

The Innovation Pipeline: From Universities to Small Businesses

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PART I: EXECUTIVE BRIEFING & CONTEXT

This briefing document contains the comprehensive statement and core operational frameworks delivered before the U.S. House Committee on Small Business regarding capital translation efficiencies in early-stage life sciences tech transfer. The analysis addresses structural bottlenecks inherent to federal non-dilutive programs, specifically evaluating how traditional academic peer-review methodologies often present operational misalignments with the practical commercial capitalization demands of venture-scale startups.

While federal small business innovation infrastructure remains a foundational asset class for long-tail scientific innovation, the translation pathway from research institutions to independent, viable commercial enterprises requires intensive milestone-driven optimization. The primary friction points center on adapting direct capital allocation to high-stakes market windows, resolving governance and execution risks within tech-transfer incubators, and leveraging regional ecosystem hub entities to underwrite operational, structural, and fiduciary risk.

PART II: COMPLETE WRITTEN TESTIMONY

Introduction

Good morning, Chairman Crow, Ranking Member Balderson, and distinguished members of the Subcommittee. Thank you for the opportunity to speak with you today regarding the critical journey of moving technology out of research laboratories and into the market.

My name is John Younger. I am a physician, an entrepreneur, and the Vice President for Science and Technology at the University City Science Center in Philadelphia, Pennsylvania. Prior to my work at the Science Center, I spent two decades as an NIH-funded physician-scientist and tenured faculty member at the University of Michigan, where I also co-founded a venture-scale life sciences enterprise that commercialized technology originally developed within the university. My perspective today is shaped both by those years in

academic research and operations, and by my current role helping early-stage companies survive the complex, capital-intensive transition from university projects to independent, sustainable businesses.

The Role of the University City Science Center

Established in 1963, the University City Science Center was the nation's first urban research park. We are an independent, non-profit institution dedicated to accelerating technology commercialization, fostering regional economic growth, and supporting early-stage entrepreneurs across the life sciences, medical device, and digital health corridors. We partner with over thirty academic and research institutions across Pennsylvania, Delaware, and New Jersey, acting as a critical operational buffer and translation partner. Over our history, companies that have passed through our incubation pipelines have generated billions of dollars in regional economic impact and support thousands of high-stature, technical jobs.

Structural Friction Points in the Innovation Pipeline

The translation of deep scientific discovery from university laboratories into small commercial businesses is a highly complex process plagued by predictable structural bottlenecks. While the federal government commits significant non-dilutive resources to basic and applied research, a sharp alignment mismatch often occurs when attempting to transition these concepts into independent, viable businesses through mechanisms such as the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs:

- **The Peer-Review Alignment Mismatch:** Traditional federal peer-review panels are fundamentally optimized to evaluate basic scientific novelty, academic publication potential, and pure research methodology. However, they are frequently unequipped to underwrite commercial execution risk, capital runway viability, intellectual property positioning, or market-access hurdles. As a result, non-dilutive capital is often awarded to projects with high academic credit but low commercial structural feasibility, while high-potential, market-ready startups face evaluation roadblocks from reviewers lacking industrial or operational transaction experience.
- **Adaptive Capital Deployment vs. Rigid Grant Cycles:** Early-stage lifescience and deep-tech startups operate within highly compressed, dynamic market windows. The prolonged timelines required for federal grant underwriting, milestone review, and cash distribution frequently fail to align with the acute cash runway needs of a operating startup. Startups do not experience liquidity needs on flat, predictable 12-month schedules; they require responsive, milestone-driven capitalization paths to systematically de-risk clinical or technical liabilities.
- **The Fume Date Mismatch:** Academic operations are structured around long-term educational cycles and multi-year funding continuity. Conversely, an independent commercial startup lives or dies by its explicit "fume date"—the precise calendar drop dead day when cash reserves hit zero and operational wind-down or insolvency liabilities are triggered. This structural cultural gap means that academic founders routinely miscalculate the raw capital intensity and continuous cash velocity required to move an asset out of a laboratory and into a controlled commercial envelope.

The Strategic Value of Regional Innovation Hubs

To bridge these gaps, regional commercial accelerators and innovation hubs function as critical institutional machinery. They decouple direct early-stage commercialization efforts from long-tail academic governance, providing structural support that federal grant programs cannot deliver directly:

- **hardcore Transactional Underwriting:** Hubs provide early-stage founders with direct access to commercial industry experts, active venture capital syndicates, and regulatory compliance specialists who evaluate assets based on market transaction metrics rather than purely abstract scientific merit.
- **Mitigating Capital Deployment Risk:** By layering technical validation programs alongside early venture funding, regional accelerators actively de-risk startups before private market institutional capital or large-scale federal SBIR grants are deployed, drastically improving the conversion rate and survival velocity of the pipeline.
- **Ecosystem Anchor Infrastructure:** Hubs provide the physical laboratory facilities, shared operational instrumentation, and corporate governance guidance required to execute a professional, controlled transition, ensuring that public non-dilutive investment is backed by hardcore corporate management.

Policy Recommendations for Federal Small Business Infrastructure

Based on our operational findings across the Mid-Atlantic and Northeast corridors, we outline the following strategic optimizations for federal small business innovation frameworks:

1. **Integrate Commercial and Operational Underwriting in Federal Review:** Panel composition for commercialization grants (SBIR/STTR Phase I and II) must explicitly include active venture investors, corporate restructuring specialists, and commercial operators with a history of executing clinical or enterprise transactions, rebalancing review focus away from purely academic metrics.
2. **Support Non-SBIR Adaptive Deployment Paths:** Federal funding guidelines should explicitly authorize and empower regional innovation hubs and tech-transfer accelerators to act as regional capital deployment vehicles, leveraging their immediate, on-the-ground operational proximity to distribute specialized commercialization support flexibly.
3. **Harmonize Corporate Governance Standards:** Early-stage translation policy must focus heavily on ensuring that academic spin-outs establish rigorous corporate structures early in the capitalization cycle, ensuring transparent compliance, clean cap table construction, and clear risk management parameters.

Conclusion

Moving a breakthrough concept from a university laboratory bench into a commercial market where it can actively change patient outcomes or resolve enterprise systemic vulnerabilities is a difficult, high-friction endeavor. It requires balancing deep legacy academic credibility with hardcore acute operations, transactional underwriting, and institutional risk management. By strengthening the partnership between federal small business infrastructure, academic research hubs, and specialized regional innovation accelerators, we can maximize the economic and societal returns on public investments.

Thank you again for your leadership on this critical issue, and I look forward to your questions.