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SPECIAL COMPETITIVE
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U.S. - Israel Tech Alliance

A Strategic Technology Compact

MINI ISRAEL
ADVANCED STRATEGIC THINKING

U.S.–ISRAEL TECH ALLIANCE

A Strategic Technology Compact

Special Competitive Studies Project (SCSP) & MIND Israel

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Foreword

For more than half a century, the United States and Israel have built one of the most consequential partnerships in the world — grounded in shared values and interests, a commitment to security, and a belief that free societies and democracies flourish through innovation.

For Amos and me, the alliance has been indispensable. But it must also evolve. The world that shaped the existing Memoranda of Understanding — focused almost entirely on traditional security assistance — is not the world we inhabit today. The defining competition of our era is technological, and today, technological leadership is the very foundation of national power and economic prosperity. And no nation, not even the United States, can win it alone.

That conviction is what led us, on behalf of the Special Competitive Studies Project (SCSP) and MIND Israel, to launch the US-Israel Tech Alliance. Beginning in May 2025, we convened parallel working groups on both sides of the Atlantic — bringing together researchers, investors, former officials, and technologists to answer a practical question: where are the real complementarities between our two innovation ecosystems - combining American scale and foundational tech leadership with Israeli agility and operational innovation - and what should we actually build together?

This report is their answer. It is a Strategic Technology Compact — a roadmap for a new era of the relationship. It contains specific initiatives, concrete financing structures, and a clear implementation architecture for governments and the private sector in both countries. It is not a call for more cooperation in the abstract. It is a blueprint for action.

As the current bilateral MOU comes up for renewal in 2028, we have a clear window of action for our two nations to seize the opportunity to define a new chapter for our alliance where a deep technology partnership stands alongside traditional security cooperation as the twin pillars of our strategic relationship. We believe this is not only possible but necessary for the people of both nations in the age of AI.

We offer this Compact to both governments, and to all those who believe this partnership's best days are still ahead. This is how we get there.

Sincerely,

Ylli Bajraktari

President, Special Competitive Studies Project (SCSP)

Amos Yadlin

Founder & President, MIND Israel | Retired Major General, Israeli Air Force

Strategic Context: A New Model for Allied Technology Sovereignty

Artificial intelligence is rewriting the logic of national power. Leadership in AI will determine economic competitiveness, military advantage, and geopolitical influence for the next generation. In the global competition to shape the future, the United States and People's Republic of China (PRC) remain at the cutting-edge of AI innovation and are the only two nations approaching a fully indigenous AI stack. The question this poses for other nations is one that very few governments have answered well: what does sovereignty over AI actually require in an innovation landscape dominated by two leading powers? As the American and PRC stacks grow increasingly bifurcated and non-interoperable, whether nations choose “blue” or “red” will determine the shape of the global order.

For America, the proposition must be made clear: why should allies and partners continue to integrate with our innovation ecosystem rather than the alternative? For America's partners, there should be no question that alignment with the U.S. technology ecosystem reinforces the transparency, openness, and rule of law that defines free societies and will make us together more secure and prosperous, versus the alternative of a “Great Firewall.”¹

This Compact proposes a new answer to that question. It argues that 'AI sovereignty' for the United States and its closest allies is best understood not as domestic self-sufficiency but as mutual complementarity: a deliberate architecture in which allied nations contribute specialized, differentiated capabilities that make the overall system more capable, more resilient, and more trusted. If this Compact succeeds, it will serve as a template — a model for how the United States integrates allied capabilities into its technology ecosystem, redefines AI sovereignty as a collaborative rather than unilateral achievement, and builds a trusted tech alternative that the rest of the world can join.

Israel is a natural partner in building this deliberate architecture. Israel invests more than 6% of GDP in R&D — the highest rate in the Organisation for Economic Co-operation and Development (OECD) — and has moved to scale AI infrastructure, compute, and talent through a new national implementation framework led by the National AI Directorate established in October 2025.² It hosts over 1,200 AI startups and 250 semiconductor companies, employing some 45,000 chip workers.³ Six of the seven largest American technology companies — Google, NVIDIA, Apple, Meta, Amazon, and Intel — have established critical R&D hubs there, not as satellite offices but as centers essential to their global product roadmaps. AI startup activity in Israel runs two to four times greater per capita than in the United States or Europe, and Israeli AI companies are acquired by leading

¹ [Freedom on the Net 2025 — China](#), Freedom House (2025).

² Global Innovation Index Team, [End of Year Edition – Despite the Odds, Global R&D Spending Grew Again in 2024, Inching Closer to the USD 3 Trillion Mark](#), World Intellectual Property Organization (2025).

³ Media Line Staff, [Israel's dual-engine chip sector drives global innovation and \\$40b+ in exits](#), Jerusalem Post (2025).

multinationals at a rate roughly four times higher, relative to overall company counts, than their American peers.⁴

The deeper rationale is structural: Israel is the only U.S. ally that has spent decades building a technology ecosystem under live adversarial conditions — sustained cyberattack, active air defense operations, resource-constrained field deployment — producing engineering cultures and operational tools that cannot be replicated in peacetime. It has a "full stack" of AI infrastructure talent, from chip design to software, embedded inside the institutions that define American technology leadership. And it has now made an unambiguous national commitment, at scale and at speed, to the same AI priorities — efficiency, edge deployment, quantum innovation, cybersecurity, and bioconvergence — that the United States most urgently needs from its partners. The policy moment is aligned: President Trump's AI Action Plan and Israel's AI investment program are parallel national commitments.

The Complementarity Thesis

The United States and Israel are innovation partners whose advantages are structurally distinct and mutually reinforcing across every domain addressed in this Compact.

The United States commands the world's deepest capital markets for technology investment, its most advanced frontier research institutions, the largest pool of advanced technology talent, and the computational and industrial infrastructure required to develop and deploy emerging technologies at scale. These advantages are real and durable—but they are not complete.

Israel fills critical gaps with precision. Its AI advantage is not frontier model scale but structural efficiency: building, fine-tuning, and deploying high-performing systems under constraints of compute, latency, security, and sovereignty. The result is a battle-tested ecosystem validated in adversarial conditions directly relevant to U.S. economic and national security priorities.

In semiconductors, Israeli engineers produce paradigm-breaking architecture-level innovations rather than incremental scaling. In advanced energy, Israel contributes extreme-condition materials science, dynamic simulation capabilities, and gyrotron expertise directly applicable to fusion's hardest engineering bottlenecks. In quantum, Israel produces early-stage scientific innovations in sensing and materials that are precisely aligned with U.S. national laboratory research agendas.

Three assets amplify this edge. First, irreplicable data: longitudinal national health records, dense cybersecurity telemetry, and battlefield sensor data that can strengthen U.S. AI robustness. Second, operational velocity: Israel consistently executes national technology programs—from the world's fastest COVID-19 vaccine rollout to AI-enabled air defense—at speeds that outpace peers.⁵ Third,

⁴ Gil Press, [In 2024, Israel Became a Global Leader in Applied AI Innovation](#), Forbes (2024).

⁵ Martin McKee & Selina Rajan, [What Can We Learn from Israel's Rapid Roll Out of COVID 19 Vaccination?](#), Israel Journal of Health Policy Research (2021).

bioconvergence: Israel’s integrated national health system, AI engineering culture, and life sciences base position Israel as a uniquely capable partner in the emerging bioeconomy, where combined Israeli efficiency and U.S. scale could generate transformative impact on healthcare, food security, and advanced manufacturing.

The China Competition Lens

The strategic logic for this Compact is sharpened by the technology competition with China. China is accelerating across every domain addressed here: semiconductor self-sufficiency, AI frontier development and international deployment, biotech, quantum sensing and communications, critical materials processing, and energy technology.⁶ More urgently, China is working to establish its technical governance frameworks and infrastructure standards as global defaults — including across the Middle East, where both the United States and Israel have significant and overlapping strategic interests. A U.S.–Israel partnership, structured correctly, provides a credible, operationally validated alternative. It can also strengthen and expand the multilateral agreements — including the Abraham Accords — which underpin regional collaboration.

Why Existing Mechanisms Need Updating

The current bilateral relationship is supported by three binational foundations—Binational Industrial Research and Development Foundation (BIRD), United States–Israel Binational Science Foundation (BSF), and Binational Agricultural Research and Development Fund (BARD). These instruments are valuable and should be preserved. But they were designed for a different era. Standard per-project grants are appropriate for early-stage commercialization in traditional industries, but mismatched to semiconductor ventures requiring \$100–500M, fusion energy programs, or quantum computing infrastructure.⁷ Bilateral MOUs often produce political commitment without institutional follow-through or resource allocation. This Compact creates the architecture above these mechanisms: a strategic framework that assigns institutional ownership to specific programs and provides financing instruments scaled to the strategic challenge.

Scope: A Civilian Technology Instrument

This Compact is explicitly scoped as a civilian technology cooperation agreement. It is designed to complement—not duplicate or subsume—the existing bilateral security assistance relationship, including the MOU up for renewal in 2028. Recommendations in this Compact assign ownership to civilian agencies on both sides. Where a technology domain has both civilian and defense-adjacent applications—as is inherently true of AI, semiconductors, and quantum—the Compact addresses the

⁶ [Tech Scorecard](#), Special Competitive Studies Project (last accessed 2026); [Welcome to the Arena: Who's Ahead, Who's Behind, and What's Next in the U.S.–China Technology Competition](#), Special Competitive Studies Project (2025).

⁷ [About BIRD](#), BIRD Foundation (last accessed 2026).

civilian cooperation track. Coordination with existing bilateral defense mechanisms is noted in a separate Annex at the end of this document.

The recommendations in this Compact were developed through a Track 1.5 working group process convened by SCSP and MIND Israel between October 2025 and March 2026, drawing on senior participants from government, industry, and academia in both countries.

Why This Compact Is Different

For decades, the bilateral relationship rested primarily on defense cooperation, security assistance, shared geopolitical interests, and successful private sector engagement. That foundation remains essential. But it is no longer sufficient for a century that will be defined by leadership in strategic technology. This initiative is designed to widen and enrich the relationship beyond its traditional security core. It proposes a new technology partnership defined by innovation power: our ability to invent, scale, and protect critical technologies.

The relationship already generates significant technology cooperation. What has been missing is the scale and architecture commensurate with the demands of the AI age—a framework that links these activities at the level of programs, procurement, and standards rather than personalities and events.

This Compact provides that architecture. It is organized around six priority domains—AI, semiconductors, advanced energy, quantum, bioconvergence, and critical materials—supported by a cross-cutting access and implementation layer designed to move technological initiatives from discovery to deployment to scale. Every recommendation follows a consistent structure: named owners on both sides, a concrete action, a specified implementation mechanism, and a clear statement of why it matters strategically.

The proposed financing architecture is built around a baseline public funding commitment of at least \$500 million per year from each government over the 10-year agreement, deployed through a blended structure of scaled bilateral grants, co-investment authorities, development finance, public anchor investments, and selected strategic infrastructure initiatives. Its primary function is catalytic: public funding should reduce strategic, regulatory, and technical risk; create clear demand signals; open access to shared infrastructure; and make private capital more willing to enter areas where market incentives alone are too weak, too slow, or too uncertain.

Core Initiatives

The alliance is implemented through a portfolio of mutually reinforcing bilateral initiatives, each tied to a concrete strategic need and a clear area of comparative advantage. Where appropriate, the Compact takes into account its natural compatibility with related frameworks including Pax Silica, IMEC, I2U2, and Abraham Accords pathways.

- Agentic Defense Foundry and Sovereign Data Partnership (AI) – strengthens joint leadership in AI-enabled cyber defense, trusted data use, and high-impact civilian and security applications.
- Advanced semiconductor architecture, photonics, and trusted industrial capability – positions the partnership in one of the most strategic technological bottlenecks of the coming decade.
- Fusion Materials Research Program and broader energy/AI efficiency agenda – connects Israeli innovation and U.S. scale to advance fusion, grid resilience, long-duration storage, data-center energy efficiency, power electronics, waterless cooling and next-generation energy infrastructure.
- Quantum: Reciprocal participation, quantum sensing, and post-quantum cryptography – helps both countries move earlier and faster in strategically important quantum applications.
- Bioconvergence Research Initiative – combines AI, life sciences, and health data to open high-value opportunities in medicine, biosecurity, and the future bioeconomy.
- Critical materials processing, circular feedstocks, and pilot-to-scale pathways – addresses a core strategic chokepoint by improving secure access to the materials needed for advanced industry.

Five First Steps for Both Governments

First, formally sign the U.S.–Israel Technology Alliance MOU for 10 years as a civilian-led compact distinct from, but complementary to, existing defense arrangements, with a baseline public funding commitment of at least \$500M per year from each government.

Second, designate senior institutional owners on both sides and establish a Tech Alliance Steering Committee, supported by a bilateral Program Office with a clear mandate, an independent reporting cycle, and authority to oversee prioritization, implementation, and annual review. The Steering Committee should report to an annual senior bilateral forum convened at the level of the Director General of the Prime Minister's Office in Israel and the head of the White House Office of Science and Technology Policy, or their equivalents.

Third, build the capital architecture by authorizing the blended financing stack needed to mobilize public and private investment at scale, including anchor commitments, expanded bilateral grant mechanisms, co-financing facilities, strategic investment vehicles, and a disciplined lane for larger infrastructure opportunities.

Fourth, assign clear scope, delivery mechanisms, timelines, and named lead institutions to each core initiative, and launch a first-wave portfolio of actions that can begin under existing authority — including bilateral AI-cyber challenge calls, data-governance negotiations, reciprocal participation pathways in existing U.S. programs, standards-recognition work, national-lab access arrangements, and early pilots in AI, energy, quantum, and bioconvergence.

Fifth, adopt a sequencing plan within 90 days of signing that clearly separates actions available immediately under existing authority, actions requiring appropriations or legislative support, and special projects requiring separate feasibility review — and within that same period, convene the Steering Committee, approve an initial action plan, and establish the implementation channel needed to resolve budgetary, legal, and cross-agency barriers on both sides.

Section 1: Artificial Intelligence – The Innovation Edge

Strategic Overview

Bilateral AI cooperation rests on a precise complementarity: the United States provides frontier scale—the largest models, the deepest compute, the most advanced chip design; Israel provides structural efficiency—the capability to build, fine-tune, and operate AI systems under severe resource, latency, and sovereignty constraints. It is the capability the United States most urgently needs and least effectively develops domestically. U.S. AI programs are extraordinarily good at building powerful systems; they are considerably less good at making those systems work reliably, efficiently, and securely in production environments under adversarial conditions.

This cooperation has direct benefits for people in both countries. Federated health AI developed under AI-2 could accelerate rare disease diagnosis and precision medicine for patients who currently wait years for answers. Edge-AI standards built under AI-3 could drive improved smart manufacturing and extend the frontier of intelligent systems to rural or conflict-affected settings. The governance frameworks in AI-4 make democratic AI infrastructure accessible to partner nations that cannot afford hyperscale alternatives.

This section integrates compute infrastructure within the AI pillar, where Israeli expertise in edge compute and inference efficiency is most directly applicable. It also introduces bioconvergence as a priority cooperation domain: the intersection of AI with life sciences—where Israel's integrated health data, pharmaceutical research base, and model training innovations combine with U.S. bioeconomy ambitions—represents one of the highest-value frontiers in the bilateral technology agenda.

AI-1: The Agentic Defense Foundry

Action: The Department of Commerce's Center for AI Standards & Innovation (CAISI) and Israel's National Cyber Directorate (INCD) should co-establish a Bilateral AI-Cybersecurity Foundry—a joint public-private entity focused specifically on agentic AI: autonomous systems capable of investigating, correlating signals, and neutralizing threats at machine speed, without waiting for human analysis cycles that adversaries have already outpaced.

- **Agentic Cyber Defense:** biannual joint challenge calls to U.S. and Israeli private sectors; co-funding of the most promising responses; structured fast-track for resulting tools to enter U.S. federal procurement and Israeli critical infrastructure deployment. The structure should include a dedicated track for emerging commercial agentic AI capabilities at or near public release, evaluated for Operational Technology (OT) security and autonomous threat-response applications under the Foundry's fast-track procurement pathway.

- Operational Technology (OT) Security AI: systematic adaptation of Israeli defensive AI frameworks—forged under sustained adversarial pressure on water systems, electricity grids, and industrial controls—for U.S. critical infrastructure contexts. Minimum three U.S. critical infrastructure operator pilots in year one.
- Secure AI Operations Standards: joint technical standards for full-stack AI security in sensitive government deployments—hardware-level protections, adversarial robustness, isolation mechanisms—validated against Israeli operational environments before U.S. adoption.

Why It Matters: Both working groups independently identified AI-cybersecurity as the highest-confidence cooperation domain with the lowest barriers to immediate deployment. The Foundry should be initiated as a Day-1 administrative action, using existing collaboration mechanisms where possible to avoid new legislation e.g. via the NSA’s Cybersecurity Collaboration Center, and BIRD Cyber’s collaborative program between DHS’s Science & Technology Directorate & INCD. The first joint challenge call can be issued within 90 days of signing the Compact. The Foundry is necessary only if it focuses on agentic AI—autonomous threat response at machine speed. Without that focus, it duplicates existing commercial venture collaboration.

AI-2: Sovereign Data & Governance

Action: The biggest barrier to systematic U.S. access to Israel's most strategic data assets—longitudinal health records, cybersecurity telemetry, battlefield AI data—is the absence of a legal and technical infrastructure for cross-border access that preserves Israeli sovereignty. This recommendation addresses that barrier and then operationalizes it through a Joint AI for Health Program.

- Data Governance Framework: NIST and Israel's Privacy Protection Authority should jointly negotiate a Bilateral AI Data Governance Framework incorporating federated learning, differential privacy, and secure multi-party computation, and tightly governed secure research environments. The framework should be designed in explicit compatibility with Israel’s General Data Protection Regulation (GDPR) -adjacent privacy obligations, avoiding regulatory bifurcation that would complicate Israeli participation in EU research frameworks, while preserving a pro-innovation approach that enables responsible data access for approved researchers, startups, and public-interest projects. Data does not leave Israel; U.S. researchers interact with it through secure computational environments governed in advance by clear rules on model-weight ownership, derivative IP, audit rights, revocation rights, permitted downstream uses, third-country transfer, and the explicit prohibition of defense or intelligence reuse absent separate written authorization.
- Joint AI for Health Program: NIH and Israel's Ministry of Health, coordinating with Israel’s multi-fund health system, should establish a structured research program providing U.S. access to Israel's national longitudinal health data for AI model development, and Israeli integration in U.S. AI-for-science initiatives, accelerating DOE’s Genesis Mission. Priority domains: AI-assisted diagnostics for rare diseases; predictive AI for chronic disease

management; drug discovery AI. The program should also prioritize innovations in model training and test-time training that enable models developed on Israeli data to generalize to U.S. data distributions—addressing the critical challenge of transferring insights across structurally different health systems.

- Standards alignment: the data governance framework should incorporate the NIST–Standards Institution of Israel (SII) mutual recognition pathway for AI cybersecurity product certifications, enabling Israeli AI-cyber products to qualify for U.S. federal procurement without duplicative compliance.
- Bioconvergence track: a dedicated data-sharing and research protocol for AI applications in synthetic biology, bio-based materials, and precision medicine—positioning the bilateral partnership to contribute to the emerging global bioeconomy.

Why It Matters: Israel's national health data is among the most strategically valuable AI training assets held by any allied nation: longitudinal, high-quality, ethnically diverse, and structured in ways that U.S. datasets—fragmented across thousands of providers—are not. The test-time training focus addresses a specific technical challenge raised by working group reviewers: models trained on Israel's integrated health system data must be adapted to work on the U.S.'s fragmented data landscape. Solving that problem generates techniques applicable across every allied health data partnership. The bioconvergence track addresses a strategic priority that neither the United States nor Israel has yet institutionalized bilaterally: Israeli AI engineering culture combined with U.S. bioeconomy infrastructure and capital markets is a powerful combination for leading the next major technology wave.

AI-3: Edge Compute & Inference Efficiency

Action: As of 2026, Israel is no longer compute-poor relative to its size—the national supercomputer provides sovereign AI cloud capacity, relieving the pressure on Israeli startups to rely on foreign infrastructure.⁸ The bilateral opportunity in compute is therefore not resource-sharing but capability transfer: Israeli expertise in algorithmic efficiency, edge-AI deployment, and infrastructure optimization addresses specific U.S. pain points.

- Algorithmic efficiency and small language models: NSF, ARPA-E, and the IIA should co-fund a scaled joint research, pilot, and deployment program targeting architecture-algorithm co-design for efficient AI inference, low-power edge deployment, and data-center efficiency. The National AI Research Resource (NAIRR) should provide testbed and compute access for pilot validation. Where program requirements include dual-use or field-deployable applications, DARPA may co-invest as a supplementary funder. Edge compute and inference efficiency should become one of the Compact's principal first-wave investment priorities. This track should also use challenge grants to advance cross-stack technologies that reduce the cost and energy intensity of compute, including efficient inference, model compression,

⁸ [Supercomputer Access 2026](#), Israel Innovation Authority (2026).

workload optimization, cooling, power electronics, and the semiconductor architecture and memory breakthroughs addressed in S-1B and S-2.

Why It Matters: Israeli solutions exist, are commercially mature, and address a problem U.S. data center operators are urgently seeking to solve. The edge-AI efficiency work addresses an equally concrete need: transitioning AI from massive data centers to field-deployable assets is a central challenge of the U.S. AI Action Plan.

AI-4: Trusted AI Deployment

Action: Establish a joint U.S.–Israel open-source AI governance framework. Chinese open-source AI models (Qwen, DeepSeek) are achieving normalized adoption in partner nation infrastructure not through superior performance but through superior accessibility and the absence of a credible allied alternative. There is a clear need to:

- Develop and publish shared tools and frameworks for deploying and governing open-source AI models in government settings—technically rigorous, publicly available, and backed by two nations with exceptional cybersecurity credibility.
- Establish a bilateral AI Ops exchange program embedding U.S. government AI practitioners in Israeli government AI operations units for three-to-six month rotations (General Schedule 12/13 level), and vice versa—building the working-level human networks that make the governance framework operationally real.
- Develop a regional technology diffusion strategy targeting Middle East partner nations—engaging the Abraham Accords architecture and existing U.S. bilateral partnerships—with tailored deployment support and training programs that match what Chinese providers offer.
- Develop a joint curriculum and certification standard for AI Ops professionals in government contexts, mutually recognized for civil service employment in both countries.

Why It Matters: This is the most direct instrument available for the Trusted Tech alternative agenda. Governance frameworks alone cannot compete with Chinese models that arrive with CCP data center financing and deployment support. A joint U.S.–Israel open-source AI governance framework—publicly available, technically rigorous, and backed by two nations with strong operational cybersecurity credibility—gives partner nations a concrete alternative to Chinese open-source models.

★ ANCHOR INITIATIVE: AI

The Agentic Defense Foundry + Sovereign Data Partnership

The combination of AI-1 (Agentic Defense Foundry) and AI-2 (Sovereign Data & Governance) constitutes the headline AI initiative for this Compact. Together they address the two problems the U.S. AI working group identified as most urgent: the inability to respond to AI-enabled cyberattacks at machine speed, and the absence of a legal framework to access Israel's uniquely valuable operational data assets. The Foundry should be presented jointly by CAISI and the INCD; the Data Governance Framework should be announced alongside it, demonstrating that the partnership addresses both the tools and the data that make those tools effective. Commitment to first joint challenge call within 90 days.

Section 2: Semiconductors – Rewriting the Cost Curve

Strategic Overview

Semiconductors are the physical substrate of everything else in this Compact—AI inference, quantum computing hardware, energy power electronics, and bioconvergence sensors. Israel’s contribution is not wafer-scale fabrication but architecture-level innovation: the paradigm-breaking design advances that define how chips are structured and assembled, rather than incremental process node scaling. The post-CHIPS Act U.S. ecosystem has a specific and urgent need for precisely this kind of innovation: not more fabs, but smarter architectures, advanced packaging, chiplet assembly, hardware algorithm design and photonic integration that extend the performance frontier.

Israel also contributes specialized tools that help chipmakers produce semiconductors more reliably and at lower cost. These include equipment and software that monitor and inspect chips during manufacturing - catching defects early, reducing waste, and ensuring production lines run smoothly. Several Israeli companies operate in this space (for example Nova and Camtek) and are recognized players in the global semiconductor supply chain.

S-1A Advanced Semiconductor Architecture Innovation & Pax Silica

Action: A six-month joint feasibility study (Commerce/CHIPS Program Office and Israeli Ministry of Economy) on leveraging Intel’s Fab facility in Kiryat Gat, establishing a hybrid laboratory and research center focused on revolutionizing semiconductor manufacturing, such as Extreme Ultraviolet Lithography (EUV) processes and other FAB machinery (dry etch, diffusion, thin films, and metrology), through the development and deployment of advanced Digital Twin (DT) technology. If confirmed viable: \$500M combined public-private financing. The post-CHIPS Act U.S. ecosystem has a specific and urgent need for precisely this kind of innovation.

- Pax Silica designation: the facility’s output and IP should meet U.S. supply chain integrity standards under the emerging Pax Silica trusted semiconductor partner framework,⁹ giving the U.S.–Israel semiconductor relationship a physical anchor comparable to TSMC Arizona (U.S.–Taiwan), Rapidus in Hokkaido (U.S.–Japan), and IMEC in Leuven (European cooperation).
- If confirmed viable: \$500M–1B combined public-private financing. Commissioning the feasibility study within 30 days of Compact signing is itself a significant political signal, with no capital committed until the business case is confirmed. Operator and structure to be determined through a competitive, open solicitation following a joint 6-month feasibility study

⁹ [Department of State Launches Pax Silica Fund](#), U.S. Department of State (2026).

by Commerce/CHIPS Program Office and the Israeli Ministry of Economy. No capital is committed and no operator is designated prior to completion of that process

If the Kiryat Gat feasibility study won't mature, then all efforts should be directed to Fort Foundry One: A 16,000-dunam (4,000-acre) industrial park in the Negev Desert designed as a global center for 2nm/3nm semiconductor manufacturing and sovereign AI compute.¹⁰

S-1B Establishment of Advanced Chip Design Research Center

A three-month joint feasibility study (Commerce/CHIPS Program Office and Israel Innovation Authority) on leading the next wave of chip design architectures research and innovation, leveraging Israel engineering leadership. Perform innovative scientific research with potential commercial value in fields related to advanced computation and communication in the following domains: i. Silicon photonics; ii. New algorithms & hardware for AI; iii. System architectures and processors. If confirmed viable: \$30M combined public-private financing to establish a new center via competitive, open process.

- Silicon Photonics: New concepts, architectures, and critical components for optical communications-based data centers including photonic components, Serializer/Deserializer (SERDES), co-packaged optics, optical computing, and future concepts.
- AI Algorithms and Hardware: Next generation of memory-centric computing, memory footprint reduction for AI workloads, wafer scale communication optimization, socketing and mechanical\thermal integration, AI-accelerated hardware design frameworks, hardware-enabled security for AI agents, and hardware-aware AI algorithms and model architectures.
- System architectures and processors: Cloud computing, the data center platform, client systems, and High Performance Computing (HPC) workloads and new architectural and microarchitectural primitives.

Why It Matters: Israel's 250 semiconductor companies and 45,000 chip workers represent a strategic asset the United States has benefited from informally for decades; this initiative formalizes and anchors that relationship with physical infrastructure. The Pax Silica designation connects this initiative directly to the U.S. supply chain integrity agenda and positions it as a template for allied semiconductor cooperation.

S-2 Memory Breakthrough Research Program

Action: DOE, NSF, DARPA, Commerce, and the Israel Innovation Authority should establish a long-horizon program on next-generation memory technologies and memory-compute co-design.

¹⁰ [U.S. Tech Park in Negev May Have Nuclear Power Plant](#), Globes (last accessed 2026).

- Support a small number of high-risk, high-reward research tracks beyond Dynamic Random-Access Memory (DRAM) scaling and High Bandwidth Memory (HBM) compensation.
- Link academic teams, Israeli design talent, and U.S. lab infrastructure in a structured consortium model.
- Prioritize architectures that materially reduce system cost, energy use, and bottlenecks in AI training and inference.

Why It Matters: Memory is emerging as a first-order bottleneck in advanced computing. DRAM scaling has stalled; HBM is compensatory, not fundamental. The program targets architectures that resolve this bottleneck at the system level, not at the margin.

★ **ANCHOR INITIATIVE: Semiconductors**

Advanced Semiconductor Architecture Innovation & Pax Silica

A government-led initiative to leverage Intel Israel's Fab facility—designated under the emerging Pax Silica trusted semiconductor partner framework—would give the U.S.–Israel semiconductor relationship its first physical anchor, comparable to TSMC Arizona (U.S.–Taiwan), Rapidus in Hokkaido (U.S.–Japan), and IMEC in Leuven (European cooperation). The feasibility-first approach (6-month joint study, Commerce/CHIPS Program Office and Israeli Ministry of Economy) means no capital is committed until the business case is confirmed—but the political signal of commissioning the study within 30 days of signing is itself significant.

Section 3: Advanced Energy – Solving the Hard Physics

Strategic Overview

Israel's energy contribution to this Compact is technological edge, not energy scale. Israel's role is in system-level innovation, extreme-condition materials, and advanced simulation that solve the hard physics constraints limiting fusion viability and grid resilience, both vital for the U.S.'s energy ambitions to power the AI era.

AE-1: Launch a Joint Fusion Materials Research Program

Action: Establish a joint research program focused on fusion materials bottlenecks with four components:

- Plasma-facing and extreme-condition materials: a joint experimental program using Israel's laser and plasma facilities for rapid testing of plasma-facing components—liquid metal walls, advanced ceramic blankets, specialized quartz structures—complementing in particular Princeton Plasma Physics Laboratory's (PPPL) theoretical work.¹¹
- Gyrotron development for plasma heating; which also has massive applications in deep-rock mining and geothermal drilling.
- High-power electronics co-development: a collaborative R&D program for fusion power conversion and switching systems, targeting both fusion systems and grid-scale power conversion where commercial spillovers are potentially substantial.
- Talent pipeline in fusion engineering: a dedicated fellowship track targeting ten bilateral placements annually between Israeli research institutions and PPPL.

Why It Matters: Fusion energy is one of the highest-stakes technology races of the coming decades, and plasma-facing materials are among its most critical bottlenecks.¹² Israel has world-class experimental capabilities directly relevant to PPPL's National Fusion Innovation Research Engine, that are accessible on experimental timelines that oversubscribed U.S. facilities cannot match.

AE-2: Establish a Bilateral Advanced Energy AI and Simulation Initiative

Action: Launch a joint program applying Israeli simulation, AI, and power-optimization capabilities to three energy challenges:

¹¹ Z. Sun, J. Al Salami, A. Khodak, F. Saenz, B. Wynne, R. Maingi, K. Hanada, C.H. Hu and E. Kolemen, [Magnetohydrodynamics in free surface liquid metal flow relevant to plasma-facing components](#), Nuclear Fusion, 2023.

¹² Caleb Barnes, [U.S. Fusion Supply Chain Report](#), SCSP, (2025).

- Dynamic fusion simulation: applying Israeli capabilities in dynamic plasma and magnetic field simulation to fusion commercialization challenges. Target demonstrable improvements in simulation efficiency that accelerate fusion experiment design.
- AI-optimized grid resilience and long-duration energy storage (LDES): a joint deployment program for AI-optimized grid management and storage systems, targeting initially U.S. critical infrastructure sites. Include at least three U.S. installation pilots in the first two years.
- Data center infrastructure: co-fund bilateral pilots deploying waterless cooling and power-optimization systems at U.S. national security and national lab data centers. Target: 30% reduction in water consumption and 30% improvement in power efficiency within 18 months, generating certified performance data for commercial replication.

Why It Matters: AI-optimized dynamic simulation is the most direct lever for accelerating fusion commercialization timelines. The grid resilience component addresses an immediate U.S. national security requirement—energy resilience for critical infrastructure—where Israeli AI and operational experience are directly applicable. The projected increase in data center water use as AI scales represents a genuine U.S. national infrastructure vulnerability.¹³ Israeli solutions are market-ready: for example, ZutaCore's direct-to-chip waterless cooling reduced energy consumption by 37% during GPU-intensive workloads in a University of Chicago experiment.¹⁴

AE-3: Reauthorize and Expand the BIRD Energy Program & US-Israel Energy Center

Action: The United States should reauthorize the BIRD Energy program—whose authorization has lapsed—with expanded mandate and resources: expanded scope to include AI for energy systems, fusion-adjacent materials, long-duration energy storage, advanced power electronics, and cybersecurity for energy infrastructure; increased per-project grant ceilings to \$8M (exceptional approval to \$15M for fusion materials); increased annual bilateral commitment to \$30M; and formal East Mediterranean Energy Center (EMEC) linkage enabling regional projects.

Why It Matters: BIRD Energy stands as one of the most demonstrably productive bilateral programs of the past 16 years, functioning as a high-velocity engine for commercializing critical energy technologies. Since 2009, the program has leveraged a modest \$50 million in combined U.S.–Israeli public investment into more than \$1.4 billion in follow-on private funding—an extraordinary 25:1 leverage ratio that is virtually unparalleled among allied R&D frameworks.¹⁵ With over 70 cooperative projects funded, the program has moved beyond pure research into market-ready

¹³ Kirsten James, Shama Perveen, Benjamin Jacobson, [Drained by Data: The Cumulative Impact of Data Centers on Regional Water Stress](#), Ceres (2025).

¹⁴ [The University Of Chicago Validates Waterless, Direct-To-Chip Liquid Cooling From Zutacore](#), Zutacore Case Study (2025).

¹⁵ ynet Global, [BIRD Energy kicks off \\$1.5 million funding call for joint US-Israel green energy projects](#), Ynet News, (2026).

deployments in gas pipeline asset tracking, advanced thermal energy storage, and grid-scale AI optimization. The current authorization lapse constitutes a concrete obstacle to bilateral cooperation at the precise moment when the technology agenda—spanning fusion, long-duration storage, and waterless data center cooling—is expanding most rapidly. Successful bilateral precedents illustrate the pipeline at risk: Addionics, whose 3D electrode technology underpinned a BIRD Energy project with U.S. company Saint-Gobain, represents the type of deep-tech materials partnership that an expanded program is designed to scale.¹⁶ Reauthorizing BIRD Energy with an expanded technical scope is the highest-leverage near-term action in the energy domain; it secures a proven commercialization pipeline through 2034 requiring no new institutional architecture.

AE-4: Initiate a Bilateral Energy Efficiency Leapfrog Program

Action: Launch a bi-national effort to maximize the thermodynamic limits of high-compute and industrial energy systems through advanced power-harvesting and conversion technologies, solid-state waste heat recovery and AI-driven grid telemetry. Key partners for this effort would include DOE, companies such as LAVA (novel thermodynamic engine), Luminescent & Grid4C, academic partners e.g. Technion, MIT Energy Initiative, and major U.S. utility providers. This initiative will focus on two primary integration mechanisms:

- Solid-state thermoelectrics: Converting industrial waste heat—specifically from semiconductor fabs (e.g., Fort Foundry One) and Small Modular Reactors (SMRs)—directly into electricity using Israeli solid-state thermoelectric technologies.
- Grid intelligence stacks: Integrating Israeli AI telemetry stacks and intelligent software into U.S. utility systems to generate operative insights from grid telemetry, optimizing load balancing for high-density compute environments.
- Beyond-silicon photovoltaics: Support high-efficiency tandem-cell and other beyond-silicon photovoltaic technologies, including Israeli approaches such as Arbell Energy’s high-yield platform, where they can provide commercially competitive, supply-chain-resilient alternatives in a global market currently dominated by Chinese manufacturers.

Why It Matters: As AI workloads and semiconductor manufacturing push the U.S. power grid to its limits, incremental efficiency gains are no longer sufficient to maintain leadership. By integrating Israeli AI telemetry with U.S. utility systems, the program addresses a core U.S. vulnerability: the widening gap between the massive energy requirements of the digital economy and the finite capacity of existing infrastructure.

¹⁶Stephanie Leonida, [Addionics and Saint-Gobain Ceramics Partner for Solid-State Battery Development](#), EE Power, (2021).

★ ANCHOR INITIATIVE: Advanced Energy

Joint Fusion Materials Research Program

The Joint Fusion Materials Research Program (AE-1), centered on liquid metal wall and advanced ceramic blanket experiments using Israeli facilities and PPPL collaboration, is the anchor initiative. Israel has the experimental facilities; PPPL has the theory; neither achieves the same results without the other. Announced jointly by DOE and Israeli Ministry of Energy; joint research MOU within 90 days.

Section 4: Quantum — Building Scalable Capability

Strategic Overview

Quantum is emerging as a general-purpose strategic capability, on par with AI and semiconductors. It is a strategic technology race that will shape future computing power, secure communications, advanced measurement, and the wider balance of industrial and technological power. For the United States and Israel, the central policy question is therefore not whether Israel can provide useful shortcuts at the margin. It is whether the two countries can integrate a trusted allied quantum ecosystem that accelerates the path to scalable, sustainable fault-tolerant systems.

Israel has developed a strong quantum base across the full stack, spanning hardware, control systems, software, photonics, components, and academic research. This base extends across the major technological approaches in quantum computing, including semiconductors, photonics, trapped ions, and neutral (cold) atoms. Israel's most differentiated value lies in the system-level layers required to make scalable quantum systems viable: Quantum Processing Unit (QPU) architectures for scale in multiple qubit technologies, control, orchestration, hardware-software integration, error-management, rapid experimentation, and commercialization pathways between laboratories and industry.

The bilateral opportunity follows directly from complementary capabilities: The United States provides national-lab depth, federal program scale, utility-scale research infrastructure, capital, and procurement power. Israel provides innovation and creativity, industrial agility and full-stack capabilities that can materially accelerate the roadmap to useful, fault-tolerant quantum systems. The goal is not to treat Israeli firms as peripheral contributors to U.S. programs. It is to integrate them as primary partners where allied capability can increase speed, resilience, and strategic autonomy. The proposed frameworks and initiatives are geared toward launching bilateral proof-of-concept projects, focused on translating quantum concepts into experimentally powerful but still under-quantized domains of strategic relevance to the United States.

Quantum cooperation under this Compact will necessarily operate within a sensitive export-control and security environment. Several of the technologies, components, and research pathways addressed in this section sit close to the boundary between civilian innovation, strategic advantage, and national-security protection. The Alliance should therefore proceed on the basis of trusted-partner coordination, appropriate safeguards, and continued dialogue between the relevant authorities on both sides, while leaving specific regulatory treatment and future adjustments to the appropriate governmental processes of each country. Operational questions arising from export control, trusted access, and dual-use safeguards should be handled through the cross-cutting coordination framework set out in Section 7 and, where relevant, existing national-security channels.

Commercially, the same safeguards must be paired with market access. If export controls and trusted-access rules narrow global market opportunities for U.S.-Israeli quantum technologies, the

Alliance should offset this effect by creating preferential access to U.S. customers, national laboratories, standards bodies, procurement pilots, and select allied markets. The goal is not only joint research, but a protected route from prototype to company formation, early revenue, qualification, and scale. Any such access should be tied to clear Israeli commitments on security, IP protection, trusted capital, and controlled third-country exposure.

Q-1: Establish a U.S.–Israel Quantum Reciprocal Participation Framework and Bilateral Fund

Action: The United States and Israel should jointly define quantum computing as a strategic capability in alignment between the nations, and establish a bilateral framework focused explicitly on scalable full-stack quantum computing systems, not only on applications alone. This framework should have five operational components:

- **Consortium eligibility:** Israeli companies and academic institutions should be formally eligible as consortium members in relevant DOE and Department of Commerce (DOC) quantum centers and national labs, quantum programs, NSF quantum research initiatives, and other federal pathways where allied participation can accelerate system development.
- **QBI Pathway:** As of March 2026, DARPA has expanded the Quantum Benchmarking Initiative to include international performers from Australia and Canada, and the DOE has moved toward including international allies as formal collaborators in its National QIS Research Centers under the Phase II renewal. The infrastructure for Israeli participation exists; what is missing is a formal bilateral framework that enables it. Rather than peripheral application providers, participants in the QBI should be treated as part of a full-stack systems pathway in the architecture, hardware, control, software, and error-management layers required for scalable quantum computers. A pre-QBI development program for companies not yet at system maturity would also expand the pipeline of the Initiative.
- **National-lab and testbed access:** Create a structured visiting-researcher and company-access track for Israeli quantum teams at Argonne, Oak Ridge, Lawrence Berkeley, NIST, and other relevant facilities, alongside reciprocal use of Israeli testbeds, university infrastructure and other quantum computing facilities where they offer speed or technical advantage. The reciprocal track should include early-career U.S. researchers spending time at Israeli centers of excellence, such as the Weizmann Institute, Technion, Hebrew University, and other approved university labs, with joint supervision and security screening where required.
- **Bilateral Quantum Systems Fund:** Establish a \$300M bilateral fund (\$150M each) structured as large, milestone-based awards for mixed academic-industry consortia and 1:1 projects, with five-to-seven-year terms and a minimum project size of \$10M. Priority domains should include control systems, orchestration software, fault-tolerance and error-correction layers, scalable hardware platforms, quantum interconnects, cryogenic and packaging bottlenecks, and other system-level technologies directly relevant to utility-scale quantum computing.

- Quantum Frontier Science Track: Structured collaboration between DOE national labs and Israeli universities at the interface of quantum science and established experimental domains: X-ray science, ultrafast and attosecond science, strong-field optics, free-electron physics, and accelerator-based light sources. U.S. anchor programs: SLAC (X-ray and ultrafast science), Argonne (accelerator-based light sources). Israeli anchor institutions: Weizmann Institute (ultrafast and attosecond science, strong-field optics—where the Weizmann group has internationally recognized experimental capabilities); Hebrew University (quantum information science and error correction). Reciprocal access pathways required in both directions.

Why It Matters: A Reciprocal Participation Framework rather than a status grant allows the United States to access Israeli capabilities that strengthen U.S. quantum programs. The quantum fund addresses a structural financing gap: quantum technology development requires patient capital over five-to-ten year timelines that are incompatible with current grant structures. In addition, research infrastructure is already in place — but much of the governing framework remains classical. Israel brings unusual value precisely at the interface between quantum science and these established domains. A structured partnership here would strengthen American leadership in major national-lab fields by helping move them toward the quantum era.

Q-2: Launch a Bilateral Quantum Sensing & Security Initiative

Action: Quantum sensing is the sub-domain with the clearest near-term path to deployable capabilities with strategic value. Establish a joint program targeting three priority applications:

- Precision sensing for navigation and intelligence: Israeli photonic sensing platforms—including free-electron laser and advanced photon detection—for GPS-denied navigation and underground structure detection. Bilateral research consortia, minimum \$10M per consortium over four years.
- Material characterization: quantum sensing tools for atomic-scale materials characterization, supporting both the semiconductor programs in this Compact and U.S. national lab materials science programs. Israel's synchrotron and free-electron laser capabilities are uniquely relevant.
- Post-quantum cryptography (PQC): joint implementation program for NIST PQC standards, drawing on Israeli cryptographic algorithm expertise. Priority: implementation guidance for critical infrastructure migration and a joint testbed for validating PQC implementations. This is the most shovel-ready component—both governments are racing to complete this migration before 2030. The track should also create a commercialization pathway through joint certification tools, reference architectures, procurement-ready migration packages, and routes for validated U.S. and Israeli PQC solutions into government, finance, cloud, telecom, and critical-infrastructure markets.

Why It Matters: PQC is the urgent near-term deliverable. Both governments face the challenge of migrating critical infrastructure to quantum-resistant algorithms before adversaries with cryptographically relevant quantum computers can decrypt stored communications. A joint implementation program is faster and generates shared standards with the interoperability properties both governments need. The sensing track provides the longer-horizon strategic value—deployable quantum sensing capabilities for GPS-denied environments and materials characterization.

Q-3: Establish a Bilateral Quantum Communications and QKD Initiative

Action: Quantum communications should be added as a distinct workstream centered on quantum key distribution and deployable network hardware. Israel has unique capabilities that can be highly relevant in areas such as free-space and last mile quantum key distribution (QKD), as well as satellite QKD, leveraging Israel’s advantages in small payloads and in optical tracking technology.

- QKD hardware and systems: Support silicon-ready and fiber-ready QKD hardware, integrated photonic components, and the system engineering needed to translate laboratory-grade performance into deployable trusted-network infrastructure.
- Civilian pilots: Launch a small number of unclassified pilots across research, government, and critical-infrastructure-adjacent environments where secure quantum communications can be tested in real operational conditions.
- Interoperability and standards: Build a bilateral standards and validation track for trusted allied deployment of QKD systems and related network components.

Why It Matters: QKD is a genuine quantum communications capability with practical strategic value. China leads in QKD infrastructure patents and has applied quantum communications at national scale.¹⁷ A U.S.–Israel QKD program—using Israeli expertise in small payloads, optical tracking, and free-space communications—gives the United States a credible allied pathway and a civilian testbed for quantum-secure communications that produces interoperability standards before classified applications require them.

★ **ANCHOR INITIATIVE: Quantum**

Bilateral Quantum Sensing & Security Initiative + Reciprocal Participation Framework

Q-2 (Bilateral Quantum Sensing and Security Initiative) is the anchor near-term initiative, with Q-1 (Reciprocal Participation Framework and Bilateral Fund) as its financial engine. These are complementary but distinct tracks: Q-1 targets scalable quantum *computing* systems, with QBI eligibility for Israeli computing companies as its near-term milestone; Q-2 targets deployable quantum *sensing* capabilities and, as a parallel security track, post-quantum cryptography

¹⁷ Special Competitive Studies Project, [Quantum](#), Special Competitive Studies Project (2025).

implementation — which is classical cryptography, not quantum sensing, but belongs in the same bilateral security agenda. Announced jointly by DARPA and the Israeli Ministry of Science and Technology. First joint sensing research consortium call within 90 days; PQC testbed operational at NIST and INCD within six months. Target: ≥ 2 Israeli quantum sensing platforms progressing toward field-deployable capability within 30 months.

Section 5: Bioconvergence—Leading the next Technology Wave

Strategic Overview

Bioconvergence—the nexus of computer science, biology, and engineering—is arguably the next major technology wave after AI itself, and part of the growing Chinese challenge to U.S. and allied biotech, pharma, bio-manufacturing, genomic data, and medical supply chains. The global bioeconomy is projected to reach over \$30 trillion within two decades.¹⁸ The question is whether the United States leads it, and Israeli AI capabilities are a meaningful part of that answer. Israel’s assets here are extraordinary and distinct from its AI capabilities: leading computational, engineering and structural biology research institutes; a world-class pharmaceutical R&D and biomedical engineering base; longitudinal health datasets, among the richest in the world for AI training. Combined with U.S. industrial scale and capital markets, this is a powerful combination for leading the next major technology wave.

★ ANCHOR INITIATIVE: BC-1 Bioconvergence Research Initiative

Action: Israel Life Sciences Industry (ILSI) organization, the Chief Scientist's office within the Ministry of Economy, the Israeli Innovation Authority (IIA) the Israel Biotech Fund, and relevant research institutions (Weizmann Institute, Technion, Hebrew University) should partner with NSF, Department of Energy (DOE), NIH, Food and Drug Administration (FDA) and Advanced Research Projects Agency for Health (ARPA-H) to establish a dedicated Bilateral Bioconvergence Research Initiative.

Priority domains:

AI-accelerated rare disease diagnostics: federated access to longitudinal data for model development, with regulatory pathway harmonization (FDA / Israeli Ministry of Health joint framework for AI diagnostics approval) as the critical enabling mechanism.

Synthetic substitutes through engineering biology: Israeli research strengths in engineering biology, computational materials discovery, and function-oriented materials design can be applied to identifying bio-based or synthetic substitutes for critical materials — reducing long-term dependency on any single-country supply chain for quantum, semiconductor, defense, and energy applications. Target: at least three joint consortium grants in years one and two.

¹⁸ [UN Report Outlines Roadmap for Advancing Bio-Based Technologies](#), United Nations Environment Programme (last accessed 2026).

Precision medicine: AI-enabled drug discovery and precision medicine development, with Israeli computational biology and U.S. clinical trial infrastructure as the bilateral division of labor.

Genesis Mission integration: the DOE's Genesis Mission—a flagship U.S. national science initiative—represents a promising avenue for future, significant bilateral potential and should, when appropriate, be formally integrated into the Bioconvergence Initiative as a priority cooperative framework.

Why It Matters: The National Security Commission on Emerging Biotechnology stressed the transformative potential of these technologies to revitalize U.S. manufacturing and employment across the nation, create a more resilient supply chain, address concerns regarding national competitiveness and national security, and improve the nation's health and environment. However, the report also noted how the United States is falling behind in key areas to China, which has made biotechnology supremacy a strategic priority for over 20 years.¹⁹ One of the main recommendations is to “mobilize the collective strengths of our allies and partners,” and formalizing a bilateral bioconvergence agenda with Israel — co-opting its strong research capabilities, technological expertise, and multidisciplinary approach - is a logical step. The Strategic Partnership on Artificial Intelligence, Research, and Critical Technologies MOU already provides the high-level executive and legal basis for substantive biotech collaboration.²⁰

¹⁹ [Final Report](#), National Security Commission on Emerging Biotechnology (2024).

²⁰ [Joint Statement of the United States and Israel on the Launch of a Strategic Partnership on Artificial Intelligence, Research, and Critical Technologies](#), U.S. Department of State (2026).

Section 6: Critical Materials — Securing the Processing Layer

Strategic Overview

The strategic bottleneck in critical materials is increasingly not raw geology, but processing: concentration, separation, purification, and upgrading, and the accumulated loss of Western process know-how. The United States holds significant domestic mineral deposits that remain commercially non-viable because current processing methods are too polluting to permit domestically — this is not a geology problem; it is a chemistry problem. Israel’s differentiated value lies in electrochemistry, advanced materials science, digital exploration and security tools, and prototype-friendly pilot environments that can validate cleaner, regulation-compatible alternatives at speed. The practical bilateral model is straightforward: pilot and validate breakthrough approaches in Israel, then scale into U.S. or allied commercial deployment. A standing joint analytical function — an annual bilateral critical materials runway analysis and forward map — should underpin all four recommendations, tracking both today’s chokepoints and those likely to emerge over the next 10–20 years for quantum, fusion, next-generation energy, and advanced defense systems.

CM-1: Clean Processing, Circular Feedstocks, and Domestic Ore Upgrading

Action: Launch a bilateral program on cleaner, regulation-compatible processing methods for strategic materials relevant to quantum, advanced energy, semiconductors, batteries, and defense systems. The program has three tightly linked sub-tracks:

Sub-track A — Clean Separation and Processing: Support an array of approaches to concentration, separation, purification, and upgrading that reduce pollution, acid intensity, and permitting friction. Eligible approaches may include aqueous, electrochemical, membrane, bioleaching, solvent-extraction, thermal, sodium-based, and hybrid processes, provided they are deployable domestically in the United States or in trusted allied jurisdictions. Link Israeli pilot facilities and materials-science teams with U.S. national labs and federal testbeds. The primary target is the class of domestic U.S. deposits that are currently non-viable because environmental permitting requirements rule out conventional acid-leaching and solvent-extraction methods — Israeli electrochemistry offers a regulatory-compatible pathway through these deposits without new geology.

Sub-track B — Circular Feedstocks and Residuals-to-Materials: Establish joint pilots extracting strategic minerals and materials from existing waste and industrial streams. Priority feedstocks: desalination by-products (leveraging Israel’s world-leading desalination infrastructure as a source of rare earth elements), industrial residuals, mining and mineral-processing waste, energy-related brines and end-of-life equipment, including computers, monitors, servers, printed circuit boards, batteries, magnets etc. Focus on practical recovery pathways that generate strategic materials supply from existing U.S. industrial infrastructure — without new mines, new permits, or new

environmental review. This is politically and environmentally the lowest-friction pathway to supply diversification currently available to the U.S. materials strategy.

Sub-track C — Low-Grade Ore Upgrading: Deploy Israeli sodium-based reduction and innovative purification and upgrading techniques for low-grade U.S. domestic mineral deposits. The United States holds known reserves of critical minerals that do not meet commercial viability thresholds under conventional processing — Israeli techniques, including those developed by Helios (sodium-based reduction and novel extraction) as part of its DARPA LunA-10 work, can shift that calculus. Target: at least two joint upgrading pilot projects on identified U.S. low-grade deposits within two years, with pathways into DOE's domestic minerals strategy.

Why It Matters: The three sub-tracks address the same structural problem from different angles: the United States cannot access its own mineral wealth or the strategic materials it needs from allied partners because processing — not geology — is the binding constraint. Israel's electrochemical expertise and prototype-agile engineering culture provide the cleaner processing pathways that allow domestic deployment. China's accumulated process advantage is hardest to displace at precisely this stage of the value chain, making bilateral investment here the highest-leverage intervention in the U.S. critical materials agenda.

CM-2: Pilot-to-Deployment Pathway, Digital Exploration, and Minerals Diplomacy

Action: Create a bilateral pilot-to-scale pathway for critical materials technologies, supported by digital exploration tools, government-backed de-risking instruments, and a selective multilateral expansion track.

- Pilot-to-scale: Validate breakthrough processing approaches through joint pilots in Israel — using Israel's prototype-friendly pilot environment as the proving ground — then scale into U.S. commercial plants or trusted allied facilities. Use government-backed tools where market structure is weak: offtake arrangements, price floors, prizes, and pilot-oriented federal support through the Department of War Office of Strategic Capital and DOE. Financing vehicle: F-3 U.S. International Development Finance Corporation (DFC) co-financing facility. The type of project this framework is designed to enable is illustrated by existing Israeli-developed Direct Lithium Extraction (DLE) technology currently being piloted at U.S. salt lakes and industrial brine sites — capable of targeting production volumes in the range of 70,000 tonnes per annum of lithium carbonate in partnership with U.S. mining operators. Projects of this profile, where Israeli process innovation is combined with established U.S. industrial partners and domestic feedstocks, represent the intended deployment pathway for the F-3 facility.
- Digital exploration and secure mining infrastructure: Deploy Israeli satellite-AI exploration tools, cybersecurity for mining and extraction sites, geoscience analytics, and digital-twin

monitoring capabilities to improve U.S. supply-chain visibility and resilience. Israeli leadership in AI-enabled satellite imaging (applying capabilities developed for border and infrastructure security to mineral exploration) and cyber-enabled monitoring addresses a concrete U.S. vulnerability: adversarial mapping and potential disruption of domestic mining supply chains. Target: at least two U.S. mining or extraction sites with Israeli-supplied digital security and exploration tools within 18 months.

- Minerals diplomacy — trilateral track: Open a structured partnership with resource-rich trusted partners — Australia, Canada, Brazil, or Indonesia — where Israel contributes process innovation and digital tools within a broader minerals-security framework. Israel does not have raw material endowments; its role is as process innovator and technology provider within larger allied minerals ecosystems. DFC co-financing (F-3) and IIA matching as the primary vehicles. Sequence target markets by technology absorption capacity: Australia and Canada as first movers given existing Five Eyes alignment and established critical minerals frameworks.
- Forward mapping — annual bilateral runway analysis: Establish a standing joint analytical function mapping not only today's critical materials but the materials and functions likely to become critical over the next 10–20 years, with particular focus on emerging needs in quantum computing, nuclear fusion, next-generation energy storage, and advanced defense systems. The United States Geological Survey (USGS) and the Geological Survey of Israel could serve as the institutional homes, where an annual report would be published and shared with allied nations. This is an analytical precondition for the other programs, not a separate initiative: it ensures that CM-1 pilot investments anticipate tomorrow's chokepoints, not only today's.

Why It Matters: Many critical-materials markets are strategically vital but too small or uncertain for classic venture financing — without government-backed de-risking, good technologies will not scale regardless of their merits. The digital exploration track addresses a separate but equally urgent gap: U.S. mining and extraction infrastructure has not been hardened against the AI-enabled surveillance and disruption capabilities that adversaries have been developing. Israeli tools developed for exactly these threat environments are directly applicable. The trilateral track gives the bilateral partnership geopolitical reach: Israel cannot supply raw materials, but it can supply the process innovation and digital infrastructure that makes resource-rich partner nations' deposits viable under U.S.-aligned supply chain standards.

★ ANCHOR INITIATIVE: Critical Materials

Project Tel Aviv – Clean Processing, Circular Feedstocks, and Direct Lithium Extraction

The combination of CM-1 and CM-2 is the anchor critical-materials initiative. The preferred model is a staged bilateral pathway: targeted research, process development, and pre-pilot validation in Israel, funded through F-2 scaled bilateral grants; then pilot-scale deployment in Israel using IIA co-financing; then scale-up into U.S. commercial plants or trusted allied facilities using the F-3 DFC co-financing facility, DOE deployment grants, and DoC offtake tools. The headline anchor project profile for this initiative is clean lithium recovery from U.S. salt lakes and industrial brines using Direct Lithium Extraction (DLE) technology – where Israeli process innovation is combined with established U.S. mining operators and existing domestic feedstocks. Projects of this type can target production volumes in the range of 70,000 tones per annum of lithium carbonate, representing approximately \$1 billion in annual revenue at scale. Funding would accelerate full-scale project deployment, expand R&D, and support construction of next-generation sorbent manufacturing capacity in the United States. The digital exploration and forward-mapping tracks in CM-2 provide the intelligence layer that makes the capital allocation in CM-1 and the DLE project strategically durable over time.

Section 7: Implementation Architecture

Strategic Overview

The value of what is in this Compact is unlocked by a set of cross-cutting mechanisms that no single domain section can own. Every other section creates specific access commitments — Israeli participation in the Quantum Benchmarking Initiative, Pax Silica designation for semiconductor infrastructure, national-lab access for fusion materials research — but the institutional machinery that turns those commitments into real participation operates at a level above any individual domain. This section establishes that machinery: procurement fast lanes, mutual recognition of validated pilots, and a standing channel for the export-control and trusted-access questions that block progress across every domain simultaneously.

X-1: National-Lab and Testbed Access

Standing bilateral access pathways for approved Israeli and U.S. teams to use national labs, user facilities, testbeds, and secure research infrastructure are specified in the Technical Annex, including standard templates for contracting, IP, security review, and cost recovery. An agency-level coordination channel should be designated to resolve access barriers quickly rather than project by project, and Israeli facilities should be available as reciprocal assets where they offer faster experimental throughput. The access tracks named in each domain section — fifteen Israeli researchers at Argonne and Oak Ridge under Q-1, PPPL collaboration under AE-1, Lawrence Berkeley and SLAC under Q-3 — are the operational instantiation of this commitment.

X-2: Procurement Eligibility and Federal Program Entry

Action: Create fast lanes for trusted bilateral participation in selected U.S. federal R&D, pilot, and procurement pathways.

- Where legally available, treat Israeli participation as a trusted allied pathway rather than a foreign-exception process designed for adversaries.

Establish dedicated alliance windows or facilitation tracks for programs under DOE, DARPA, Commerce, NSF, ARPA-H, DFC, and the Office of Strategic Capital.

- Provide early visibility into relevant calls, tenders, challenge programs, and pilot opportunities so bilateral teams can prepare before programs default to U.S.-only participants. This is the most immediately actionable fix: Israeli companies consistently miss relevant federal calls not because they are ineligible but because they receive no early awareness.

Why It Matters: Without structured entry channels, even strong allied capabilities remain peripheral to the programs that matter most. The access commitments in every domain section of this Compact

— QBI eligibility, CHIPS Act participation, ARPA-H bioconvergence grants — depend on this mechanism to become real.

X-3: Regulatory Recognition and Pilot Translation

Action: Establish mutual recognition pathways so validated Israeli pilots, testing results, certifications, and standards can support U.S. commercialization and procurement decisions.

- Prioritize areas where duplicative testing materially slows deployment: AI security products, health diagnostics, industrial systems, and critical-materials pilots.
- Use common validation protocols, secure-data arrangements, and sector-specific regulatory dialogues to support cross-border deployment.
- Publish a first-wave list of pilot categories eligible for accelerated recognition within six months of Compact signing — this is an administrative action requiring no new legislation.

Why It Matters: A bilateral alliance that funds pilots but cannot translate them into procurement or scaled deployment will remain narrower than the strategic opportunity requires. The NIST-SII mutual recognition pathway for AI cybersecurity certifications is the model: Israeli-certified products qualifying for U.S. federal procurement without duplicative compliance review.

X-4: Trusted Regulatory and Export-Control Coordination

Action: Establish a standing bilateral coordination channel on civilian export-control treatment, trusted-partner access, dual-use safeguards, and deployment-related regulatory barriers.

- Create a structured mechanism among the relevant U.S. agencies — Bureau of Industry and Security (BIS), Department of State, National Security Council (NSC) — and Israeli counterparts to resolve treatment questions affecting approved Alliance projects in semiconductors, AI, quantum, advanced energy, and critical materials.
- Develop a first-wave list of policy and regulatory frictions that can be resolved administratively, and a second-wave list requiring legislative or higher-level executive action. Israel's treatment under the AI diffusion framework, Pax Silica trusted-partner designation, and quantum export-control regimes are the three most urgent first-wave items.
- Ensure that stronger bilateral access is matched by appropriate safeguards and clear guardrails for sensitive civilian and dual-use technologies. This coordination channel manages the supervisory foundations of trust, not only the benefits of access.

Why It Matters: Most of the friction blocking this Compact's domain programs is not technical or political — it is unresolved treatment questions in export-control and trusted-access frameworks.

X-5: Joint Manufacturing, Licensing, and Procurement Translation

Action: For approved Alliance projects that move from R&D or pilot activity into production, the Steering Committee should establish a coordinated review path for joint manufacturing, reciprocal licensing, trusted-supplier status, investment-screening, export-control treatment, and procurement eligibility. This path should not pre-grant exemptions from the International Traffic in Arms Regulations (ITAR), the Export Administration Regulations (EAR), the Committee on Foreign Investment in the United States (CFIUS), agency procurement rules, or other applicable approval regimes. Its purpose is to ensure that these questions are identified early, reviewed through one coordinated project file, and sequenced in a way that allows qualified bilateral projects to move from prototype to procurement without avoidable delay.

Why It Matters: The Compact's value depends on whether joint technologies can move beyond research cooperation into production, procurement, and deployment. Many of the most important bilateral opportunities will fail to scale if manufacturing rights, licensing rules, trusted-supplier status, investment review, export-control treatment, and procurement eligibility are addressed only after a technology is ready for market. A coordinated review path would not weaken legal or security safeguards. It would make them operational earlier, giving companies, investors, agencies, and procurement authorities a clearer route from pilot success to allied industrial capacity.

Section 8: Funding – What the Tech Alliance Requires

The financing architecture of this Compact is designed to mobilize over \$10 billion in strategic technology investment over ten years. This will combine government grants and equity with an expanded development finance facility, a private sector investment vehicle, and a semiconductor infrastructure initiative. The structure is explicitly modeled on the UK–U.S. Tech Prosperity Deal (September 2025, £31 billion in bundled private sector commitments) and the U.S.–Japan \$550 billion investment framework (July 2025).

Mechanism	U.S. Commitment	Israel Commitment	Notes
F-1: Tech Investment Authority (Pax Silica aligned co-investment vehicle)	\$1.0B equity (10 yr)	\$1.0B equity (10 yr)	Not appropriated; returns expected
F-2: Scaled bilateral grants (BIRD/BSF/BARD)	~\$2.5B (10 yr)	~\$2.5B (10 yr)	Includes BIRD Energy reauthorization; proven 25:1 leverage ratio
F-3: DFC co-financing facility	\$2–3B (face value)	\$200M IIA match	~\$150M budget cost via credit subsidy
F-4: Strategic Tech Investment Vehicle (STIV)	\$1.0B anchor Limited Partner (LP) (10 yr)	\$1.0B anchor Limited Partner (LP) (10 yr)	Private capital target \$3–5B total
F-5: Intel Fab 38	\$500M–1B (TBD)	\$250M–500M (TBD)	Subject to 6-month feasibility study; 24-month window
F-6: Bilateral Bioconvergence Research Fund	\$1.0B (10 yr)	\$1.0B (10 yr)	Structured as consortium grants for rare disease diagnostics, synthetic biology, and precision medicine. Subject to appropriations (12–18 month track).
TOTALS (Government)	~\$5.5B	~\$5.5B	Headline mobilization: \$10B

appropriated, 10 yr)			
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**Governance Standards: All funds under this Compact are governed by open competitive processes with published selection criteria; mandatory recusal for conflicts of interest; annual public reporting of all awards and milestones to the Steering Committee; and independent triennial audit. These requirements apply equally to U.S. and Israeli actors.*

Financing Mechanisms Summary

F-1: Tech Investment Authority. A jointly governed 50-50 Pax Silica aligned co-investment authority \$2.0B in total public equity over the 10-year cycle (\$1.0B from each side), making equity investments in priority areas such as AI-cybersecurity, semiconductors, quantum sensing, advanced energy materials, and critical materials. Governed by a joint board; IP framework vests national security rights jointly. The vehicle’s value is in signaling trusted supply-chain status to potential portfolio companies and enabling fast-track procurement pathways.

F-2: Scaled Bilateral Grants. Scale aggregate bilateral grant and consortium funding to \$250m per year from each nation, structured as larger milestone-based awards with dedicated tracks for semiconductors, edge compute, critical materials, advanced energy, quantum, and bioconvergence. This should include a major expansion of BIRD Energy, a substantial increase in BIRD Foundation ceilings, expanded BSF and BARD mission-oriented calls, and formal Israeli participation pathways in DOE, DARPA, CHIPS, National Quantum Initiative, ARPA-H, and Genesis Mission-related research programs. At this scale, F-2 becomes the principal vehicle for first-wave public research funding in semiconductors, edge inference, critical materials processing, and Genesis-linked AI-for science initiatives.

F-3: DFC Co-Financing Facility. A \$2-3 billion DFC development finance facility over ten years, co-managed with the Israel Innovation Authority, targeting third-country deployments in Abraham Accords partner nations and Indo-Pacific markets. Budget cost to the United States: approximately \$100-150M over the decade (credit subsidy at ~5%). Includes an explicit trilateral track for U.S.-Israel-Gulf projects. The primary constraint on this facility is deal pipeline, not capital availability. An early-stage project development facility—providing feasibility studies, pilot formation, and catalytic pre-commercial risk capital—should be established as a precondition for deploying the DFC facility at scale. Abraham Accords partner target markets should be sequenced by technology absorption capacity e.g. UAE and Bahrain as first-movers with demonstrated infrastructure appetite.

F-4: Strategic Technology Investment Vehicle (STIV). A privately structured vehicle built around two bilateral funds over the 10-year cycle, with \$1.0B in anchor LP commitments from each side across the full period, structured as two \$500M commitments — one in each fund. The first fund would be launched at the outset, and the second after five years, subject to performance and strategic need. The purpose is to crowd in larger pools of private capital in successive waves rather than rely on a single vehicle at the start.

F-5: Intel Fab 38 / Advanced Semiconductor Infrastructure Initiative. A six-month joint feasibility study (Commerce/CHIPS Program Office and Israeli Ministry of Economy) on leveraging Intel's Fab facility in Kiryat Gat, establishing a hybrid laboratory and research center focused on revolutionizing semiconductor manufacturing, such as Extreme Ultraviolet Lithography (EUV) processes and other FAB machinery (dry etch, diffusion, thin films, and metrology), through the development and deployment of advanced Digital Twin (DT) technology. If confirmed viable: \$500M combined public-private financing.

F-6: Bilateral Bioconvergence and Genesis Research Fund. A new bilateral fund with \$1.0B over the 10-year cycle from each side structured as consortium grants for the Bioconvergence pillar (Section 5). Priority areas should include: AI-enabled drug discovery, engineering biology, accelerated rare disease diagnostics, ; synthetic biology and bio-based materials, and precision medicine. The fund may also support selected bilateral cooperation aligned with Genesis Mission priorities, while remaining within the same consortium-grant structure. Grant terms: minimum \$5M, maximum \$20M, three-to-five year terms, and a mandatory academic-industry consortium structure. Subject to appropriations; 12-18 month implementation track.

Full implementation details for all financing mechanisms, including legal authorities, governance structures, and Israeli counterpart obligations, are set out in the Technical Annex.

Section 9: Measuring Success – Five North Star Benchmarks

The Compact's success will be assessed against five high-level benchmarks, reviewed annually by the Tech Alliance Steering Committee. Detailed domain-specific metrics are set out in the Technical Annex.

#	North Star	Benchmark
1	Technology in People's Lives	Five joint technologies deployed at scale in the U.S. or Israel—measurably improving healthcare, grid resilience, or cybersecurity for citizens—within five years.
2	Trusted Tech Ecosystem	U.S.–Israel AI and cybersecurity standards adopted by ≥ 10 additional allied nations within three years, including in the Middle East and Africa, displacing Chinese technical frameworks where they are becoming the default infrastructure.
3	Capital Mobilized	\$10B+ in total strategic technology investment mobilized over ten years across all financing mechanisms, at a baseline public funding commitment of ~\$500M/year from each government.
4	Human Capital Depth	≥ 50 U.S. government technical officials with active bilateral working relationships; ≥ 20 government exchanges per year; ≥ 5 Israeli companies/year in U.S. federal programs of record.
5	Systemic Interdependency Established	This Compact would operate as a self-standing bilateral instrument with its own Steering Committee reporting cycle by December 2027, and not be absorbed into the 2028 MOU renewal.

These benchmarks are designed to track what actually matters: not the number of MOUs signed or programs launched, but whether the partnership generates technology that reaches people, standards that the world follows, capital that moves at strategic scale, human networks that persist across administrations, and an institutional architecture that operates independently of defense cooperation cycles.

Section 10: Defense-Adjacent Cooperation — Annex Reference

This Compact is scoped as a civilian technology cooperation instrument. Issues of defense technology transfer, classified co-development, and joint military procurement are addressed in the Technical Annex under 'Defense-Adjacent Technology Cooperation.' That Annex documents: dual-use IP governance for technologies developed under this Compact; Defense Innovation Unit (DIU)-Directorate of Defense Research and Development (MAFAT) defense AI fast-track pathways; Technical Support Working Group (TSWG) 2.0 reinstatement; and export control alignment for defense-adjacent technologies. These issues should be addressed through the 2028 bilateral security assistance MOU renewal or through existing defense mechanisms—they are recorded in the Annex for that purpose.

The Tech Alliance Steering Committee should be constituted with civilian agency representation only—NSF, DOE, NIH, NIST, Commerce, IIA—and operate on an independent reporting cycle. Defense agencies may participate as observers. The Compact should be signed at the civilian cabinet level, not through military or intelligence channels.

Conclusion

The U.S.–Israel technology partnership has been generating value for four decades without institutional architecture to match. This Compact provides that architecture—and in doing so, demonstrates a model for how the United States integrates allied capabilities into its technology ecosystem in ways that make the overall system stronger, more resilient, and more trusted than any single nation could build alone.

China's 15th Five-Year Plan (2026–2030) commits to strengthening dominance across every domain this Compact addresses — rare earth and critical mineral supply chains, semiconductor self-sufficiency, AI frontier development, biotechnology, quantum sensing, and green energy²¹ — making this alliance not merely a bilateral technology agreement but a direct template for how the United States and its closest partners can mount a coordinated, multi-domain response.

The anchor initiatives— including the Bilateral AI-Cybersecurity Foundry, the Sovereign Data & Governance Framework, the Joint Fusion Materials Research Program, and the Bilateral Quantum Sensing Initiative—are each designed for joint announcement at a bilateral technology summit, with concrete commitments achievable within 90 days of signing. The financing architecture should be built around a baseline public funding commitment of at least \$500M per year from each government over the 10-year MOU, with additional private and project-specific capital increasing total investment above that floor, or off-setting parts of it.

The measure of success is not the number of programs launched or MOUs signed. It is whether joint technologies reach people, whether shared standards become the world's defaults, and whether the Trusted Tech alternative becomes real enough that allied and partner nations choose it over the alternative. The work starts now.

²¹ Erik Green, [China's 15th Five-Year Plan](#), International Institute for Strategic Studies (2026).

TECHNICAL ANNEX

SCSP & MIND Israel | May 2026 |

This Annex provides the implementation layer for the Main Document. It is tightly scoped to the six domains—AI, Semiconductors, Advanced Energy, Quantum, Bioconvergence, and Critical Materials—plus financing and defense-adjacent issues. For each domain it specifies: ownership, implementation mechanisms, and the extended context needed to action each recommendation. It closes with a domain-specific metrics table and a note on the relationship to the 2028 security assistance MOU renewal.

The Complementary Thesis

The table below maps Israeli differentiated capabilities to specific U.S. strategic needs across the technology pillars.

Competency	Israel Edge	U.S. Strategic Need
Algorithmic Efficiency	Extreme resource-constrained optimization honed in defense/edge environments	Reducing the energy/compute footprint of frontier LLMs; enabling AI at the tactical edge without data-center dependency
Edge-AI & Inference	Seamless fusion of AI into constrained hardware (robotics, drones, sensors)	Transitioning AI from hyperscale data centers to field-deployable national security assets
Cyber-AI Defense	Automated agentic threat-hunting and AI-driven OT security under live adversarial pressure	Securing U.S. critical infrastructure (water, grid, industrial controls) against state-sponsored AI-enabled attacks
Bioconvergence AI	Integrated national health data + willingness to deploy AI in production medical environments at speed	Accelerating U.S. bioeconomy (\$30T projected); enabling federated rare-disease diagnostics precision medicine, and engineering biology

Hybrid Quantum Software	NISQ-era algorithms that extract utility from imperfect current hardware	Bridging the 'valley of death' before fault-tolerant quantum computers are available at scale
Quantum Sensing & PQC	Photonic sensing platforms; cryptographic algorithm expertise aligned with NIST PQC standards	GPS-denied navigation; underground structure detection; critical infrastructure migration to quantum-resistant cryptography by 2030
Fusion Materials	Rapid-cycle experimental testing of plasma-facing components (liquid metal, advanced ceramics)	Accelerating plasma-facing materials R&D at PPPL without waiting for oversubscribed U.S. experimental facilities
Semiconductor Architecture Innovation	Paradigm-breaking architecture-level design: chipllets, packaging, memory architecture, hardware-algorithm co-design. Israel's 250 semiconductor companies and 45,000 chip workers are embedded inside every major U.S. technology firm.	Extending U.S. semiconductor performance frontier without new fabs; next-gen memory architecture to resolve AI training bottleneck; edge inference efficiency for field-deployable AI systems.
Critical Materials Processing	Advanced electrochemistry, novel aqueous separation, and sodium-based reduction techniques; prototype-agile pilot environment; AI-enabled satellite exploration and digital-twin monitoring for mining infrastructure.	Unlocking domestic U.S. mineral deposits currently non-viable under conventional processing; building regulation-compatible processing pathways that displace China's accumulated process advantage; securing mining infrastructure against adversarial disruption.

[Existing Framework: January 2026 U.S.–Israel Joint Statement on AI](#)

The January 2026 Joint Statement on the Strategic Partnership on AI formalizes several areas highlighted in this Compact—including critical infrastructure defense, AI applications, and advanced energy research. The Compact should be framed as the operational implementation vehicle for that Statement: it provides the institutional architecture, ownership assignments, and financing mechanisms that the Statement commits both governments to but does not itself establish.

Key areas of overlap: AI, Semiconductors, Material Sciences, New Energy Sources, Israel R & D ecosystem as Pax Silica 'node'.²²

²² [Joint Statement of the United States and Israel on the Launch of a Strategic Partnership on Artificial Intelligence, Research, and Critical Technologies](#), U.S. Department of State (2026).

SECTION 1: ARTIFICIAL INTELLIGENCE – IMPLEMENTATION DETAILS

AI-1 Establish a Bilateral AI-Cybersecurity Foundry

U.S. Owners	CAISI ; DHS Science & Technology Directorate
Israel Owners	Israel National Cyber Directorate (INCD); Ministry of Innovation, Science and Technology; Israel Innovation Authority

Mechanism for Implementation

Other Transaction Authority (OTA) authority for procurement fast-track; bilateral administrative charter (NSA-INCD); In-Q-Tel Israel co-investment for Foundry portfolio companies; private sector advisory boards (Check Point, CyberArk, Wiz, Dream Security).

Governance: co-governed by CAISI and INCD; U.S. node in Northern Virginia, Israeli node in Tel Aviv Cyber District; annual reporting to the Tech Alliance Steering Committee.

AI-2 Establish a Bilateral AI Data Governance Framework and Joint AI for Health Program

U.S. Owners	NIH; NIST; HHS Office of the National Coordinator; NSF; Department of Commerce
Israel Owners	Ministry of Health; Clalit Research Institute; National Cyber Directorate; Privacy Protection Authority; Israel Innovation Authority

Mechanism for Implementation

NIH international research collaboration authority; NIST cooperation authority (National Technology Transfer and Advancement Act); bilateral data governance agreement; Israel Innovation Authority co-financing; IP framework under BIRD Foundation parity principle for jointly trained AI models.

- Test-time training specifics: the critical technical problem is domain shift—models trained on Israel's nationally integrated, longitudinal data perform differently when applied to the U.S.'s fragmented, multi-provider data environment. Solving this generates generalizable techniques applicable to every allied health AI partnership, not just the bilateral one. The data governance framework must also be designed - with Israel's Privacy Protection Authority review - in explicit compatibility with Israel's GDPR-adjacent privacy obligations (shaped by EU adequacy decisions).
- Bioconvergence track: the global bioeconomy is projected at \$4-30T within two decades. Israeli assets—longitudinal data, Weizmann/Technion computational biology, Tel Aviv

University synthetic biology—combined with U.S. bioeconomy industrial scale and capital markets constitute a high-value bilateral agenda. Priority applications: AI-accelerated rare disease diagnostics (directly benefiting patients); bio-based materials discovery; precision medicine. Regulatory pathway harmonization (FDA / Israeli Ministry of Health joint framework for AI diagnostics approval) is the critical enabler.

AI-3 Establish a Joint Edge-AI and Inference Efficiency Initiative (Compute Integration)

U.S. Owners	DARPA; NSF; ARPA-E; National AI Research Resource (NAIRR)
Israel Owners	Israel Innovation Authority; Technion; Tel Aviv University; Israeli edge-AI companies (for example: ZutaCore, Niv-AI, Habana Labs successors)

Mechanism for Implementation

DARPA program authority; NSF international collaboration grants; ARPA-E co-funding; NAIRR resource allocation policy; IIA co-commitment; BIRD Energy program for cooling technology pilots. Edge compute and inference efficiency should become one of the Compact’s principal first-wave investment priorities, drawing on the expanded F-2 grant mechanism, the F-1 and F-4 co-investment lanes, and the F-5 industrial infrastructure lane for testbeds, validation environments, and pilot deployments.

AI-4 Launch a Joint Open-Source AI Governance Program

U.S. Owners	NSF; Office of Management and Budget (OMB); NIST
Israel Owners	Israel Innovation Authority; relevant government AI operations units

Mechanism for Implementation

OMB policy authority; NIST technical standards authority; bilateral administrative agreement for mutual certification recognition; IIA program management; Intergovernmental Personnel Act authority for exchanges. Regional deployment component: a dedicated go-to-market program targeting Middle East partner nations through the Abraham Accords architecture, providing deployment support and training programs that match what Chinese AI providers offer. This component should be assigned a named program manager on both sides.

Governance Note: Standards Alignment

NIST and the Standards Institution of Israel should negotiate mutual recognition for AI cybersecurity certifications within 18 months—meaning INCD-certified Israeli AI-cyber products are automatically eligible for U.S. federal procurement. A joint semiconductor supply chain integrity standard, aligned with CHIPS Act requirements and the Pax Silica framework, is the second deliverable.

SECTION 2: SEMICONDUCTORS – IMPLEMENTATION DETAILS

S-1 A&B Advanced Semiconductor Architecture Innovation & Pax Silica

U.S. Owners	Commerce Department / CHIPS Program Office
Israel Owners	Israeli Ministry of Economy and Industry; Israel Innovation Authority, Intel Israel

Mechanism for Implementation

Commerce CHIPS Program Office authority; bilateral feasibility study MOU (to be commissioned within 30 days of Compact signing); Pax Silica framework designation; Israeli Ministry of Economy matching investment commitment conditional on feasibility study results. If viable: combined public-private financing structured as CHIPS-Act-eligible investment for the U.S. portion and an Israeli state investment vehicle for the Israeli portion. IP framework: jointly governed under the F-1 Tech Investment Authority Pax Silica track, ensuring supply chain integrity standards are met.

S-2: Memory Architecture Breakthrough Program

U.S. Owners	DOE Office of Science (Lawrence Berkeley National Laboratory; NIST); DARPA (MTO program authority); NSF (international collaboration grants); Commerce / CHIPS Program Office (consortium coordination)
Israel Owners	Israel Innovation Authority (IIA); Technion Department of Electrical and Computer Engineering; Hebrew University.

Mechanism for Implementation

DARPA program authority (Microsystems Technology Office) as the primary U.S. instrument, enabling the long-horizon, high-risk/high-reward grant structure required for fundamental memory research; NSF international collaboration grants for the academic consortium layer; DOE national lab collaboration agreements linking Lawrence Berkeley and NIST to Israeli research teams. IIA co-funding authority on the Israeli side: minimum award \$10M per consortium, five-to-seven year terms, mixed academic-industry teams required. Consortium eligibility: Israeli university groups (Technion, Hebrew University), Israeli design companies, and U.S. national lab teams may form mixed consortia. F-2 scaled bilateral grants are the primary financing vehicle. F-1 Tech Investment Authority should designate memory architecture as a priority investment domain given the shorter commercialization pathway for inference-efficiency applications.

SECTION 3: ADVANCED ENERGY — IMPLEMENTATION DETAILS

AE-1: Joint Fusion Materials Research Program

U.S. Owners	Israel Owners
DOE Office of Science; Princeton Plasma Physics Laboratory (PPPL); ARPA-E	Israeli Atomic Energy Commission; relevant university research centers; Israel Innovation Authority; Israeli companies (for example nT-Tao (compact fusion); TerraWave (gyrotron expertise))

MECHANISM FOR IMPLEMENTATION

DOE national lab collaboration agreements; bilateral research MOU between DOE and Israeli Atomic Energy Commission; NSF-equivalent Israeli research funding as matching commitment; PPPL user facility agreement extended to Israeli researchers. The joint research MOU should be designated under the Pax Silica framework, consistent with the January 2026 U.S.–Israel Joint Statement's explicit inclusion of advanced energy and supply chain resilience as priority sectors — giving AE-1 the same trusted-partner infrastructure status the Compact establishes for semiconductor cooperation under S-1.

Extended Context: Israeli advanced materials research

Relevant capabilities for AE-1: (1) Laser facility capable of rapid plasma-facing materials testing at experimental timescales unavailable at currently oversubscribed U.S. facilities. (2) Active liquid lithium experimental program directly relevant to PPPL's plasma-facing component agenda. (3) Diamond electronics and wide-bandgap materials (Gallium Nitride (GaN), Silicon Carbide (SiC)) research applicable to fusion power conversion and grid-scale power electronics. (4) Compact fusion systems relevant to both grid resilience and forward-deployed energy requirements. The partnership is genuinely complementary: PPPL provides theoretical depth and computational capacity; Israel provides experimental throughput.

AE-2: Bilateral Advanced Energy AI and Simulation Initiative

U.S. Owners	Israel Owners
DOE; ARPA-E; NLR; Argonne National Laboratory	Tel Aviv University (plasma physics); Bar-Ilan University (battery materials); East Mediterranean Energy Center (EMEC); Israel Electric Corporation

MECHANISM FOR IMPLEMENTATION

ARPA-E program authority; DOE national lab supercomputing access for joint simulation; EMEC as bilateral forum; DOE-Israeli Ministry of Energy MOU as legal basis; Israeli Ministry of Energy matching investment; DFC financing for third-country energy AI deployments (F-3).

Extended Context: East Mediterranean Energy Center (EMEC)

EMEC was established during the first Trump administration under former Deputy Secretary of Energy leadership and has maintained institutional continuity. It provides an existing legal and organizational framework for regional energy cooperation that can be leveraged for trilateral projects under the BIRD Energy reauthorization. NLR has established regional grid modeling expertise (LA 100, Puerto Rico, Latvia studies) directly applicable to an Israel-Eastern Mediterranean grid connectivity study under EMEC auspices. EMEC is the natural institutional home for AE-2's regional grid work—it avoids the need to build new bilateral infrastructure for that component.

AE-3: BIRD Energy Reauthorization

U.S. Owners	DOE; Congress
Israel Owners	Israeli Ministry of Energy and Infrastructure; BIRD Foundation; Israel Innovation Authority

Mechanism for Implementation

U.S Government reauthorization; DOE implementation; Israeli Ministry of Energy matching; BIRD Foundation governance amendment to expand eligible program areas; EMEC linkage to enable trilateral Abraham Accords projects.

FINANCING NOTE

BIRD Energy reauthorization (AE-3) is the primary grant mechanism (\$30M/year bilateral). ARPA-E funding for fusion materials and grid AI. DFC co-financing (F-3) for third-country energy AI and cooling technology deployments. F-1 Tech Investment Authority should designate advanced energy materials and grid AI as priority investment domains.

AE-4: Initiate a Bilateral Energy Efficiency Leapfrog Program

U.S. Owners	DOE Office of Electricity (grid intelligence track); DOE Advanced Research Projects Agency–Energy (ARPA-E) (solid-state thermoelectrics track); DOE Office of Nuclear Energy (SMR integration); NSF; major U.S. utility partners
Israel Owners	Israel Innovation Authority (IIA); Israeli Ministry of Energy and Infrastructure; Technion Faculty of Mechanical Engineering (thermoelectrics and thermodynamics); Israeli companies (for example Luminescent (solid-state thermoelectric conversion); Grid4C (AI grid telemetry and load optimization); LAVA (novel thermodynamic engine)

Mechanism for Implementation

Two parallel tracks: Track A (Solid-State Thermoelectrics) led by ARPA-E, using its OPEN and SCALEUP program authority for a dedicated bilateral call within 12 months of Compact signing. Luminescent as Israeli industrial anchor; Technion Faculty of Mechanical Engineering as academic anchor. Initial pilots target waste heat recovery at Fort Foundry One (if confirmed viable under S-1) and a DOE-designated SMR site. Performance target: 15% improvement in net energy recovery within 36 months.

Track B (Grid Intelligence Stacks) led by DOE Office of Electricity under its Grid Modernization Initiative authority. Track B (Grid Intelligence Stacks) led by DOE Office of Electricity under its Grid Modernization Initiative authority. Engagement structured as a technology transfer and co-deployment arrangement between Israeli AI grid telemetry providers and at least two U.S. utility partners, selected through an open competitive process. Candidate utility profiles include large public power authorities and major independent grid operators. Milestone: at least one U.S. utility operating an Israeli-developed AI telemetry stack at commercial scale within 24 months, with certified performance data shared across the program for broader replication.

MIT Energy Initiative as academic convener across both tracks; Technion–MIT research exchange (three to five researchers annually) as the human capital foundation. AE-4 to be formally co-managed with AE-2 to prevent duplication across the grid AI and simulation workstreams.

Financing: ARPA-E co-funding (Track A); DOE Grid Modernization Initiative grants (Track B); IIA Sustainable Energy grants and ClimateTech fund on the Israeli side; BIRD Energy (once reauthorized under AE-3) as supplementary vehicle. F-1 Tech Investment Authority should designate advanced energy efficiency as a priority investment domain.

SECTION 4: QUANTUM – IMPLEMENTATION DETAILS

Q-1: Reciprocal Participation Framework and Bilateral Fund

U.S. Owners	DOE Office of Science; DARPA (Quantum Benchmarking Initiative); NSF; National Quantum Initiative Office
Israel Owners	Israeli Ministry of Science and Technology; Israel National Quantum Initiative; Israel Innovation Authority; Israeli quantum companies ; Technion; Hebrew University

Mechanism for Implementation

Administrative policy adjustment within DOE, DARPA, and NSF guidelines (no new legislation); bilateral agreement on technology security standards; National Quantum Initiative supplemental appropriations for U.S. fund contribution; IIA co-funding authority.

Extended Context: 2026 DOE and DARPA Quantum Landscape

As of March 2026, DARPA has expanded the Quantum Benchmarking Initiative (QBI) to include international partners from Australia and Canada—specifically Diraq and Photonic Inc. The DOE's Phase II renewal of the National QIS Research Centers explicitly moves toward including international allies as formal collaborators, with new 2026 guidelines permitting Joint Centers of Excellence for unclassified energy-optimization and materials design work. This means the administrative infrastructure for Israeli participation already exists; Q-1 formalizes Israeli access to frameworks already open to comparable allies.

Israeli company readiness: The Israeli quantum ecosystem includes companies at or near QBI-eligible system maturity across multiple hardware and software layers. As illustrative examples: quantum control electronics companies already integrated into leading U.S. quantum computing programs are immediately QBI-eligible; photonic quantum computing and quantum error correction firms are near-eligible and would benefit from a pre-QBI development program; and quantum circuit synthesis capabilities are relevant across all hardware platforms. These examples reflect a broader pipeline of Israeli quantum companies that the Reciprocal Participation Framework is designed to bring into U.S. federal programs

Q-2: Bilateral Quantum Sensing & Security Initiative

U.S. Owners	DARPA; DOE; DHS Science & Technology Directorate; NIST
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Israel Owners	Israeli Ministry of Science and Technology; Technion; Hebrew University; Qbeat Ventures; Israeli National Cyber Directorate
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Mechanism for Implementation: DARPA program authority; DOE quantum center funding; NIST PQC standards coordination; IIA co-commitment; NSF international collaboration grants; BIRD Foundation as supplementary grant vehicle.

- Post-quantum cryptography (PQC) implementation timeline: both governments face a hard deadline—migration of critical infrastructure to NIST PQC standards before adversaries with cryptographically relevant quantum computers can exploit 'harvest now, decrypt later' attacks already occurring. Months 1–6: joint PQC testbed operational at NIST and INCD. Months 6–18: joint implementation guidance for government agencies published. Months 18–36: pilot migrations in critical infrastructure environments (power grid control systems, financial infrastructure), with joint lessons-learned disseminated to allied nations.
- Sensing applications with near-term deployment potential: GPS-denied navigation (immediate defense relevance); underground structure detection; atomic-scale materials characterization supporting semiconductor programs. Israel's synchrotron and free-electron laser capabilities are uniquely relevant to the materials characterization workstream.

FINANCING NOTE

Bilateral Quantum Fund (Q-1/Q-3) is the primary grant mechanism (\$150M bilateral). F-1 Tech Investment Authority should designate quantum sensing and post-quantum cryptography as priority investment domains. NSF international collaboration grants and DARPA program authority for joint research consortia.

Q-3: Bilateral Quantum Communications & QKD Initiative

U.S. Owners	NIST (standards and interoperability); DHS Science & Technology Directorate (civilian pilots); DARPA (free-space and satellite QKD R&D); DOE Office of Science (quantum network testbeds)
Israel Owners	Israeli Ministry of Science and Technology; Israel Space Agency (satellite QKD and optical tracking); Israel Innovation Authority; Technion (integrated photonics and quantum optics); Standards Institution of Israel (SII)

Mechanism for Implementation

DARPA program authority for the hardware R&D layer, targeting the translation gap between laboratory-grade QKD and deployable trusted-network infrastructure — silicon-ready and fiber-ready components, integrated photonics, and free-space optical systems. IIA co-funding on the

Israeli side; Technion as the academic anchor. A technology readiness assessment jointly conducted by DARPA and IIA within 90 days of program launch designates which Israeli companies enter the pilot track directly and which enter a pre-pilot development program.

DHS Science & Technology Directorate leads civilian pilot deployment: minimum three unclassified pilots within 24 months across a national laboratory network environment, a civilian government communications environment, and a critical-infrastructure-adjacent environment. Israeli civilian government networks serve as a reciprocal pilot environment. Pilot results published in unclassified form and fed into the standards track.

NIST and the Standards Institution of Israel co-lead the interoperability track, delivering a joint QKD performance benchmarking standard within 18 months and a trusted-supplier validation framework modeled on the NIST-SII mutual recognition pathway referenced in X-2. For the satellite QKD sub-track, NASA and the Israel Space Agency should sign a bilateral MOU within six months of Compact signing covering joint payload development; realistic deployment horizon is 36-60 months.

Financing: Bilateral Quantum Systems Fund (Q-1) as the primary vehicle for hardware development awards. DARPA program authority and NSF international collaboration grants for R&D. DHS S&T deployment funds for pilots. F-1 Tech Investment Authority should designate QKD and quantum communications as a priority investment domain alongside quantum sensing.

SECTION 5: BIOCONVERGENCE – IMPLEMENTATION DETAILS

U.S. Owners	DOE; NIH; ARPA-H; NSF; FDA
Israel Owners	Ministry of Health; Israel Life Sciences Industry (ILSI); Israel Innovation Authority; Weizmann Institute; Technion; Hebrew University

Mechanism for Implementation

DOE Genesis Mission; NIH international research collaboration authority; ARPA-H program authority; NSF international collaboration grants; FDA–Israeli Ministry of Health joint AI diagnostics approval framework (regulatory pathway harmonization as critical enabler); IIA and ILSI co-financing; F-6 Bilateral Bioconvergence Research Fund as primary grant vehicle. Implementation tier: 12–18 month track (requires appropriations for F-6, but institutional framework and first consortium calls can be initiated within 6 months under existing NIH/NSF authority).

SECTION 6: CRITICAL MATERIALS – IMPLEMENTATION DETAILS

CM-1: Clean Processing, Circular Feedstocks, and Domestic Ore Upgrading

U.S. Owners	DOE Critical Materials Institute (CMI); DARPA (LunA-10 and successor programs); NSF; Environmental Protection Agency (EPA) (regulatory pathway); DOE Office of Science (national lab testbeds)
Israel Owners	Israel Innovation Authority (IIA); Hebrew University – (electrochemistry and advanced materials); Technion; Israeli companies, for example Helios (sodium-based reduction, DARPA LunA-10 participant)

Mechanism for Implementation

DOE CMI authority and DARPA program grants for Sub-tracks A and C; NSF international collaboration grants for the academic layer. IIA co-funding on the Israeli side. Milestone-based awards, mixed academic-industry consortia required. Sub-track C pilot projects (low-grade ore upgrading) to be jointly identified by DOE and the Israeli Ministry of Economy within 12 months, drawing on Helios's existing DARPA LunA-10 work. EPA designated as the regulatory pathway lead, ensuring pilot results meet U.S. permitting standards from the outset. F-2 scaled bilateral grants as the primary financing vehicle.

CM-2: Pilot-to-Deployment Pathway, Digital Exploration, and Minerals Diplomacy

U.S. Owners	DFC (deployment finance and trilateral track); DoC (offtake and market-structure tools); DoD Office of Strategic Capital; USGS (digital exploration and forward mapping); DOE (pilot scale-up grants)
Israel Owners	Israel Innovation Authority; Geological Survey of Israel (forward mapping); XtraLit (DLE anchor project); Israeli AI-satellite and cybersecurity companies (digital exploration track); Ministry of Economy (minerals diplomacy)

Mechanism for Implementation

F-3 DFC co-financing facility as the primary vehicle for the pilot-to-scale and trilateral tracks, with IIA matching on the Israeli side. DoC offtake arrangements and DoD Office of Strategic Capital equity support for markets too small for standard venture financing. USGS and the Geological Survey of Israel as joint institutional homes for the annual runway analysis, with the first report due within 12 months of Compact signing. Digital exploration pilots (target: two U.S. mining sites within 18 months) structured as technology transfer agreements rather than research grants, given Israeli tools are commercially mature. Trilateral track sequenced through existing critical minerals frameworks: Australia and Canada as first movers via the Minerals Security Partnership.

Financing Note: CM-1 draws on F-2 bilateral grants. CM-2 draws primarily on F-3 DFC. The anchor lithium extraction projects are the headline F-3 deployment, targeting 70,000 tonnes per annum lithium carbonate. DoC offtake tools and DOE deployment grants provide the de-risking layer for markets where DFC alone is insufficient.

FINANCING Q & A

Q: What is the actual U.S. government appropriations cost?

~\$500M per side per year (~\$1B/year combined). F-1 (\$1.0B equity per side, 10 yr) and F-4 (\$1.0B anchor LP per side, 10 yr) are not appropriated—they are equity and LP commitments expected to generate returns. F-3 (\$2-3B DFC facility) has a budget cost of ~\$100-150M over the decade via credit subsidy (~5%). The primary appropriated items are F-2 bilateral grants (~\$2.5B per side over 10 years), F-6 Bioconvergence Fund (\$1.0B per side, 10 yr), and F-5 (\$500M-1B, TBD pending feasibility). The \$10B+ baseline (floor: \$500M/yr per side); total headline mobilization including F-4 STIV private capital and F-3 leverage can reach \$15B+.

DOMAIN-SPECIFIC METRICS FOR MEASURING SUCCESS

The five North Star benchmarks in the Main Document are the main accountability framework. The table below provides the specific, time-bound targets that operationalize each benchmark at the domain level.

Domain	12–24 Month Targets	3–5 Year Targets
AI	Agentic Defense Foundry: first joint challenge call within 90 days; ≥ 3 U.S. critical infrastructure OT pilots in year one. Data Governance Framework: bilateral agreement signed within 18 months; first federated health data access for U.S. researchers within 24 months. Edge/cooling: ≥ 1 pilot at U.S. national lab data center within 18 months; 30% water-use reduction demonstrated.	≥ 3 Israeli AI companies in U.S. federal programs of record within 3 years. ≥ 1 test-time training technique validated for U.S. data generalization within 36 months. Open-source AI governance framework published and adopted by ≥ 3 allied nations within 2 years.
Semiconductors	S-1 feasibility study commissioned within 30 days of Compact signing; Pax Silica designation framework published within 6 months. S-2 Memory Program: first DIP-style consortium grants awarded within 18 months; Technion and Hebrew University research agreements executed within 12 months.	≥ 1 new memory or inference architecture achieving demonstrable order-of-magnitude improvement on a DARPA-published AI workload benchmark within 5 years. S-1 feasibility study concluded and capital decision made within 6 months; if viable, \$500M–1B financing committed within 12 months of confirmation.
Energy	Joint Fusion Materials Program: first experimental within 18 months of MOU signing. BIRD Energy:	Demonstrable reduction in fusion simulation computational cost within 36 months. BIRD Energy

	reauthorized and first expanded-scope grants awarded within 12 months. Grid AI: ≥ 3 U.S. installation LDES/grid resilience pilots within 24 months.	25:1 leverage ratio maintained or exceeded under new mandate.
Quantum	Q-1/Q-3 Framework: ≥ 15 Israeli researchers placed at DOE national quantum labs within 24 months. Bilateral Quantum Fund: first grants awarded within 18 months. QBI: ≥ 2 Israeli companies achieving QBI-eligible system maturity within 30 months.	PQC: joint implementation guidance published within 18 months; joint testbed operational within 12 months. Quantum sensing: first bilateral research consortium call within 90 days.
Bioconvergence	BC-1 institutional framework established and first consortium call issued within 6 months. FDA-Israeli Ministry of Health AI diagnostics approval framework: joint working group convened within 3 months; draft framework within 18 months	≥ 3 rare disease AI diagnostic tools validated on Israeli data and generalized to U.S. populations within 5 years. Genesis Mission bilateral cooperation track operational within 12 months. FDA-Israeli mutual recognition protocol for AI software as a medical device within 24 months.
Critical Materials	CM-1: ≥ 2 joint low-grade ore upgrading pilots on identified U.S. deposits within 24 months. CM-2 digital exploration: ≥ 2 U.S. mining or extraction sites operating Israeli-supplied digital security and exploration tools within 18 months. Annual bilateral runway analysis: first report published within	DLE anchor project: F-3 DFC financing committed and construction commenced within 3 years, with specific targets for lithium extraction. Trilateral minerals diplomacy track: at least one structured partnership with Australia or Canada operational within 3 years under the Minerals Security Partnership framework. ≥ 1 Israeli processing technology achieving commercial-scale U.S. deployment within 5 years.

	12 months of Compact signing.	
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Tracking methodology: all metrics should be reviewed annually by the Tech Alliance Steering Committee. The Steering Committee should commission an independent annual assessment of the 'Trusted Tech Ecosystem' benchmark (North Star #2)—tracking adoption of U.S.–Israel AI and cybersecurity standards in Middle East partner nations—given that this is the metric most directly measuring the Compact's geopolitical impact and least amenable to self-reporting. The assessment methodology for North Star #2 should be specified in advance—covering deployment data in target markets, technical standard adoption rates, and displacement of Chinese provider market share in each target country.

DEFENSE-ADJACENT TECHNOLOGY COOPERATION

This Compact is scoped as a civilian technology cooperation instrument. The following defense-adjacent issues arise from the Compact's civilian recommendations and are recorded here for coordination through the 2028 security assistance MOU renewal or through existing bilateral defense mechanisms. They are not recommendations of this Compact and do not require resolution before civilian recommendations can be implemented.

Dual-Use Technology Transfer

Technologies developed under the Compact's civilian R&D programs—particularly in AI inference architecture, quantum sensing, and advanced fusion materials—will have defense applications. The joint IP framework established in F-1 should include a classified annex—negotiated separately through defense channels—governing defense-application rights. The appropriate vehicle is the existing bilateral defense cooperation framework, including classified agreements between DoD and Israel's Ministry of Defense.

Defense AI Fast-Track and MAFAT Integration

The working groups discussed DIU-MAFAT bilateral mechanisms, OTA fast-track pathways for Israeli AI vendors in defense programs, and a joint AI red-teaming program using Israeli battlefield data. These were deliberately excluded from the main Compact to avoid absorption into the 2028 MOU renewal process. They are recorded here for consideration in that renewal or through a separate bilateral defense technology cooperation agreement. Implementers should note that MAFAT relationships shape many of the AI and quantum firms named throughout this Compact; the civilian-defense boundary in the Israeli ecosystem is operationally porous even where it is legally clean. Civilian program managers should have clear protocols for escalating dual-use questions without delays that stall civilian program execution.

Technical Support Working Group (TSWG 2.0)

The working groups recommended reinstating the TSWG with an AI mandate—a multilateral counter-terrorism technology co-development mechanism with streamlined bilateral transfer provisions. This is a defense and intelligence instrument requiring DoD and State Department leadership with Intelligence Community oversight. Not suitable for a civilian compact; noted for coordination with appropriate defense frameworks.

Export Control Alignment for Defense-Adjacent Technologies

Broader export control alignment—covering defense AI, defense-adjacent semiconductors, and quantum technologies with classified applications—requires coordination between Commerce/BIS, DoD, and State, and between both governments'

defense and intelligence communities. Appropriately addressed through the 2028 MOU renewal or existing bilateral defense mechanisms.

Relationship to the 2028 Security Assistance MOU Renewal

This Compact is designed to be negotiated and implemented independently of the 2028 MOU renewal. The Tech Alliance Steering Committee should be constituted with civilian agency representation only (NSF, DOE, NIH, NIST, Commerce, IIA) and operate on an independent reporting cycle. Defense agencies may participate as observers on specific technology domains. The Compact should be signed at the civilian cabinet level—not through military or intelligence channels—and should be publicly presented as a distinct instrument from the security assistance relationship.

The risk to avoid: letting the 2028 MOU renewal timeline become a reason to delay civilian technology cooperation that can proceed immediately under existing executive authority.

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