



World Business Angels Investment Forum

An affiliated partner of the G20 Global Partnership for Financial Inclusion (GPFI)

Global Research Institute and
Global Science, Technology and Innovation (STI) Committee

A Global Briefing on The Transformative Impact of Deep Tech Entrepreneurship on Sustainable Economic Transformation

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SECTION I.ABOUT WBAF

The World Business Angels Investment Forum (WBAF) is an international organisation aiming to ease access to finance for businesses from start up to scale up, with the ultimate goal of generating more jobs and more social justice worldwide. As an affiliated partner of the G20 Global Partnership for Financial Inclusion (GPII), it is committed to collaborating globally to empower world economic development by creating innovative financial instruments for innovators, startups, and SMEs.

WBAF consists of a diverse group of top global political leaders, investors, entrepreneurs, innovators and disruptors that range from niche market leaders to regional champions, all of whom collaborate to address key issues. The Forum interacts with leaders in all areas of society, to help assess needs and establish goals, bearing in mind that the public interest is of paramount importance. We engage in a wide range of institutions, both public and private, local and international, commercial and academic to help shape the global agenda. We believe that with the participation of individuals and institutions from multiple sectors and from all parts of society, real progress can be achieved.

The Global Science, Technology and Innovation (STI) Committee of the World Business Angels Investment Forum is committed to connecting innovators with smart finance, creating a better environment for innovation, helping inventors commercialize their inventions, fostering the kind of creative thinking that leads to innovation by open learning and skill development, and accelerating technology transfer around the world.

The WBAF Research Institute advances the mission of the World Business Angels Investment Forum by fostering research, strategic intelligence, and evidence-based insights that inform the global agenda, transform the investment ecosystem, and support entrepreneurial development. By supporting the WBAF Forum, the WBAF Business School, and the WBAF Global STI Committee, the Institute aims to strengthen innovation ecosystems and accelerate economic growth. Its work empowers stakeholders with data-driven strategies, enabling impactful programs that foster entrepreneurship, technology-driven competitiveness, and inclusive global prosperity.

SECTION II. OVERVIEW

The world is entering a new economic and technological era defined by rapid innovation, intensifying geopolitical competition, and urgent sustainable development priorities. Entrepreneurship and deep technology now stand at the center of national strategies for competitiveness, industrial modernization, digital sovereignty, and long-term prosperity aligned with the United Nations 2030 Agenda. However, breakthrough innovation cannot scale on inspiration alone. Its sustained advancement requires the convergence of three mutually reinforcing pillars:

- i) An enabling global landscape grounded in sound public policy, transparent regulation, and supportive market conditions;
- ii) Exponential research and technology advances that unlock new business models, transformative industries, and resilient digital infrastructure; and
- iii) Modern investment architectures that are capable of financing long-horizon, capital-intensive deep tech ventures.

Only through the alignment of these pillars can nations and regions harness the promise of deep technology for sustainable growth, global prosperity, and shared human progress.

Across the international system, policymakers, multilateral institutions, financial actors, academic leaders, and private-sector innovators increasingly recognize that the future of the world economy will be determined by the interaction between structural conditions and frontier technologies. Regulatory environments, trade frameworks, capital markets, education systems, and digital infrastructure will either empower entrepreneurship or suppress its potential, while exponential technologies such as sixth-generation communications, artificial intelligence, quantum systems, edge computing, blockchain, digital twins, and the emerging metaverse will shape how value is created, how societies function, and how power is exercised. Countries capable of modernizing their policy frameworks, strengthening their entrepreneurial ecosystems, and deploying frontier technologies at scale will define the next wave of economic transformation.

This briefing examines these dynamics through a comprehensive three-part lens.

The first lens analyzes the global landscape through insights from the United Nations, the European Union, the World Economic Forum, the Organisation for Economic Co-operation and Development, the International Monetary Fund, and the World Bank, focusing on entrepreneurship trends, MSME growth conditions, financing barriers, and the policy architecture needed to accelerate innovation-driven development.

The second lens synthesizes peer-reviewed research on deep technology, exploring how 6G connectivity, artificial intelligence, digital twins, metaverse environments, advanced cloud infrastructures, and quantum-driven capabilities are reshaping industry and society.

The third lens examines the evolution of the investment architecture required to support deep tech entrepreneurship at scale, with particular emphasis on decentralized finance, angel investment ecosystems, mission-driven venture capital, family offices, sovereign wealth funds, and multistakeholder financing platforms.

Together, these sections provide a unified strategic briefing for governments, industry, academia, and international organizations, demonstrating that sustainable growth in the decade ahead will depend on the ability to align policy, technology, and capital into a coherent mission. The path forward will reward those who build resilient innovation ecosystems and embrace collaborative leadership to shape a more inclusive, secure, and future-ready global economy.

SECTION III. GLOBAL LANDSCAPE

The 2025 landscape for entrepreneurship and MSMEs is unfolding against the backdrop of a profound global disruption—one marked by the accelerated reordering of the world order and the intensification of trade wars that have reshaped supply chains, fractured long-standing alliances, and redefined the calculus of economic interdependence. From semiconductor sanctions to retaliatory tariffs on green technologies, the geopolitical contest for technological and economic supremacy has spilled into the entrepreneurial domain, creating both volatility and opportunity. This turbulence is not merely cyclical; it signals a structural shift in how nations pursue strategic autonomy, digital sovereignty, and industrial resilience.

Within this context, the entrepreneurial ecosystem is shaped by three intertwined forces: public sentiment and expectations, the global policy narrative honoring MSMEs' centrality to development, and persistent macroeconomic and structural headwinds. These forces are reflected in the latest data and analysis from leading international institutions, including the EU's Eurobarometer, the OECD, the World Bank, the IMF, the United Nations, and the World Economic Forum. Together, these sources portray a world in which entrepreneurship is widely celebrated as a central pillar of economic and social progress, yet remains constrained by weak financing conditions, uneven productivity, and fragile enabling environments. The promise of deep tech entrepreneurship—rooted in frontier science and transformative innovation—offers a potential counterweight to these constraints, but its success will depend on how effectively ecosystems adapt to the new geopolitical and economic realities.

Across the European Union, the July 2025 Eurobarometer survey on startups, scaleups, and entrepreneurship provides a vital snapshot of conditions on the ground. Drawing on more than 17,000 company responses across the EU-27, the survey highlights the continued ambition of entrepreneurs but also exposes deep-rooted challenges. The results reveal that while entrepreneurial intent remains strong, firms face pronounced frictions in accessing scaleup finance and face barriers to cross-border expansion. The survey underscores that regulatory clarity, innovation-support mechanisms, and strong talent pipelines correlate directly with scaleup prevalence. These findings reinforce the persistent “valley of death” between early-stage viability and sustained commercial growth, a structural impediment that continues to limit the EU's capacity to convert innovation into globally competitive firms.

This theme of structural imbalance is echoed by the United Nations' observance of Micro-, Small and Medium-sized Enterprises Day. The UN General Assembly underscores that MSMEs provide the majority of jobs worldwide and are indispensable to achieving the Sustainable Development Goals. However, the observance also highlights persistent inequities that prevent MSMEs from benefiting fully from globalization, digitalization, and trade liberalization. The UN therefore calls for expanded access to finance, broader participation in markets, and investment in entrepreneurship ecosystems, particularly for women, youth, and entrepreneurs in developing countries.

At the financial level, the OECD's Financing SMEs and Entrepreneurs Scoreboard 2025 highlights the pressures facing entrepreneurs amid tightened monetary conditions, risk-averse

lending behavior, and declining availability of long-term capital. Data across markets show that bank lending to SMEs continues to decelerate, asset-based financing has softened, and venture capital flows show volatility across sectors and geographies. The report emphasizes the growing mismatch between innovative, intangible-asset-driven firms and traditional collateral-based financing norms. The OECD concludes that a systemic shift is required, including expanded public guarantees, reformed insolvency regimes, strengthened capital market access, and enhanced financial literacy and digital readiness.

Additional insights from the IMF and World Bank reinforce the importance of diversification, capability development, and infrastructure reliability as prerequisites for entrepreneurship-driven growth. The IMF's 2025 analysis of Oman's SME ecosystem illustrates common structural challenges in emerging economies, including limited access to finance, underdeveloped human-capital pipelines, and weak links to global value chains. The World Bank's 2025 assessment of Latin America similarly underscores that transformational entrepreneurship is essential for job creation and productivity growth but cannot succeed without addressing informality, regulatory bottlenecks, and weak infrastructure. Both institutions argue that targeted reforms, strategic investment, and institutional strengthening are needed to unlock entrepreneurial potential.

The World Economic Forum's Annual Meeting of the New Champions reinforces these themes on a global scale. Against a backdrop of slowing global growth, shifting supply chains, and heightened geopolitical uncertainty, the Forum frames entrepreneurship as a driver of systemic renewal. It calls for multilateral cooperation to safeguard open markets, invest in human capital, secure critical materials, and accelerate sustainable innovation in strategic sectors. Notably, the Forum highlights Asia's pivotal role as a global growth engine and underscores the urgency of aligning innovation agendas with sustainability and inclusivity.

These converging analyses lead to a coherent conclusion: the future of entrepreneurship and MSME growth depends on policy modernization, coalition-building, and infrastructural investment. Policymakers must prioritize counter-cyclical SME financing, regulatory simplification, improved market access, and investment in talent and infrastructure. Europe in particular must focus on scaleup pathways, late-stage financing instruments, and deeper capital-market integration to prevent the loss of promising firms to other regions. More broadly, governments, development banks, and international organizations must work in partnership to address structural barriers and stabilize the foundations of the global entrepreneurial landscape.

The signal from 2025 is unequivocal. The world is committed to entrepreneurship as a pathway to growth, resilience, and human development, yet the systems that finance, enable, and support entrepreneurs must undergo transformation. Building the conditions for MSMEs to thrive is not merely a matter of economic policy, but a critical pillar of global stability and sustainable development.

SECTION IV. IMPACT ON THE GLOBAL INVESTMENT ECOSYSTEM

Deep tech entrepreneurship, rooted in advanced science, long research cycles, and capital-intensive development pathways, cannot be scaled through traditional financing systems designed for short-term returns. Unlike asset-light digital startups, deep tech ventures must advance costly experimentation, multi-year prototyping, regulatory validation, and infrastructure

deployment long before reaching commercial maturity. As nations seek technological sovereignty, industrial resilience, and sustainable growth, investment systems must undergo structural transformation. A new capital architecture is emerging, centered on decentralized finance, empowered angel ecosystems, specialized venture capital, family-office stewardship, sovereign wealth engagement, and coordinated multi-stakeholder financing platforms.

A central development in this evolution is the rise of decentralized investment mechanisms powered by blockchain and tokenization. Decentralized finance, tokenized funds, and distributed autonomous investment networks are lowering participation barriers, increasing liquidity, and expanding global investor bases. These mechanisms unlock fractional ownership of frontier assets such as quantum hardware, space technology, and advanced AI infrastructure. Tokenized venture capital and smart-contract revenue systems accelerate capital flows by reducing administrative friction and enabling real-time transparency. For deep tech entrepreneurs, decentralized capital represents a structural shift toward inclusive, borderless, and continuous financing, moving beyond slow and concentrated gatekeeping models of traditional finance.

At the earliest stages of venture development, angel investor ecosystems remain indispensable. Given the high uncertainty and scientific complexity of deep tech ventures, angel investors are evolving into active contributors who provide specialized knowledge, research insight, and ecosystem connectivity. Cross-border angel syndication is increasing, especially across North America, Europe, and Asia, enabling shared risk and shared expertise. Angels play a critical role in advancing ventures through intermediate technology readiness levels, bridging the gap between research output and institutional capital.

Venture capital remains central, but its role is being fundamentally redefined. Traditional models optimized for rapid exits are ill-suited to deep tech's long-term pathways. In response, specialized deep tech funds, dual-use innovation funds, climate-technology investors, and patient-capital hybrid models are gaining prominence. These funds combine equity with milestone-based financing, strategic co-investment, and blended-finance approaches that align government missions with private-sector execution. Venture debt and convertible models are also being redesigned to align with extended development cycles. Modern deep tech investors increasingly function as ecosystem orchestrators, aligning startups with universities, national laboratories, standards bodies, and corporate anchors.

Family offices and sovereign wealth funds are emerging as decisive forces in deep tech financing. With long-term horizons and strategic mandates, these actors are uniquely positioned to finance infrastructure-heavy innovation aligned with national and generational priorities. Family offices are deepening their involvement in mission-driven investments across longevity, sustainability, digital infrastructure, and health security. Sovereign wealth funds are accelerating strategic investments in critical infrastructure and frontier technologies that underpin national competitiveness and technological sovereignty. Through co-investment with development banks, multinational corporations, and regional innovation platforms, sovereign wealth funds are closing structural financing gaps that traditional markets cannot address.

The investment landscape is also being reshaped by multi-stakeholder partnerships that combine the resources, legitimacy, and capabilities of governments, financial institutions, corporations,

academia, and civil society. These partnerships are increasingly central to financing deep tech because commercialization depends not only on capital, but also on infrastructure, regulation, ethics, and public trust. Blended-finance models, mission-driven public-private partnerships, and cross-border innovation corridors are emerging as essential mechanisms for scaling complex technologies that have systemic impact. When aligned with the Sustainable Development Goals, these platforms mobilize capital at scale while ensuring accountability, resilience, and ethical stewardship.

The path forward requires investment systems that exhibit patience, share risk, embrace tokenization, align with national and societal missions, and integrate capital with human and institutional capabilities. Deep tech will not scale on legacy financial rails. The nations and institutions that modernize their capital systems will lead the next technological and economic era.

SECTION V. IMPACT ON GLOBAL DIPLOMACY, AND TECHNOLOGICAL SOVEREIGNTY

Entrepreneurship and innovation have become essential catalysts for global economic development, serving as foundational drivers of productivity, competitiveness, and long-term prosperity. High-growth enterprises, particularly in deep technology fields, are reshaping value creation, generating quality employment, and accelerating capital formation across industries and regions. Countries that foster dynamic entrepreneurial ecosystems consistently experience stronger economic resilience and greater adaptability to structural disruption. These ecosystems amplify innovation diffusion, reinforce industrial diversification, and expand capacity for sustained GDP growth.

Entrepreneurship also plays a transformative role in global trade, reshaping value chains and expanding export potential through digital platforms, advanced manufacturing, and innovation-driven production networks. Deep tech entrepreneurs create technologies that reduce cross-border friction, increase transparency, and deepen trust in international commerce. Artificial-intelligence-driven logistics, blockchain-based verification systems, and satellite-enabled connectivity are redefining efficiency and accountability across global supply chains. These advances reinforce the modernization priorities of the World Trade Organization and support the G20's commitment to open, rules-based, and innovation-enabled trade systems.

Beyond economics and trade, entrepreneurship and innovation have become instruments of twenty-first-century diplomacy. Nations increasingly deploy innovation partnerships, technology alliances, and startup diplomacy to strengthen international cooperation, expand influence, and build strategic trust. Bilateral research agreements, multilateral technology accords, and cross-border venture programs serve as diplomatic tools that deepen collaboration in areas including cybersecurity, health security, space exploration, sustainable energy, and digital infrastructure. Innovation-driven diplomacy strengthens soft power, reinforces shared values, and enables joint responses to transnational challenges.

Technological sovereignty has become a defining concept in this emerging geopolitical context. Sovereignty in the digital age no longer depends solely on territorial integrity or traditional

economic levers, but on the capacity to develop, deploy, and govern critical technologies. Entrepreneurship is central to that sovereignty because it builds domestic capability, reduces dependency on single-source suppliers, and positions nations to shape international standards and governance mechanisms rather than merely adopting them. Strategic sectors such as semiconductors, quantum computing, artificial intelligence, biotechnology, clean energy systems, and secure communications increasingly define national power. Nations that cultivate innovation ecosystems aligned with industrial policy and mission-driven investment will strengthen both their economic security and geopolitical autonomy.

Entrepreneurship and innovation are therefore not optional policy priorities, but geopolitical necessities. They advance sustainable development, expand opportunity, strengthen multilateral cooperation, and reinforce societal resilience. The nations that succeed in the decade ahead will be those that align innovation, strategic governance, and human capital development into a unified mission, mobilizing public and private stakeholders to build a peaceful, prosperous, and technologically sovereign global future.

SECTION VI. LATEST ACADEMIC RESEARCH PUBLICATIONS

A rapidly evolving technological frontier is reshaping entrepreneurship, economic development, and societal transformation. The 2025 research landscape demonstrates that exponential technologies are converging to create intelligent, interconnected, and sustainability-driven innovation ecosystems. Across peer-reviewed literature, three themes dominate: intelligence-driven connectivity powered by sixth-generation networks, technology-enabled business model reinvention for sustainable growth, and the emergence of integrated deep tech ecosystems aligned with the Sustainable Development Goals.

A substantial body of research positions 6G as the foundational infrastructure of the next innovation wave. Scholars such as Wei, Wu, Liu, Lin, Zhang, and Sun emphasize that 6G will enable unprecedented capabilities, including holographic communication, autonomous systems, and immersive industrial environments. With ultra-low latency, ubiquitous sensing, and distributed intelligence, 6G will underpin the next generation of digital infrastructure. Complementing this perspective, Butt and Shah describe how the fusion of artificial intelligence and 6G networks will produce self-optimizing systems that enable real-time orchestration of complex environments across sectors, reinforcing the idea that AI-6G convergence will redefine global communications and computation.

Other research explores 6G's central role in enabling the metaverse, semantic communication, and personalized digital services. Aloudat and colleagues highlight that 6G, paired with edge learning, will create highly adaptive communication frameworks capable of contextual awareness and individualized content delivery. Meanwhile, Moghaddam, Moghaddam, and Kibinda emphasize persistent connectivity inequities and argue that infrastructure sharing, and inclusive broadband strategies are essential to ensure that 6G benefits extend beyond advanced economies.

Literature consistently links this technological foundation to entrepreneurship, sustainability, and innovation-driven growth. Danil and co-authors argue that technologically enabled entrepreneurship will be central to achieving SDG 8 by driving job creation and productivity expansion. Huang and Zhou advance the concept of open innovation as a prerequisite for sustainable business models in the digital era. Tura, Kokkonen, Kohtamäki, and Rabetino build on this logic by demonstrating that business model innovation is essential to the twin transitions of sustainability and digitalization.

At the enterprise level, research identifies blockchain, agentic artificial intelligence, and cloud-native infrastructures as critical enablers of resilient business ecosystems. Patra's work on blockchain in international entrepreneurship demonstrates that distributed ledgers can reshape trust, transparency, and cross-border commercial engagement. Olujimi and Raheem, together with Hossain, illustrate both the promise and governance risks of agentic AI, where autonomous systems can enhance organizational efficiency but require careful oversight to maintain accountability. Alka and colleagues underscore the importance of cloud-native systems in enabling scalable and sustainable enterprise growth.

Research on digital twins and circularity further extends these insights. Jebbor and Ali demonstrate that digital twin technology, combined with metaverse infrastructures, can advance circular-economy practices by enabling resource optimization, predictive maintenance, and closed-loop production systems. Martín and co-authors expand the discussion to the intersection of artificial intelligence and quantum computing, highlighting both economic potential and governance risks, while Hilkamo stresses that quantum ecosystem development will require new organizational and policy models. Fu adds a critical dimension by analyzing how private space enterprises are reshaping terrestrial and extraterrestrial infrastructure, reinforcing the multi-layered nature of the emerging innovation ecosystem.

Across all studies, a single conclusion emerges: the future economy will be ecosystemic, intelligent, deeply interconnected, and sustainability-oriented. Sixth-generation infrastructure, artificial intelligence, quantum technologies, cloud-edge fusion, and metaverse environments will collectively form the backbone of next-generation economic systems. Entrepreneurship, supported by forward-leaning public policy and ethical governance, will determine whether these technologies deliver global benefit or deepen existing divides.

SECTION VII. WBAF RESEARCH INSTITUTE'S RESEARCH PUBLICATIONS

The global landscape of innovation, economic development, and geopolitical strategy is undergoing a profound structural shift. As the international community confronts intensifying technological rivalry, fragile supply chains, climate instability, and polarizing economic headwinds, deep tech entrepreneurship has emerged as a central axis of national competitiveness, diplomatic leverage, and sustainable development. Countries, markets, and institutions now recognize that scientific breakthroughs, particularly those enabling artificial intelligence, quantum computing, satellite connectivity, digital twins, advanced robotics, blockchain, biotechnology, and next-generation networks—are not merely commercial instruments, but

determinants of sovereignty, resilience, and influence in a rapidly evolving multipolar order. Against this backdrop, entrepreneurship serves as the mechanism that converts frontier research into sovereign capability, economic productivity, and shared prosperity aligned with the United Nations 2030 Agenda.

Yet innovation cannot thrive in a vacuum. Deep tech entrepreneurship requires enabling ecosystems, patient capital, ethical guardrails, cross-border collaboration, and long-horizon industrial strategy. Policymakers, investors, multilateral institutions, and research communities must therefore converge around a coordinated vision that links innovation, governance, sustainable finance, and technological diffusion. This compendium explores the multiple domains in which deep tech entrepreneurship is reshaping the global system—from defense and supply chains to the blue economy, agriculture, energy, mobility, education, health, and the achievement of the Sustainable Development Goals (SDGs). Through these interconnected narratives, a singular truth emerges: the next decade will reward nations, regions, and institutions that treat entrepreneurship not as a peripheral activity, but as a strategic instrument of diplomacy, economic security, and societal advancement.

To support this transformation, the international community must elevate policies that accelerate technology deployment, expand access to modern finance, protect intellectual property, close digital divides, foster interoperable standards, and incentivize multistakeholder cooperation. This demands a renewed diplomatic compact—one that positions deep tech innovation as a driver of peace, shared prosperity, and resilience rather than fragmentation or exclusion.

Across all domains, a coherent pattern emerges: deep tech entrepreneurship is now a structural force in global economics, diplomacy, security, and sustainability. It accelerates growth, modernizes industries, strengthens resilience, and amplifies national influence. It shapes trade flows, redefines labor markets, and alters the hierarchy of nations by determining who builds, who owns, and who governs the technologies of the future.

Entrepreneurship has become a diplomatic instrument—embedded in soft-power strategies, technology alliances, supply-chain agreements, climate compacts, and defense cooperation frameworks. It is also a determinant of sovereignty, as nations recognize that dependence on foreign technology erodes strategic autonomy. At the same time, deep tech innovation reinforces multilateral cooperation by creating shared incentives for interoperability, ethical standards, and peaceful technological development.

In this convergence, entrepreneurship is no longer a peripheral economic activity. It is a strategic pillar of international stability, competitiveness, and sustainable development.

The global system stands at a decisive moment in history, in which the structure of the world economy, the integrity of multilateral cooperation, and the stability of geopolitical relations will be shaped by the forces of innovation, entrepreneurship, and technological convergence. Deep tech entrepreneurship has emerged as a transformative catalyst that transcends traditional industrial boundaries, enabling nations and institutions to simultaneously advance economic development, societal progress, and strategic resilience. It is now clear that frontier technologies—powered by entrepreneurs—will determine productivity, competitiveness, security, sustainability, and shared prosperity throughout the 21st century. The international community

must therefore approach innovation not as a spontaneous market outcome, but as a coordinated strategic priority requiring diligent stewardship, inclusive governance, and long-term investment.

As demonstrated across defense, supply chains, the blue economy, agriculture, education, mobility, energy, precision health, decentralization, and satellite systems, deep tech entrepreneurship is redefining the foundations of industry and altering global power dynamics. Those who nurture entrepreneurial ecosystems—supported by modern capital architectures, ethical guardrails, sovereign digital infrastructures, and interoperable regulatory frameworks—will shape the rules, standards, and value networks of the future. Those who delay will inherit dependency, diminished sovereignty, and limited participation in the next technology wave. The stakes are therefore not merely economic; they are geopolitical, diplomatic, ecological, and civilizational.

To ensure that this transformation advances collective well-being, the world must embrace a new diplomatic compact for innovation. Governments must provide enabling regulation, long-horizon industrial strategies, and inclusive digital infrastructure. Investors must expand patient capital and mission-aligned finance to scale frontier solutions with societal benefit. Multilateral organizations must harmonize standards, foster trust, and defend ethical, human-centered technological development. Academic and research institutions must deepen scientific excellence while accelerating translational pathways. And entrepreneurs must uphold the values of integrity, sustainability, transparency, and global responsibility as they build the systems of tomorrow.

Deep tech must be harnessed not as a force of fragmentation or dominance, but as an engine of human progress that strengthens resilience, accelerates sustainable development, and upholds the dignity and opportunity of all people. By aligning innovation with ethics, entrepreneurship with inclusion, and competitiveness with cooperation, the international community can forge a future in which scientific discovery serves humanity rather than divides it. The path forward demands foresight, courage, coordination, and a shared commitment to long-term stewardship. If these principles guide our collective actions, deep tech entrepreneurship will become a pillar of peace, prosperity, and sustainability—enabling the world to navigate uncertainty, transcend limitations, and build a flourishing global society for generations to come.

The article highlights below demonstrate that deep tech entrepreneurship is already reshaping the global economy; the imperative now is to scale it responsibly, inclusively, and collaboratively for the benefit of current and future generations.

Deep Tech Entrepreneurship and the Emerging Global Defense Ecosystem

The global defense landscape in 2025 is at an inflection point shaped by geopolitical volatility, accelerated militarization of emerging technologies, and a new fiscal era of defense expansion. Defense expenditures have reached unprecedented levels, as governments prioritize strategic autonomy, deterrence, and national resilience. Within NATO, commitments have risen beyond the traditional two-percent benchmark and now encompass long-range integrated investments in both kinetic and non-kinetic domains. The European Union has similarly embedded defense into its industrial modernization agenda, while BRICS nations deepen their technological self-reliance through sovereign innovation initiatives.

Within this environment, deep tech entrepreneurship has become a critical force multiplier. No longer dominated exclusively by traditional defense primes, the defense innovation ecosystem increasingly relies on agile startups and scaleups operating across artificial intelligence, autonomous systems, edge computing, secure communications, quantum-resilient cyber defense, and space architectures. These ventures drive capability acceleration, compress development timelines, and infuse defense modernization with commercial innovation cycles. Governments and sovereign wealth funds have responded by expanding dual-use investment mechanisms, mission-driven procurement pathways, and innovation sandboxes that lower barriers for emerging defense ventures. This fusion of fiscal expansion, industrial strategy, and deep tech entrepreneurship is redefining the defense ecosystem, transforming it into a multi-actor innovation marketplace that links public mandates, private capital, and frontier science.

Deep Tech Entrepreneurship: Revolutionizing the Rare Earth Minerals Industry

The rare earth minerals (REM) sector has become emblematic of 21st-century geoeconomics—where supply concentration, energy transition demands, and national security imperatives intersect. REMs underpin critical technologies ranging from electric vehicles and advanced batteries to defense systems, wind turbines, and next-generation electronics. Yet the sector has been plagued by opacity, environmental degradation, volatile pricing, and geopolitical chokepoints. Deep tech entrepreneurship is now disrupting this reality through satellite internet-enabled remote operations, digital twin-powered optimization, blockchain-secured supply chains, and autonomous extraction systems that improve efficiency while reducing ecological impact.

Entrepreneurs are applying agentic AI for exploration, predictive maintenance, and logistics; blockchain for traceability and compliance; and autonomous robotics for hazardous extraction environments. Venture capital, impact funds, and sovereign-aligned investment mechanisms are mobilizing around this domain as REM security becomes synonymous with long-term strategic sovereignty. By coupling innovation with sustainability and transparency, deep tech entrepreneurship is re-shaping the REM value chain into a more diversified, resilient, and ethically governed global system.

Navigating the Future: How Deep Tech Entrepreneurship is Redefining the Blue Economy

The blue economy is evolving from a niche sustainability agenda into a critical pillar of global growth, resilience, and climate stability. Oceans—which already contribute trillions to global GDP—are poised to generate even greater economic value as technological advancements enable smarter resource management, marine biotechnology, sustainable aquaculture, offshore renewable energy, autonomous shipping, and advanced environmental monitoring. Deep tech entrepreneurship is the catalytic force behind this evolution, aligning ocean-based innovation with ecological stewardship and circular economics.

Startups are deploying underwater drones, satellite-based monitoring, AI-driven marine analytics, metaverse-enabled planning models, and digital twins to optimize maritime operations while protecting ecosystems. Blockchain strengthens traceability in fishing and blue supply chains, while autonomous systems enhance safety and efficiency across ports and logistics corridors.

Finance is also transforming through blue bonds, blended capital, and decentralised investment instruments that expand access to funding. By merging sustainability, innovation, and economic opportunity, deep tech entrepreneurship is redefining the blue economy as a strategic frontier of climate-aligned growth.

Deep Tech Entrepreneurship: Catalyzing Foreign Direct Investment in a Globalized Economy

Foreign direct investment (FDI) remains a central engine of global economic development, yet capital increasingly flows toward ecosystems demonstrating innovation potential, talent density, stable regulatory environments, and deep tech capacity. Deep tech entrepreneurship functions as both a magnet and multiplier for FDI by creating defensible intellectual property, generating high-growth ventures, and anchoring advanced industrial clusters. Nations that nurture deep tech ecosystems attract multinational partnerships, sovereign co-investment, and cross-border innovation alliances that accelerate productivity, diversify economies, and embed local firms into global value chains.

Deep tech ecosystems offer long-horizon returns through frontier technologies that expand export capacity, create knowledge-intensive jobs, and enhance technological sovereignty. For governments, aligning FDI strategies with entrepreneurial policy, talent pipelines, and mission-oriented incentives enables a virtuous cycle: innovation attracts capital, capital scales innovation, and scaled innovation strengthens geopolitical relevance and economic resilience. In this context, deep tech entrepreneurship becomes not merely an economic activity, but an instrument of geo-economic positioning.

The Role of Deep Tech Entrepreneurship in Global Supply Chain Ecosystems

Global supply chains—once managed as cost-efficiency networks—have become strategic infrastructures central to national security, food resilience, industrial sovereignty, and global trade stability. Recent disruptions from pandemics, conflict, cyberattacks, and climate-driven events exposed systemic fragility, prompting governments and industries to prioritize resilience, transparency, and adaptive capacity. Deep tech entrepreneurship is now transforming supply chains by embedding intelligence, automation, traceability, and real-time orchestration across their architecture.

Through AI-driven predictive analytics, blockchain-based provenance, quantum-inspired optimization, IoT sensorization, 6G-enabled connectivity, and satellite-powered visibility, entrepreneurs are designing supply chains that are more autonomous, less fragile, and capable of self-correcting under stress. This shift—from linear, opaque systems to intelligent, interoperable networks—ushers in a new era of supply chain diplomacy, where nations collaborate on standards, corridors, and data-sharing frameworks that ensure secure and predictable flows of goods and materials. Deep tech entrepreneurship thus becomes a foundation for global economic stability and cooperative resilience.

From Innovation to Impact: How Entrepreneurs and Novel Investments Accelerate the United Nations' SDGs

The Sustainable Development Goals articulate a universal blueprint for dignity, equity, sustainability, and prosperity. However, traditional policy tools and linear development models are insufficient to meet the urgency of the 2030 timeline. Deep tech entrepreneurship offers exponential pathways to SDG achievement by applying frontier technologies to systemic challenges in poverty, health, education, clean energy, climate action, and biodiversity protection. Entrepreneurs convert breakthrough technologies into scalable impact solutions, while novel investment instruments—such as green bonds, blue bonds, impact funds, and decentralized finance—mobilize capital toward measurable societal outcomes.

By aligning innovation with inclusion, and finance with sustainability, deep tech entrepreneurship acts as an accelerant for SDG progress. It creates new markets, closes access gaps, and modernizes infrastructure, while advancing transparency, accountability, and community resilience. In this convergence, entrepreneurship becomes not only a driver of economic development, but a force for planetary stewardship and human well-being.

Agri-Futures: The Role of Deep Tech Entrepreneurship and Investments

Agriculture lies at the heart of food security, public health, and social stability, yet it faces unprecedented pressures from population growth, aging workforces, resource scarcity, climate volatility, and soil degradation. Deep tech entrepreneurship is redefining agriculture through precision systems, autonomous robotics, satellite-linked intelligence, gene-editing breakthroughs, digital twins of farmland, and climate-adaptive biological engineering. These innovations are optimizing inputs, protecting biodiversity, reducing waste, and turning agriculture into a data-driven, climate-resilient production ecosystem.

Investment architectures are evolving in parallel, combining venture capital, family offices, sovereign funds, philanthropy, and blended finance to scale agri-innovation. By integrating sustainability, technology, and new financial instruments, deep tech innovations in agriculture are improving yields, fortifying supply chains, and reinforcing national and global food sovereignty. The sector demonstrates how entrepreneurship can serve as both a productivity engine and a humanitarian stabilizer.

Entrepreneurship Ecosystem Shaping the Future of Transportation and Mobility

The global mobility ecosystem is in the midst of a structural transformation driven by electrification, autonomy, digitalization, and space-enabled connectivity. Transportation, once defined by incremental efficiency gains, is increasingly shaped by exponential technologies that reconfigure the movement of people, goods, and data across terrestrial, maritime, aerial, and orbital domains. Entrepreneurial ventures occupy the leading edge of this transition, applying artificial intelligence, advanced materials, autonomous navigation, digital twins, and satellite systems to create cleaner, faster, safer, and more resilient mobility infrastructures.

Emerging innovations in autonomous vehicles, urban air mobility, electric aviation, high-speed rail, and intelligent logistics networks are redefining how societies design cities, manage trade, and structure labor markets. Entrepreneurs are pioneering predictive maintenance, energy-optimized routing, and multimodal digital platforms that connect mobility systems into unified

operational environments. These ventures amplify national competitiveness by reducing congestion, strengthening supply chains, and accelerating the decarbonization of transport. Financing mechanisms—from green bonds and mobility-focused venture capital to sovereign investments in strategic corridors—are increasingly aligned with this transformation. In this way, deep tech entrepreneurship is not only modernizing mobility systems but also shaping economic geography, trade connectivity, and urban development in the 21st century.

Entrepreneurship as Bioreactor for the Global Precision Health Ecosystem

Precision health is becoming a defining pillar of the future economy, powered by the convergence of genomics, multi-omics, computational biology, clinical digital twins, and AI-enhanced diagnostics. Entrepreneurship acts as the catalytic “bioreactor” that transforms scientific discovery into clinical and economic value, creating new therapies, decision-support systems, and personalized care pathways. Startups are accelerating drug discovery through quantum-inspired simulation, expanding preventive care through predictive analytics, and enabling secure health data exchange through blockchain-anchored architectures.

This entrepreneurial activity reshapes health investment flows, stimulates the formation of advanced bio-manufacturing clusters, and drives adoption of outcome-based care models. It also expands the tradable components of healthcare—from bio-data and digital therapeutics to cloud-based clinical intelligence—thus redefining global health markets. By creating interoperable, data-driven ecosystems, deep tech ventures enhance public health resilience, expand access, and reduce systemic inefficiencies. In a world confronting aging populations, rising chronic disease burdens, and widening disparities, precision health entrepreneurship emerges as both an economic multiplier and a societal stabilizer.

Investing for the Future: Deep Tech Entrepreneurship Powering the Education Revolution

Education systems are being re-engineered through deep tech innovation that enhances access, equity, personalization, and workforce readiness. Entrepreneurs are deploying artificial intelligence, extended reality, humanoid robotics, quantum-enabled simulation, 6G connectivity, and satellite broadband to redesign learning architectures and support continuous knowledge development. These solutions democratize learning opportunities across geography and socio-economic strata while equipping learners for a digital-first global economy.

Entrepreneurial ventures are transforming classrooms into adaptive ecosystems that personalize pacing and content, strengthen teacher productivity, and connect students to immersive, real-time global learning experiences. Blockchain-verified credentials reduce friction in labor mobility, while AI-driven skills intelligence aligns education with workforce demand. Investment flows from family offices, VCs, sovereign wealth funds, and impact investors are accelerating the growth of these ventures, advancing a new education-innovation compact that links human capital development with national competitiveness and inclusive prosperity.

The Vital Role of Entrepreneurship in Supporting the Net-Zero Economy

The net-zero transition is reshaping the foundations of industrial strategy and capital allocation. Deep tech entrepreneurship plays an indispensable role in decarbonizing hard-to-abate sectors through breakthroughs in synthetic fuels, carbon capture, circular materials, next-generation renewables, and AI-orchestrated energy systems. These ventures alter emissions trajectories while creating new industrial markets that generate employment, strengthen energy sovereignty, and reduce exposure to geopolitical volatility in fossil-fuel supply chains.

Novel investment instruments—including net-zero exchange-traded funds, sustainability-linked bonds, blended finance vehicles, and tokenized green infrastructure—expand the pool of capital available to climate entrepreneurs. By tightly coupling climate innovation with finance, policy, and industrial execution, entrepreneurship accelerates the realization of national and global climate objectives. In an era defined by planetary boundaries and escalating climate risks, deep tech entrepreneurship emerges as a primary engine for aligning economic growth with ecological sustainability.

Quantum Computing: An Enabler for Entrepreneurship and Investments

Quantum computing unlocks a new computational frontier with profound implications for cryptography, materials science, logistics optimization, pharmaceuticals, and financial modeling. Entrepreneurship is vital to both harnessing and securing this technology. Startups are developing quantum-enhanced applications while simultaneously architecting quantum-resilient cybersecurity frameworks that protect critical infrastructure, communications, and finance from next-generation threats.

Investment ecosystems must evolve to support quantum innovation through sovereign funding, patient capital, mission-driven venture funds, and specialized infrastructure investments in quantum labs, networks, and secure compute environments. Quantum entrepreneurship will redefine industrial capabilities, supply chain strategies, and national security postures, necessitating new governance models and international coordination to prevent destabilizing technological asymmetries. As with past general-purpose technologies, quantum will reward proactive innovators and disadvantage late adopters, making entrepreneurship a decisive driver of competitiveness in the quantum age.

The Future of Entrepreneurship in a Decentralized World

The shift from centralized digital architectures to decentralized ecosystems is reshaping economic organization, governance, identity, and finance. Web3, Web4, decentralized finance, tokenized assets, sovereign digital identity, and autonomous machine-to-machine commerce enable entrepreneurship unconstrained by legacy intermediaries. These architectures expand financial inclusion, unlock new capital formation pathways, and empower entrepreneurs in emerging markets to participate fully in the global economy.

Entrepreneurs are building decentralized marketplaces, trust networks, and autonomous economic agents that operate across borders with transparency and programmable governance. This transition redistributes economic power from centralized platforms toward communities, networks, and creators. As global institutions explore central bank digital currencies and digital

asset regulation, the diplomatic and economic significance of decentralized entrepreneurship will continue to grow, influencing trade, sovereignty, and financial stability.

Empowering the Future: Digital Satellite Entrepreneurship

Satellite innovation is reshaping connectivity, climate intelligence, disaster resilience, smart agriculture, logistics, and digital inclusion. Entrepreneurs are leveraging low-Earth-orbit constellations, geospatial analytics, and satellite-to-edge compute systems to unlock productivity in regions historically excluded from digital transformation. These ventures expand access to markets, strengthen early-warning systems, and bridge persistent infrastructure gaps.

Capital-intensive satellite ecosystems demand new financing models, including blended finance, public-private partnerships, tokenized satellite assets, and dedicated deep tech funds. Satellite entrepreneurship therefore sits at the intersection of innovation, sustainable development, and inclusive globalization, advancing connectivity as a human and economic right, while reinforcing resilience for climate-vulnerable and infrastructure-poor regions.

Deep Tech Entrepreneurship as a Catalyst for Global Diplomacy

Deep tech entrepreneurship has the potential to become a pivotal force in rearchitecting global diplomacy, transforming it from a reactive, state-centric discipline into a proactive, innovation-driven ecosystem. As the international community confronts unprecedented geopolitical, environmental, and socio-economic challenges, the convergence of quantum technologies, agentic artificial intelligence (AI), humanoid robotics, blockchain, 6G networks, Web3, or satellite internet is redefining power, trust, and cooperation.

Nations, multilateral institutions, and transnational private actors now understand that future diplomatic influence will be determined not merely by military or economic might, but by technological sovereignty, digital resilience, and innovation capacity.

Deep tech entrepreneurship can function as both an innovation engine and a diplomatic stabilizer, creating cooperation mechanisms that transcend geopolitical fragmentation. The future of diplomacy will be hybrid, co-governed by states, multilateral institutions, and deep tech ventures, anchored in shared ethics, interoperability standards, and secure digital ecosystems. Nations that embrace this techno-diplomatic compact will lead in shaping global norms, ensuring strategic resilience, and leveraging innovation for peace, prosperity, and planetary sustainability.

SECTION. VIII. CONCLUSION

Across the global landscape, a singular imperative is emerging: innovation cannot be disentangled from the financial, regulatory, and infrastructural systems that shape its trajectory. Frontier research, investment architecture, and policy discourse are converging—not in parallel, but in alignment. International institutions and scientific communities are now describing the

same future from different vantage points. Policymakers are grappling with how to finance, govern, and scale innovation to serve sustainable development. Researchers are charting the technologies—AI, quantum systems, digital twins, advanced connectivity, and cloud-edge architectures—that will define the next economy and its interdependencies.

Their conclusions are not merely compatible; they are mutually reinforcing. The backbone of tomorrow’s global economy will be built from these deep tech foundations. But who builds it—and who controls it—will be determined by the capital systems we modernize today. The nations that integrate innovation with governance, sustainability, and societal trust won’t just participate in the future economy; they will shape it.

Innovation must therefore be understood as an interconnected system, not a sector. Digital infrastructure, research excellence, investment capacity, ethical governance, and entrepreneurial readiness must advance together. The next decade will reward nations and institutions that embrace long-term vision, invest in human potential, build resilient technological foundations, and pursue sustainable transformation through innovation-driven diplomacy and multilateral cooperation. Those that treat policy, technology, and capital as separate conversations will fall behind economically, technologically, and geopolitically.

Leadership in this new era cannot rely on economic incentives alone, nor on isolated bursts of technological brilliance. It demands a higher order of coordination—across borders, sectors, and institutions—anchored in shared principles of sustainability, responsibility, inclusion, and peace. The architects of tomorrow’s global economy will be those who can harness deep tech entrepreneurship not just as a tool for growth, but as a force for systemic transformation. They will be ecosystem builders, innovation stewards, and guardians of the collective good—governing technology in service of humanity, not just markets.

SECTION IX. ACKNOWLEDGEMENT

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SECTION X. REFERENCES

Aloudat, M. Z., Aboumadi, A., Soliman, A., Al-Mohammed, H., Al-Ali, M., Mahgoub, A., ... & Yaacoub, E. (2025). Metaverse unbound: A survey on synergistic integration between semantic communication, 6G, and edge learning. *IEEE Access*.

Ali, Z. A., Zain, M., Hasan, R., Pathan, M. S., AlSalman, H., & Almisned, F. A. (2025). Digital twins: Cornerstone to circular economy and sustainability goals. *Environment, Development and Sustainability*, 1–42.

Butt, I. N., & Shah, S. (2025). The convergence of artificial intelligence and 6G networks: A transformative shift in computing and communications. *Journal of Engineering and Computational Intelligence Review*, 3(1), 68–81.

- Danil, L., Jahroh, S., Syarief, R., & Taryana, A. (2025). Technological innovation in start-ups on a pathway to achieving Sustainable Development Goal (SDG) 8: A systematic review. *Sustainability*, 17(3).
- European Commission. (2025). Flash Eurobarometer 544: Startups, scaleups, and entrepreneurship. Publications Office of the European Union.
- Fu, R. J. (2025). Engines of innovation: Private space companies and the architecture of a new cosmic era. *SPACE*, 1(2), 36–55.
- Hilkamo, O. (2025). Constructing the quantum future: Future-oriented organizing in an emerging field and market.
- Huang, J., & Zhou, P. (2025). Open innovation and entrepreneurship: A review from the perspective of sustainable business models. *Sustainability*, 17(3), 939.
- International Monetary Fund. (2025). Selected issues paper: Oman (Country report). IMF Publishing.
- Jebbor, I., Benmamoun, Z., & Hachimi, H. (2025). Leveraging digital twins and metaverse technologies for sustainable circular operations: A comprehensive literature review. *Circular Economy and Sustainability*, 1–54.
- Kibinda, N., Shao, D., Mwogosi, A., & Mambile, C. (2025). Broadband infrastructure sharing as a catalyst for rural digital economy: A systematic review for developing countries. *Telecommunications Policy*, 103028.
- Kohtamäki, M., Rabetino, R., Parida, V., & Ritvala, P. (2025). Strategy in the digitalization era. *International Journal of Management Reviews*.
- Martín, L. S., Domínguez, J. P., Rivas, G., Lipton, A., & Corchado, J. M. (2025). Challenges of artificial intelligence and quantum potential in the digital economy: A literature review. *Transactions of ADIA Lab: Interdisciplinary Advances in Data and Computational Science*, 141–152.
- Moghaddam, S. S., & Moghaddam, K. S. (2025). Current status and future projections of broadband internet: Functional and technical challenges, individual and social impacts, solutions and strategies, and emerging technologies.
- Olujimi, P. A., Owolawi, P. A., Mogase, R. C., & Wyk, E. V. (2025). Agentic AI frameworks in SMMEs: A systematic literature review of ecosystemic interconnected agents. *AI*, 6(6), 123.
- Organisation for Economic Co-operation and Development. (2025). Financing SMEs and entrepreneurs: OECD scoreboard 2025 (Highlights). OECD Publishing.
- Patra, S. P., Agrawal, R., Singh, R. K., & He, Q. (2025). Adoption of blockchain technology in international entrepreneurship: Strategic framework for managing roadblocks. *IEEE Transactions on Engineering Management*.
- Raheem, T., & Hossain, G. (2025, May). Agentic AI systems: Opportunities, challenges, and trustworthiness. In *2025 IEEE International Conference on Electro Information Technology (eIT)* (pp. 618–624). IEEE.
- Tura, N., Kokkonen, K., & Xin, Y. (2025, June). Unlocking potential for business model innovation in the twin transition. *ISPIM Innovation Symposium*, 1–22.
- United Nations General Assembly. (2025). Micro-, Small and Medium-sized Enterprises Day (Observance). United Nations.
- Vasiliu-Feltes, I., & Singh, I. (2025). Agri-futures: The role of deep tech entrepreneurship and investments. WBAF Research Institute.
- Vasiliu-Feltes, I., & Singh, I. (2025). Deep tech entrepreneurship and the emerging global defense ecosystem. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Deep tech entrepreneurship as a catalyst for global diplomacy. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Deep tech entrepreneurship: Catalyzing foreign direct investment in a globalized economy. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Deep tech entrepreneurship: Revolutionizing the rare earth minerals industry. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Empowering the future: Digital satellite entrepreneurship. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Entrepreneurship as bioreactor for the global precision health ecosystem. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Entrepreneurship ecosystem shaping the future of transportation and mobility. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). From innovation to impact: How entrepreneurs and novel investments accelerate the United Nations' SDGs. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Investing for the future: Deep tech entrepreneurship powering the education revolution. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Op-ed: The future of deep tech entrepreneurship. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). Quantum computing: An enabler for entrepreneurship and investments. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). The future of entrepreneurship in a decentralized world. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). The role of deep tech entrepreneurship in global supply chain ecosystems. WBAF Research Institute.

Vasiliu-Feltes, I., & Singh, I. (2025). The vital role of entrepreneurship in supporting the net-zero economy. WBAF Research Institute.

Wei, M., Wu, J., Liu, H., Lin, L., Zhang, Z., & Sun, M. (2025). Envisioning the potential of 6G use cases: A dual perspective of innovation and business. *IEEE Access*.

World Bank. (2025, October 7). Transformational entrepreneurship for jobs and productivity in Latin America and the Caribbean (Press release). World Bank Group.

World Economic Forum. (2025, June). Annual Meeting of the New Champions 2025: Entrepreneurship for a new era. World Economic Forum.