dual-Use AI: The Connective Tissue Between Enterprise Innovation and National Resilience

Artificial Intelligence has become the defining force behind the Enterprise 5.0 era — the age in which intelligent systems, adaptive workflows, and machine reasoning move from theoretical promise to operational reality. But beneath the familiar story of enterprise transformation lies a deeper shift with far greater implications. The same AI technologies powering productivity, efficiency, and growth inside the world's leading companies are now underpinning the stability and resilience of nations, infrastructure, and global systems.

The boundary between commercial innovation and national security has all but dissolved. The systems that run global supply chains, energy grids, financial networks, critical infrastructure, and industrial operations now depend on AI to sense, interpret, and respond to complexity in real time. This fusion — where enterprise-grade intelligence and societal resilience share a common technological architecture — defines the rise of Dual-Use AI.

Dual-Use AI is not a military concept; it is a modernization concept. It describes a world in which the same intelligent capabilities that optimize logistics, detect fraud, manage infrastructure, or orchestrate human workflows are also the ones that protect power grids, secure communications, manage crises, and reinforce the systems upon which societies depend. AI has become not just a business tool, but a structural substrate — the connective tissue of modern civilization.

Importantly, the modern meaning of "dual-use" extends far beyond technologies with defense origins. Today, many of the systems most essential to national resilience — grid intelligence, cyber integrity, supply-chain orchestration, industrial sensing — are commercial AI platforms that now operate as shared infrastructure across both enterprise and public sectors. In this sense, dual-use reflects not militarization, but modernization: the growing societal dependence on AI systems that can perceive, adapt, and safeguard the essential functions of a connected world.

The Global Inflection Point

Dual-Use AI has quietly become the fastest-growing segment of global technology, and the new center of gravity for innovation, investment and strategic advantage. In 2025, 55% of all new scaleups worldwide fall into Dual-Use sectors — a tipping point that reveals where the next trillion

dollars of enterprise value will be built. The category sits at the intersection of national priorities, enterprise modernization, and AI's leap into mission-critical environments. Three underlying forces are driving this acceleration.

The first is geopolitical fragmentation. Europe's response to Russia's invasion of Ukraine has triggered historic increases in defense, cyber, and energy-resilience investment. In Asia, China's acceleration has pushed Japan, India, South Korea, and others to expand autonomy, maritime security, sensing technologies, and space systems at record pace. In the Middle East, Israel and the Gulf states are deploying AI-driven sensing, cyber-defense, and robotics to protect infrastructure in an increasingly volatile region. Hot-war environments have compressed innovation cycles: technologies validated on the battlefield — autonomous systems, cryptographic frameworks, remote sensing, edge intelligence — are transitioning directly into commercial markets. And public markets are reinforcing this shift: dual-use and defense-aligned companies outperformed the broader tech sector by roughly +60% in 2024. Enterprises now face the same pressures as governments — infrastructure strain, cyber escalation, climate volatility, supply-chain fragility — turning resilience into a universal strategic priority.

The second force is the maturity of AI itself. After years of research and experimentation, AI has crossed a threshold into mission-critical deployability. Generative and multimodal models can synthesize insights with human-level fluency; reasoning-capable agents can coordinate complex action sequences; and edge AI systems can operate without cloud dependency, enabling autonomy in environments where latency or connectivity constraints once made automation impossible. AI is also accelerating disruption across every trillion-dollar frontier: robotics ($56B by 2032), quantum ($193B by 2040), autonomous systems ($234B by 2034), and space ($1.8T by 2035). The convergence of these markets reflects AI's shift from enabling tools to mission-critical infrastructure. Systems once considered too sensitive, too slow, or too complex to automate — from national infrastructure to industrial robotics — are now natively AI-driven. The era of AI as a back-office accelerant is over. AI has become the operational core.

The third force is capital realignment. Investors — particularly corporate VCs, sovereign wealth funds, and strategic capital allocators — are shifting aggressively toward technologies that harden infrastructure, strengthen resilience, and scale responsibly. Dual-Use companies tend to reach revenue earlier, build deeper moats, and deliver more durable value than consumer-facing AI plays. Israel's battlefield-tested sensing, cyber, and robotics systems are attracting global interest at accelerating rates. And a new infrastructure shockwave is underway: AI's projected power demand is expected to reach 10% of global electricity consumption by 2030, requiring more than $5 trillion in datacenter and energy-infrastructure buildout — the largest resilience-driven capital deployment in modern history. Capital is following necessity, and necessity today is resilience.

This surge in demand is already reshaping the architecture of global energy systems. Datacenters — the physical substrate of AI — are increasingly colocated with renewable power, embedded within distributed grids, and managed through AI-driven forecasting and load balancing. Energy resilience and AI infrastructure are now interdependent: the systems that power AI must themselves become more intelligent, adaptive, and autonomous. For investors and enterprises, this represents one of the largest infrastructure transformations in decades — and Dual-Use AI sits at the center of it.

Taken together, these forces have created a global ecosystem of more than 17,600 Dual-Use scaleups across the U.S., Europe, and Asia-Pacific — companies that have collectively raised more than $1.2 trillion in capital. Five markets — the United States, United Kingdom, France, Israel, and Japan — anchor the majority of global activity, with India rising rapidly. The fastest-growing frontier markets include autonomy, cybersecurity, robotics, critical infrastructure, and space-edge intelligence. What was once a narrow category has become the fastest-growing segment in global technology — the center of gravity for innovation, investment, and strategic advantage.

Four Critical Domains of Dual Use AI

Dual-Use innovation crystallizes across four interconnected domains — the areas where the fusion of enterprise intelligence and societal resilience is most visible and most consequential.

The first is data and contextual intelligence. As AI systems permeate every operational layer, the stability of data — and the ability to interpret it with nuance — becomes paramount. This domain includes anomaly detection, cryptographic integrity, secure data routing, financial crime detection, and mission-critical situational awareness. In a world where cyber operations, supply-chain vulnerability, and quantum-era threat surfaces evolve at machine speed, enterprises and governments alike require AI systems that can detect weak signals, contextualize risk, and protect high-value assets. BGV portfolio companies such as ThetaRay, with its AI-driven anomaly detection for global financial and digital ecosystems, Cryptosense (now part of SandboxAQ), which provides quantum-safe cryptographic governance, and Cysec, which provides quantum-safe cryptographic governance, exemplify this foundational layer.

The second domain is power and critical-infrastructure platforms — the systems that keep societies running. Energy grids, utility networks, industrial sites, transportation arteries, and climate-exposed assets increasingly depend on continuous, machine-speed intelligence. AI enables predictive maintenance, climate resilience, remote inspection, and infrastructure integrity at scales impossible through human oversight alone. AiDash's satellite-powered intelligence allows utilities and energy companies to anticipate grid failures, manage vegetation, and respond to extreme weather events. Percepto's autonomous inspection systems bring real-time situational awareness to industrial

facilities, enabling early detection of anomalies and preventing catastrophic failures. These capabilities matter not only for enterprise optimization, but for national continuity.

The third domain is autonomous systems and robotics. Autonomous agents — both physical and digital — now operate across inspection, logistics, emergency response, and critical industrial functions. As labor shortages, hazardous environments, and rising complexity challenge traditional operations, autonomous systems become the default solution for high-risk, high-priority tasks. Percepto's industrial drones and EverestLabs' vision-driven robotics demonstrate how automation can scale across domains as diverse as energy, safety, and sustainability. These are not "future" technologies; they are deployed today in some of the world's most demanding environments.

The fourth domain is communications and edge networks — the infrastructure that allows intelligence to operate outside centralized cloud stacks. Satellites, sensors, edge devices, and agentic frameworks create a distributed mesh of perception and reasoning, enabling autonomy even in contested or low-connectivity environments. AiDash's space-edge intelligence allows infrastructure operators to monitor assets globally. Lyzr's agentic frameworks help enterprises deploy real-time, context-aware AI agents that augment human workflows and decision-making. As enterprises and governments push intelligence closer to the edge, this domain becomes the backbone of operational sovereignty.

Together, these four domains form the architecture of modern resilience. They are the areas where Dual-Use AI delivers the greatest strategic advantage — and where BGV is already deeply invested.

The BGV Advantage

BGV operates at the center of the world's most active Dual-Use innovation corridors: Silicon Valley, Paris, Tel Aviv, Bangalore, and Tokyo. These ecosystems account for the majority of global capital formation and scaleup activity in Dual-Use technologies — a concentration that mirrors our cross-border investment model and amplifies our ability to identify, support, and scale the next generation of AI-native companies. Our geographic reach, enterprise specialization, and cross-border model reinforce each other.

BGV's specialty is enterprise AI — the systems, platforms, and infrastructure that power core business operations. For more than a decade, we have invested in the intelligence layer of global industries. Our cross-border platform accelerates technology transfer across markets, enabling companies validated in one geography to scale into others with speed and precision.

Equally important, BGV's operator-led model ensures founders embed governance, compliance, and scalability from the earliest stages. Through our partnership with the Ethical AI Governance Group (EAIGG), we co-developed the AI Native Startup Playbook — a repeatable framework for responsible AI development that integrates human oversight, risk management, and ethical alignment directly

into product architecture. This is more than operational discipline; it is the cornerstone of trust, especially in a category where enterprise and national systems increasingly overlap.

In practical terms, BGV serves as the bridge between defense-validated technologies and global enterprise markets. We translate capability into commercial scale — responsibly, repeatably, and across borders.

Dual-use technologies benefit from what we call “dual validation” — proof of reliability in mission-critical or regulated environments that accelerates adoption in commercial markets. When a system demonstrates robustness under the highest levels of scrutiny, enterprise buyers trust it faster, deploy it earlier, and expand it more aggressively. This creates shorter sales cycles, deeper moats, and more durable scale. BGV’s role is to help founders translate that mission-proven capability into enterprise-grade platforms that can scale responsibly across industries and geographies.

Responsible Scale Responsible AI as Civilizational Infrastructure

Dual-Use AI is not just a technological category. It is becoming the foundational infrastructure of 21st-century civilization. The systems that generate energy, manage logistics, secure data, respond to crises, and maintain societal continuity are converging into a shared, AI-driven fabric. These systems determine not only enterprise performance, but the stability and adaptability of nations.

The defining question of the coming decade is not whether AI will shape the world, but what kind of world AI will shape. Will we build systems that are merely more efficient — or systems that make societies more resilient, transparent, and human-aligned?

At BGV, we choose the latter.

We invest in founders building the intelligent infrastructure upon which economies — and civilizations — will depend. Dual-Use AI is the connective tissue between innovation and resilience. Its rise is inevitable. Its impact is profound. And the time to build it — responsibly, ambitiously, and at scale — is now.

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