

Innovation Participation Platform

A New Financial Product to Accelerate Innovation

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EXECUTIVE SUMMARY

Universities and research institutions are generating breakthrough innovations in clean energy, climate technology, and advanced materials with the potential to transform global energy systems, industrial manufacturing, transportation, infrastructure, and environmental sustainability. However, many of these technologies emerge from research laboratories long before they are sufficiently validated for strategic partnerships, industrial licensing, or traditional venture capital investment. The result is a persistent translational funding gap: promising discoveries often require substantial engineering, prototype development, pilot-scale manufacturing, materials validation, performance testing, regulatory qualification, and manufacturing optimization before they become commercially viable.

The Innovation Participation Platform (“IPP”) is designed to address this challenge. The IPP is a novel financial product through which participants provide capital to support selected translational research programs in exchange for revenue participation interests tied to future commercialization outcomes. By financing innovation at the intellectual property level rather than through traditional equity investments, the platform provides a sustainable source of non-dilutive translational funding while preserving institutional independence, commercialization flexibility, and the public mission of participating research institutions.

By connecting private capital directly to institutional innovation, the IPP has the potential to accelerate the commercialization of next-generation energy technologies, advanced materials, and climate solutions while strengthening technology transfer, enhancing faculty recruitment and retention, and expanding the pool of capital available to support research with significant societal and economic impact. At the same time, the platform creates a new framework for engaging alumni, family offices, foundations, and other mission-oriented participants who may not otherwise support research through traditional grants or philanthropy. By aligning participant returns with successful commercialization outcomes, the IPP establishes a sustainable model in which one generation of breakthrough technologies can help finance the next, creating a long-term engine for innovation, economic growth, and public benefit.

THE CAPITAL GAP BETWEEN DISCOVERY AND COMMERCIAL READINESS

One of the most significant challenges facing innovation in clean energy, climate technology, and advanced materials is the substantial capital required to transform a promising academic discovery into a commercially validated technology capable of attracting strategic industry partners, commercial licensees, project developers, or institutional investors. While the ultimate cost of bringing a breakthrough technology to market may range from tens of millions to hundreds of

millions of dollars, the most significant funding challenge often arises much earlier—during the period between laboratory proof-of-concept and commercial readiness.

For many university-developed technologies, this stage requires a combination of engineering optimization, prototype development, pilot-scale manufacturing, materials characterization, durability and performance testing, systems integration, regulatory and industry certification, manufacturing process development, and field validation. These activities are generally not well supported by traditional research grants, yet they frequently remain too early to attract conventional venture capital or strategic corporate investment. As a result, many promising technologies fail to advance despite possessing significant commercial and societal potential.

Depending upon the technology and its stage of development, advancing an innovation from validated laboratory research to commercial readiness may require several million dollars to tens of millions of dollars of translational capital. Advanced materials often require extensive manufacturing optimization and customer qualification, while clean energy and climate technologies may require pilot facilities, demonstration projects, or large-scale engineering validation before commercial adoption becomes feasible.

The IPP is designed to complement—not replace—existing research funding and technology commercialization programs. Traditional research grants, university proof-of-concept funds, and government initiatives such as those sponsored by the National Science Foundation (“NSF”), the U.S. Department of Energy (“DOE”), and ARPA-E play an indispensable role in supporting scientific discovery, laboratory validation, and early-stage technology development. However, these programs are generally designed to fund proof-of-concept research and early technical validation rather than the larger-scale engineering and commercialization activities required to achieve commercial readiness.

Public funding levels illustrate this distinction. University proof-of-concept programs frequently provide grants ranging from approximately \$50,000 to \$500,000, while DOE SBIR/STTR awards generally range from approximately \$250,000 to \$2 million. ARPA-E awards are typically larger, averaging approximately \$2 million to \$4 million per project, although certain high-priority initiatives may receive greater levels of support. These programs are highly effective in advancing innovative technologies through early Technology Readiness Levels (“TRLs”), but they are generally not intended to finance the significantly more capital-intensive activities associated with pilot-scale manufacturing, engineering optimization, systems integration, industry certification, manufacturing process development, customer qualification, and commercial demonstration.

Funding Source	Typical Funding Per Project	Primary Objective
University Proof-of-Concept Programs	\$50K–\$500K	Early technical validation and prototype development
DOE SBIR/STTR	\$250K–\$2M	Feasibility studies and prototype development

ARPA-E	~\$2M–\$4M (typical)	High-risk technology development and technical validation
Innovation Participation Platform	~\$8M–\$10M	Technology maturation, pilot-scale validation, commercial readiness, and advancement through TRLs

The IPP is specifically designed to finance this next stage of development. By providing potentially up to \$10 million of milestone-based capital per research program, the platform supplies the level of patient capital typically required to advance the most promising technologies from successful laboratory validation toward commercial readiness. A representative \$100 million IPP vehicle supporting 8 to 12 research programs would therefore occupy a unique position within the technology commercialization ecosystem—building upon successful outcomes generated through public research funding while preparing technologies for strategic licensing, industrial partnerships, infrastructure deployment, project finance, or later-stage private investment.

IPP: PARTICIPANT ACCESS AND CAPITAL STRUCTURE

Innovation Participants

Participants would be expected to include university alumni, philanthropic supporters, family offices, charitable foundations, corporate leaders, and other stakeholders who wish to play a formative role in establishing a new model for the commercialization of clean energy, climate technology, and advanced materials innovation. Participants would provide the cornerstone capital necessary to launch the IPP and establish a sustainable source of translational funding capable of advancing breakthrough technologies from laboratory discovery to commercial deployment. In addition to the potential for attractive long-term economic returns, participants would contribute directly to accelerating the development of technologies that improve energy security, industrial competitiveness, environmental sustainability, and long-term economic growth.

To recognize their role in establishing the platform, participants would receive enhanced engagement opportunities, including participation in annual innovation forums, direct interaction with researchers and institutional leadership, early access to portfolio updates, invitations to technology demonstration and showcase events, and recognition as founding supporters of the IPP. These opportunities are intended to foster long-term engagement with the institution's innovation ecosystem while creating meaningful connections between participants, researchers, entrepreneurs, and industry leaders working to commercialize the next generation of transformative technologies.

Innovation Participation Units

Participants would access the IPP through professionally managed investment vehicles established to acquire and administer portfolios of revenue participation interests (each, a “***Innovation Participation Unit***”) associated with selected research programs. These vehicles are intended to provide diversified exposure to the institution’s innovation ecosystem while aligning the interests of the institution, its researchers, investors, and alumni.

Each IPP vehicle would be capitalized with, as an example, \$100 million of committed capital. The vehicle would seek to support a portfolio of approximately eight to twelve high-potential translational research programs grouped by one or more calendar years (each, a "Class"). Capital would be deployed over a five-to-seven-year period and released on a milestone-based basis designed to advance technologies through defined Technology Readiness Levels ("TRLs"). The objective would be to move promising innovations from laboratory proof-of-concept and early validation (typically TRLs 3-4) toward pilot-scale demonstration and commercial readiness (typically TRLs 6-7), where they become attractive to strategic industry partners, commercial licensees, infrastructure developers, and growth-stage investors.

Initial funding would support critical technology maturation activities, including engineering optimization, prototype development, materials characterization, pilot-scale manufacturing, process scale-up, performance and durability testing, systems integration, manufacturing process development, regulatory and industry certification, and commercial validation. Subsequent capital would be deployed only upon the successful achievement of predefined technical, engineering, and commercialization milestones established within each program's development plan. This staged funding approach promotes disciplined capital allocation, improves capital efficiency, systematically reduces technical and commercialization risk, and concentrates investment on the technologies demonstrating the greatest potential for industrial adoption and long-term commercial success.

Rather than acquiring equity ownership in research programs or spinout companies, the IPP vehicle would receive Innovation Participation Units tied to future commercialization outcomes with respect to the funded research programs.

These participation rights would apply to value realized by the institution through:

- Upfront license payments.
- Development and regulatory milestone payments.
- Sublicensing revenues.
- Commercial royalties received by the institution.
- Strategic partnership consideration.
- Acquisition proceeds.
- Other monetization events arising from commercialization of the funded intellectual property.

An illustrative economic framework for an Innovation Participation Unit could provide that the IPP vehicle receives 20% of commercialization proceeds attributable to research programs within a Class until unitholders have received aggregate distributions equal to three times (3x) invested capital allocated to that Class. The following table shows the potential outcomes for this illustrative model:

Portfolio Commercialization Value	Participant Return	Participant MOIC	Value Retained by Institution

\$500M	\$100M	1.0x	\$400M
\$1.0B	\$200M	2.0x	\$800M
\$1.5B	\$300M	3.0x	\$1.2B
\$5.0B	\$300M	3.0x	\$4.7B

The portfolio-based structure is designed to create a strong alignment of interests between the institution and the participants in the Innovation Participation Platform. Participants have exposure to a diversified portfolio of innovations with the understanding that, as is typical in early stage development, many research programs will likely not reach commercialization. Rather than relying on the success of any single technology, the structure is designed so that a limited number of highly successful licensing, partnership, acquisition, or product development outcomes can generate attractive portfolio-level returns.

The attractiveness of the model is further enhanced by several structural advantages. Capital is deployed at an earlier stage of development than is typical for traditional venture capital, providing exposure to innovation before substantial value appreciation has occurred. Participants gain direct exposure to intellectual property assets rather than investing through corporate entities, allowing them to participate at lower entry valuations, prior to future financing dilution, and without dependence on management teams or capital market conditions. In addition, research programs will be selected through a disciplined review process conducted by independent scientific, medical and commercial experts, creating a curated portfolio of opportunities intended to maximize both translational impact and commercialization potential.

Because participant returns are tied directly to successful commercialization outcomes, capital is naturally directed toward advancing the institution's most promising research opportunities and accelerating their path to market. At the same time, participant returns are subject to a defined cap, providing sufficient economic incentive to attract long-term private capital while ensuring that extraordinary commercialization outcomes primarily benefit the institution and its innovation ecosystem. This approach allows participants to share in the value created by successful research without obtaining a disproportionate claim on breakthrough discoveries.

As a result, the substantial majority of long-term economic value generated by innovations remains with the institution, its inventors, and future research initiatives, creating a sustainable cycle in which commercialization success can be reinvested into new scientific discoveries, faculty recruitment, and research infrastructure.

POTENTIAL FOR TAX-EFFICIENT MISSION-ORIENTED PARTICIPATION

The IPP may also create opportunities to explore innovative structures that further align participant support with the institution's research and innovation mission. One concept worthy of further evaluation is whether a participant's commitment could, under appropriate circumstances, be viewed as containing both an investment component and a mission-support component. For example, if a participant contributes capital to the IPP under economic terms that are intentionally designed to prioritize long-term support for innovation rather than maximize financial returns, it is possible that the fair market value of the economic rights received could be less than the amount invested. To the extent supported by applicable tax law, independent valuation, and appropriate

legal structuring, the difference between the participant's capital contribution and the fair market value of the economic interest received may create opportunities for charitable contribution treatment with respect to some portion of the commitment.

While the legal and tax implications of any such arrangement would require careful analysis, the concept highlights one of the unique characteristics of the IPP. Unlike traditional investment vehicles, which are designed solely to maximize economic returns, or traditional philanthropy, which generally provides no opportunity for financial participation, the IPP has the potential to occupy a middle ground that combines support for scientific advancement, participation in commercialization outcomes, and the possibility of tax-efficient capital formation. In doing so, the platform may provide a practical framework for aligning investment capital, philanthropic objectives, and long-term support for the institution's research enterprise within a single structure.

PROJECT SELECTION - INDEPENDENT SCIENTIFIC AND COMMERCIAL OVERSIGHT

A distinguishing feature of the IPP is that investment decisions are not controlled by the institution, individual faculty members, or a traditional investment manager operating under conventional fund deployment pressures. Instead, capital allocation is guided by an independent Technical and Commercial Advisory Board ("TCAB"), whose sole mandate is to identify and advance research programs demonstrating the strongest combination of technical merit, commercial potential, and societal impact. The TCAB's objective is not simply to identify promising research, but to select technologies with the greatest potential to progress through successive TRLs and ultimately achieve successful commercial deployment. This structure creates an objective, merit-based investment process that aligns capital deployment with the long-term interests of the institution rather than the incentives of any individual stakeholder.

An institutional committee chaired by senior leadership (the "Proposal Committee") would identify and nominate candidate technologies for inclusion within each Class. The TCAB, composed of nationally recognized experts in engineering, materials science, clean energy, climate technology, manufacturing, commercialization, finance, and relevant industrial sectors, would independently evaluate and approve proposed investments. Members of the TCAB would have no affiliation with the recipient laboratories, ensuring an objective and independent review process.

Technical evaluation would include assessment of scientific validity, engineering feasibility, intellectual property position, manufacturability, scalability, Technology Readiness Level, technical risk, and the probability of successful advancement through defined development milestones. Commercial evaluation would include analysis of market need, competitive differentiation, customer adoption, regulatory and industry certification requirements, manufacturing economics, commercialization strategy, and strategic partnering opportunities. The TCAB would also evaluate whether the proposed development plan and milestone structure are sufficient to advance the technology to the next meaningful stage of commercial readiness.

By separating technical and commercial evaluation from institutional politics and traditional fund management incentives, the IPP ensures that capital is allocated based upon the quality of the underlying technology and its potential for successful commercialization rather than fundraising cycles, portfolio deployment requirements, management fee considerations, or internal institutional priorities. The result is a disciplined, technology-driven capital allocation framework

capable of directing resources toward the innovations with the greatest potential to address critical challenges in energy, climate resilience, industrial productivity, and advanced manufacturing. This governance structure enhances credibility with researchers, participants, institutional leadership, and industry partners while reinforcing the IPP's core objective of accelerating the commercialization of breakthrough technologies and maximizing long-term economic and societal impact.

STANDARDIZED PROGRAM FUNDING AND MILESTONE-BASED CAPITAL DEPLOYMENT

Each research program selected for participation in the IPP would be assigned a predetermined funding allocation based upon its technology category and anticipated development pathway. For example, advanced materials, energy storage technologies, carbon management solutions, renewable energy systems, industrial process technologies, and other climate-related innovations would each be assigned standardized funding ranges reflecting the capital typically required to advance technologies through defined TRLs. This approach promotes consistency, transparency, and disciplined capital allocation while providing researchers and participants with a predictable framework for technology development.

Prior to receiving funding, each approved program would develop a comprehensive technology advancement plan outlining its current TRL, target TRL objectives, technical development activities, engineering milestones, commercialization strategy, budget, anticipated deliverables, and objective stage gates necessary to advance the technology toward commercial readiness. Each development plan would be tailored to the specific characteristics of the technology while utilizing a standardized milestone framework that facilitates portfolio management across multiple technology sectors.

Rather than providing the full funding allocation at inception, capital would be deployed incrementally as predefined technical and commercial milestones are achieved. Progress against the approved development plan would be reviewed periodically by both the Proposal Committee and the TCAB, each of which would evaluate performance from complementary perspectives. The Proposal Committee would assess execution against the approved research and development plan and institutional objectives, while the TCAB would evaluate technical progress, advancement through targeted TRLs, commercial readiness, manufacturability, and evolving market opportunity.

Additional funding would be released only upon confirmation by both the Proposal Committee and the TCAB that the applicable stage gates have been successfully achieved and that continued investment remains justified based upon the technology's evolving technical performance, commercialization potential, and probability of successful deployment. Technologies demonstrating exceptional progress may advance through successive funding stages, while those that fail to satisfy critical technical or commercial milestones may be modified, paused, or discontinued, allowing capital to be reallocated to higher-potential opportunities within the portfolio.

This milestone-based framework mirrors the disciplined technology maturation process employed by leading industrial innovators, strategic corporate investors, and government agencies supporting advanced technology development. By linking capital deployment to measurable

progress through defined TRLs rather than fixed timelines, the IPP promotes rigorous project management, objective technical assessment, and efficient capital allocation. The result is a dynamic portfolio management process that systematically reduces technical and commercialization risk while maximizing the likelihood that breakthrough technologies will successfully transition from academic research to large-scale commercial deployment and long-term societal impact.

STRENGTHENING FACULTY RECRUITMENT AND RETENTION

The ability to recruit and retain leading engineering and scientific talent is increasingly tied to an institution's capacity to support the translation of research into commercially deployable technologies. Today's top faculty candidates seek more than world-class laboratories, research facilities, and grant funding. They seek environments where breakthrough discoveries can progress beyond publication to prototype development, industrial adoption, and real-world implementation.

The IPP would create a powerful competitive differentiator by providing researchers with a clear pathway to advance promising technologies through the critical stages of engineering validation, pilot-scale demonstration, manufacturing scale-up, and commercial readiness. Rather than relying solely on government grants or requiring immediate company formation to secure additional funding, faculty would gain access to a dedicated source of milestone-based capital specifically designed to advance technologies through successive Technology Readiness Levels and toward successful commercialization.

Faculty would benefit from a unique innovation ecosystem combining:

- World-class academic research and engineering resources.
- Access to milestone-based technology maturation funding.
- Independent technical and commercial guidance from the Technical and Commercial Advisory Board.
- Commercialization support focused on licensing, strategic industry partnerships, and technology deployment without requiring immediate company formation.
- Direct engagement with industry leaders, investors, and strategic commercialization partners.

Few research institutions currently offer this combination of scientific excellence, disciplined commercialization support, and dedicated translational capital. The result would be a stronger platform for recruiting and retaining entrepreneurial faculty, attracting high-impact research programs, fostering industry collaboration, and accelerating the development of technologies capable of strengthening energy security, industrial competitiveness, environmental sustainability, and long-term economic growth.

A MODERN EVOLUTION OF ACADEMIC PHILANTHROPY

For generations, alumni, foundations, and philanthropic supporters have played a critical role in advancing scientific research, engineering innovation, and technology development. The IPP is not intended to replace these efforts, but rather to complement and expand them by introducing a new mechanism for supporting technology maturation, commercialization, and real-world deployment.

Traditional philanthropy will continue to be an essential source of funding for fundamental research, education, facilities, scholarships, and other core institutional priorities. Likewise, government research funding will remain indispensable in supporting scientific discovery and early-stage innovation. However, many individuals, family offices, corporations, and foundations that are deeply interested in accelerating the commercialization of clean energy, climate technology, and advanced materials are unlikely to support these efforts through traditional grants or charitable contributions alone. The IPP creates a gateway for these participants to engage with the institution's innovation mission through a structure that combines measurable societal impact with the potential for financial return.

In doing so, the IPP broadens the institution's capital base and creates a new constituency of long-term supporters whose interests are aligned with the successful translation of breakthrough technologies into commercial products, industrial applications, and large-scale deployment. Because the model is designed to recycle capital generated through successful commercialization outcomes, it has the potential to create a sustainable and scalable source of funding capable of supporting successive generations of technological innovation.

The IPP also provides a practical and meaningful framework for what is often described as "venture philanthropy." While that term is frequently invoked to describe mission-oriented investing, it is rarely supported by a clear financial structure or durable economic model. The IPP gives tangible expression to the concept by combining independent technical and commercial evaluation, milestone-based capital deployment, measurable public benefit, and participation in future commercialization success. Rather than relying solely on periodic donations, the platform creates the potential for a self-replenishing source of mission-oriented capital capable of continuously supporting the advancement of transformative technologies while remaining closely aligned with the institution's public mission.

By complementing traditional philanthropy and public research funding with mission-aligned private capital, the IPP has the potential to establish a long-term innovation ecosystem that expands support for research, accelerates technology commercialization, strengthens partnerships between academia and industry, and advances solutions that improve energy security, industrial competitiveness, environmental sustainability, and long-term economic prosperity.

CONCLUSION

The Innovation Participation Platform has the potential to establish a sustainable source of capital dedicated to advancing clean energy, climate technology, and advanced materials from laboratory discovery to commercial deployment. By connecting participants directly to the future commercialization of institutional intellectual property through revenue participation interests, the

IPP creates a scalable financial product that complements traditional research funding, philanthropy, industry collaboration, and private investment while preserving institutional ownership, academic independence, and the public mission of research institutions.

More broadly, the IPP offers a new model for financing technology commercialization. Through disciplined project selection, milestone-based capital deployment, and independent technical and commercial oversight, the platform can accelerate the translation of breakthrough discoveries into commercially deployable technologies while strengthening faculty recruitment, expanding industry partnerships, and increasing the long-term impact of institutional research.

The result is a self-reinforcing innovation ecosystem in which successful commercialization outcomes generate the resources to support future generations of discovery. By creating a durable bridge between academic research, private capital, and industrial deployment, the IPP has the potential to accelerate the development of transformative technologies that enhance energy security, strengthen industrial competitiveness, advance environmental sustainability, and drive long-term economic growth.