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# Expert Committee on the Global Startup Campus

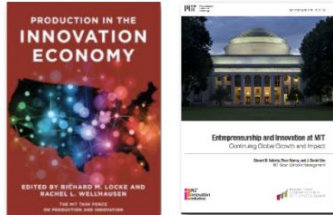
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Michael Kearney, General Partner, Engine Ventures

# A New System to Support & Fund the Next Generation of Tough Tech Companies



**L. Rafael Reif**  
Former President of MIT



May 22, 2015

**The Washington Post**

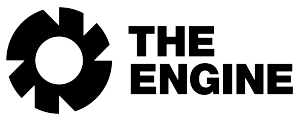
## A better way to deliver innovation to the world

In the past two decades, and especially the past five years, the United States has undergone a profound shift in how it develops, adopts and capitalizes on innovation. Today, our highly optimized, venture-capital-driven innovation system is simply not structured to support complex, slower-growing concepts that could end up being hugely significant — the kind that might lead to disruptive solutions to existential challenges in sustainable energy, water and food security, and health.

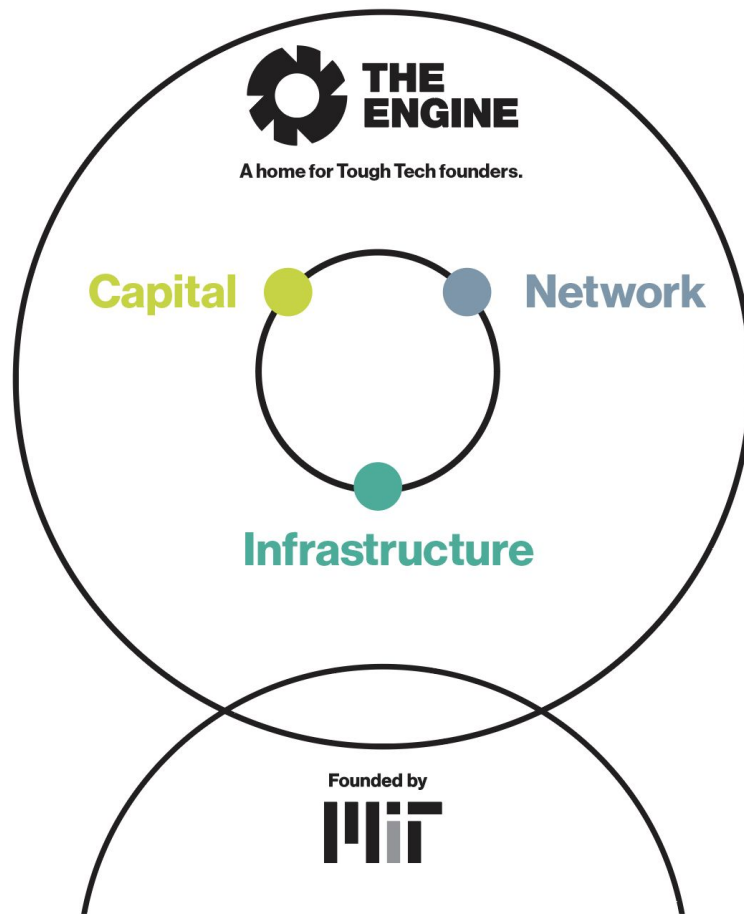
This is no criticism of U.S. venture capital, which does its job extremely well. Nor is it a plea for government-funded innovation. Federal support is crucial for fundamental and applied science, which leads to new technologies and innovation. But government cannot effectively supply large-scale, long-term funding for new companies and products. And it may be unrealistic to expect big corporations to patiently invest in technologies designed to impatiently disrupt them.

2017





The Engine is a home for Tough Tech made up of: a Public Benefit Corporation (*The Engine Accelerator*) and a Venture Capital Firm (*Engine Ventures*). Our mission is to accelerate the path to market for Tough Tech companies through the combination of **capital**, **infrastructure**, and **network**.



# What is Tough Tech?

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Tough Tech is cutting-edge science and technology that has the potential to change the trajectory of society.

We believe interdisciplinary approaches are the key to solving our interconnected global problems in climate, human health, and advanced systems.

**Tough Tech is transformational technology that solves the world's most important challenges through the convergence of breakthrough science, engineering, and leadership.**

What unites Tough Tech is that it exists in physical space, not just in code, and it has the potential to create more sustainable, resilient ways of living.

We believe technical founders can achieve their potential as global leaders of their companies and industries.

# What is fundamentally changing in tough tech innovation?

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**Advances in analytical capabilities are accelerating.**

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This is increasing the pace of experimentation and development of applied work, process development and hardware production, thereby reducing capital intensity and time to market.

**New markets have emerged across the globe.**

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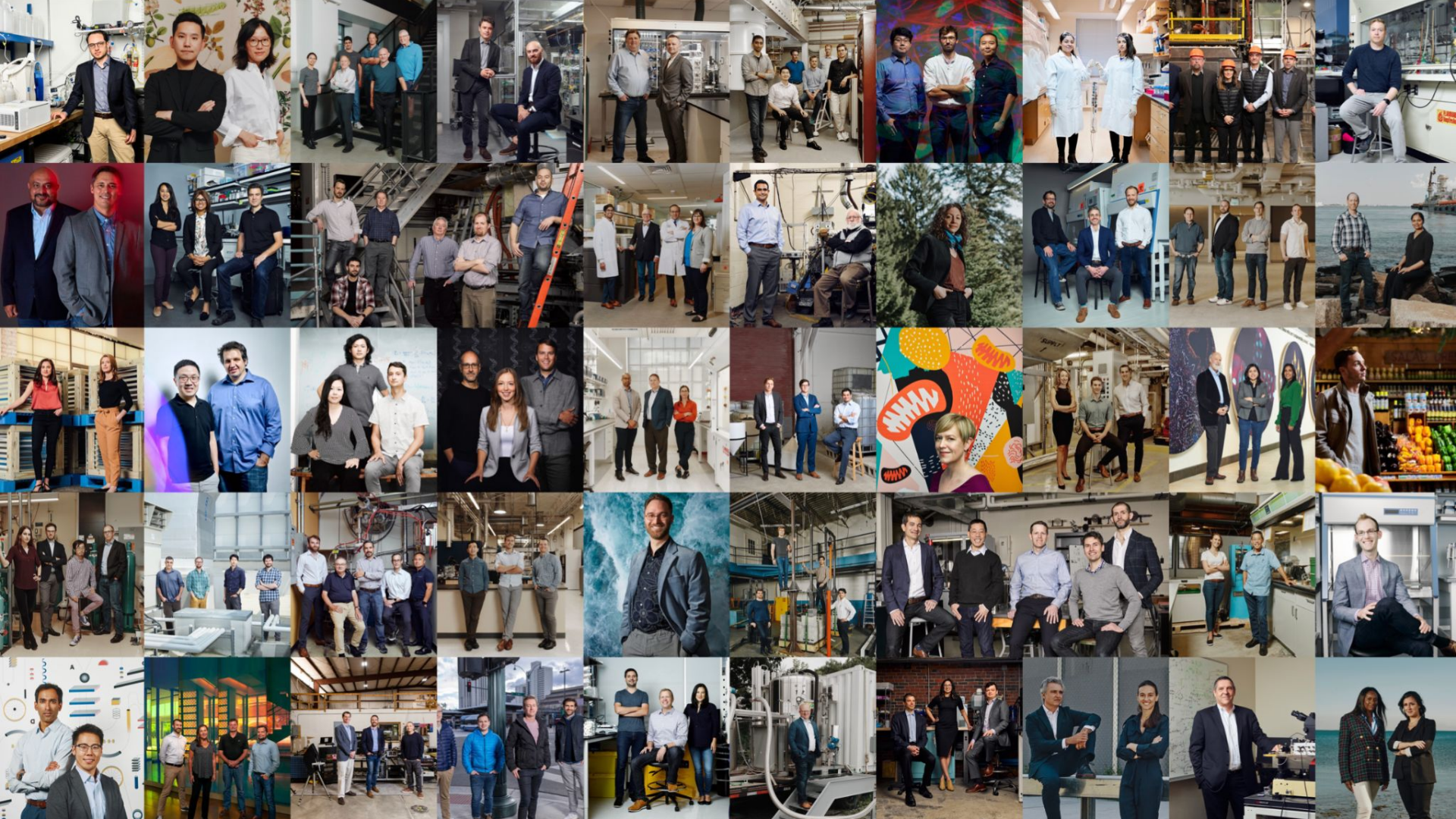
Massive opportunities for hydrogen, carbon capture, carbon utilization, nuclear, and more, as well as capital for scale-up of new technology.

**Financial markets are fundamentally behaving differently.**

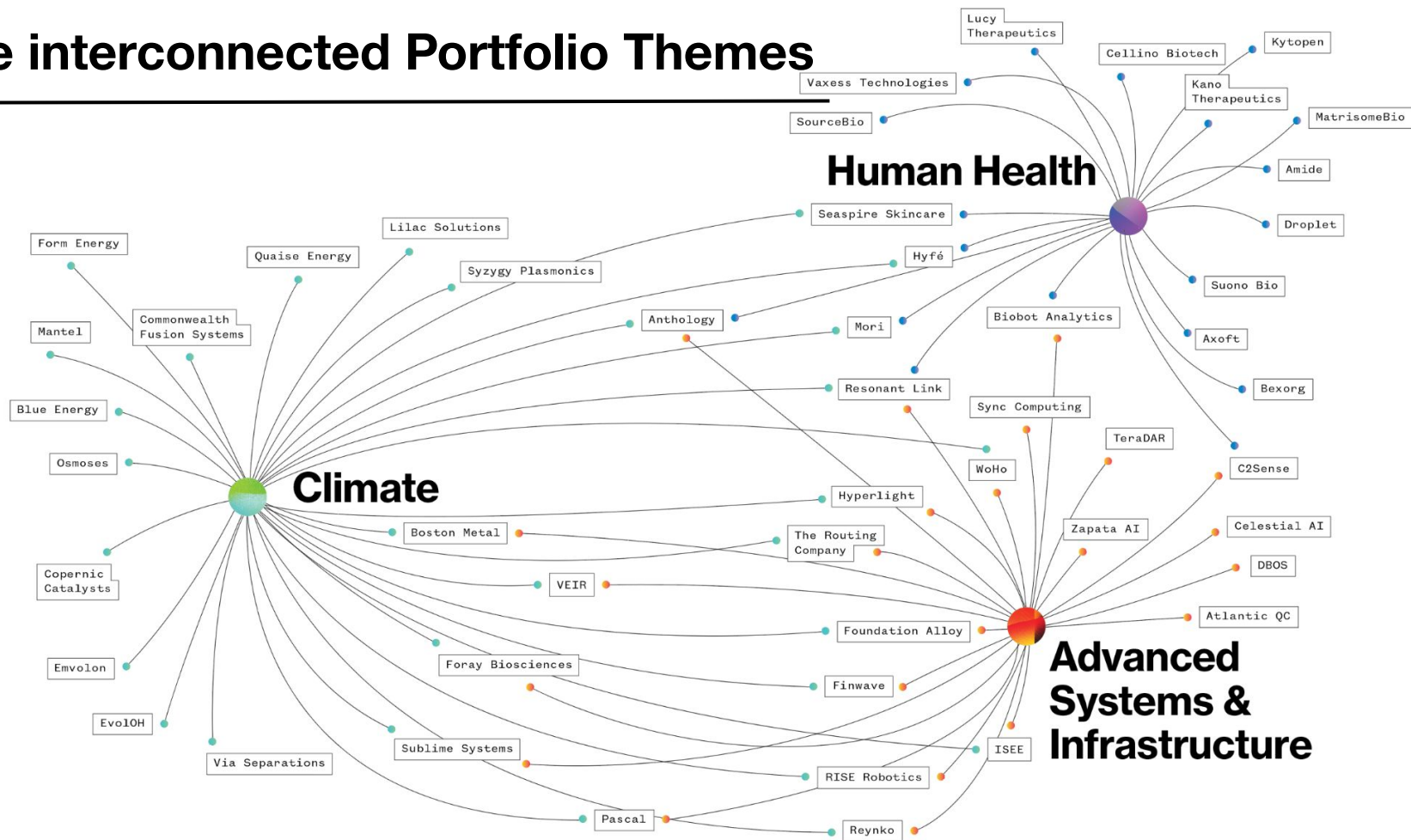
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They are more risk tolerant to technology and are allocating capital to pre-revenue companies with large opportunities.





## Three interconnected Portfolio Themes





# Where do our Founders Come From?

Institution  
of Company  
Origin



30 companies



9 companies



Tufts  
UNIVERSITY

RICE UNIVERSITY



WISCONSIN  
UNIVERSITY OF WISCONSIN-MADISON



BOSTON  
UNIVERSITY



Northwestern  
University



FUND I | Fund II

16 | 16

4 | 5

Department  
Origins -  
Academic  
Co-Founders

Material Sciences	5	Engineering & Applied Sciences	2
Nuclear Engineering	5	Physics	2
Chemistry	5	Computer Science & Artificial Intelligence	2
Biomedical Engineering	5	Civil Engineering	1
Chemical Engineering	4	Architecture	1
Mechanical Engineering	3	Nanoscience	1
Electrical Engineering & Computer Science	3	Radiation Oncology	1

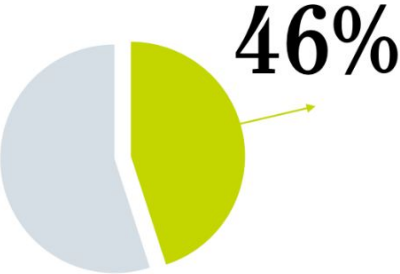
Industry &  
National Labs  
of Origin



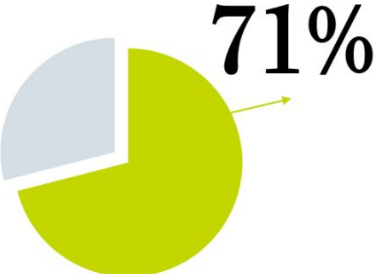


# Founder Diversity

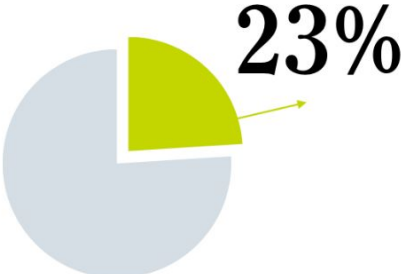
## Who you Invest in Matters



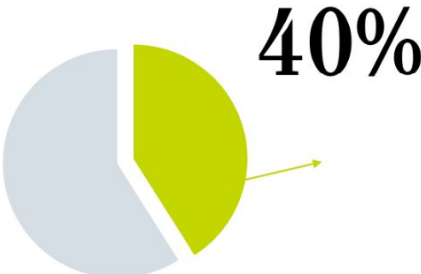
Percentage of portfolio companies with an underrepresented minority CEO\*



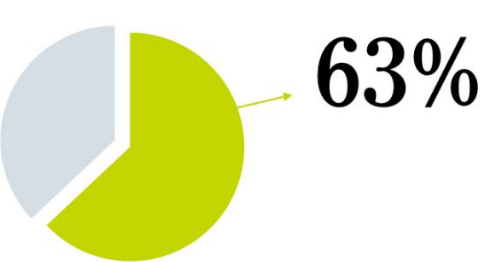
Percentage of portfolio companies with an underrepresented minority CEO and/or Founder\*



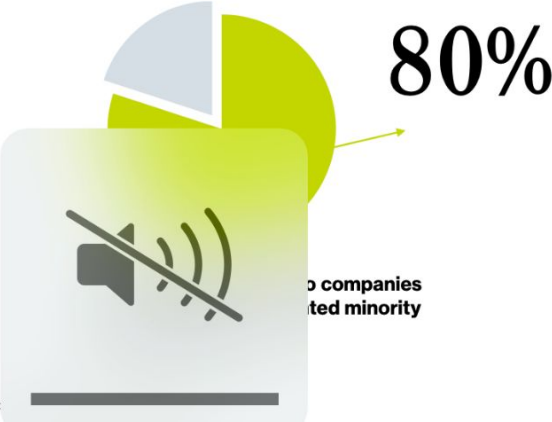
Percentage of portfolio companies with a woman CEO



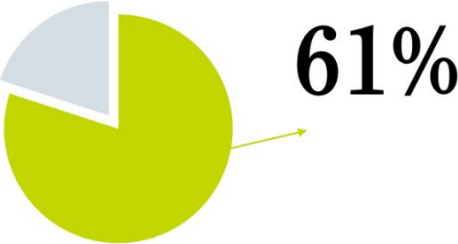
Percentage of portfolio companies with a woman CEO and/or Founder



Percentage of portfolio companies with a CEO and/or Founder who is an immigrant to the U.S.



Percentage of portfolio companies with an underrepresented minority CEO and/or Founder

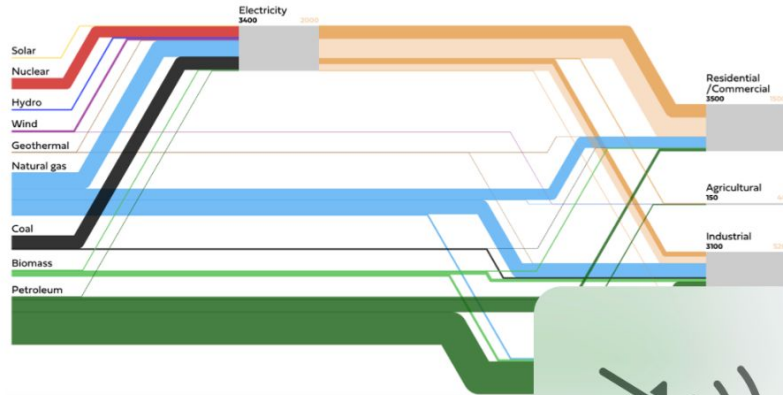


Percentage of portfolio companies with a woman board member

\*Under represented minorities (URMs) include Asians/Asian Americans, Black/African Americans, Latinos, American Indian/Alaska Natives, and Native Hawaiians.

# How we approach climate

- Systems analysis to generate a theory of change on a company by company basis
- Strict adherence to cost modeling & cost parity with existing resources
- Partnership, scale up & commercialization focused



2021 Energy Flows Across Global Economy  
University of Chicago

## LOAD FOLLOWING CLEAN ELECTRICITY & HEAT



## ELECTRIFICATION OF END USES



## HARD TO DECARBONIZE INDUSTRY



## RESOURCE EFFICIENCY

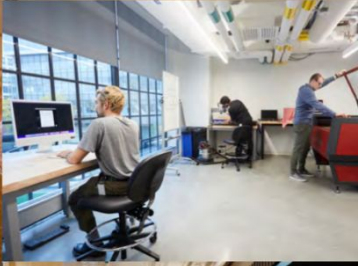
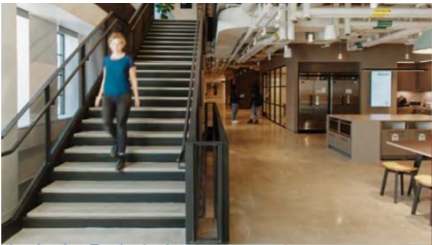


## ADAPTATION



# The Engine at 750 Main

In partnership with MIT



# DEEP DIVE INTO PROGRAMS

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## WhiteBoard

Engaging new faculty considering the journey to becoming an entrepreneurial founder of a tough tech venture out of the lab

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## PROVOCATIONS+

Small, collaborative, invite-only events that help inspire segments of the Tough Tech ecosystem to connect and solve real industry challenges.

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## BLUEPRINT

Supporting PhDs, Postdocs and faculty who have “proto ventures” - projects in the lab that might form the basis of a Tough Tech venture - sharing some of the critical and distinctive entrepreneurial challenges.

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**Turn your tough tech  
breakthrough into a tough  
tech start up**



**BLUEPRINT**

A TOUGH TECH STARTUP  
DEVELOPMENT PROGRAM

**S2022**

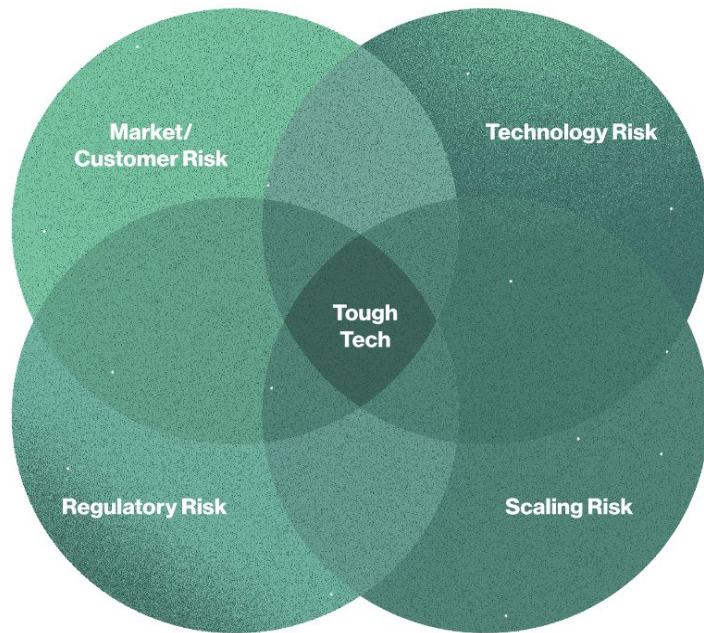
**Blueprint is a nonresident program for graduate students, post-docs, and recent. Founders to explore the commercial opportunities of their breakthroughs and startup projects.**

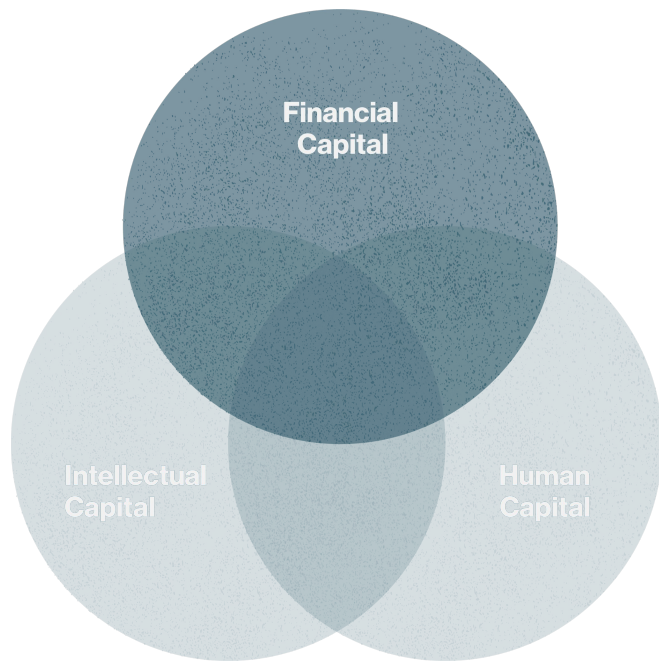


**Tailored programming** around technology risk mitigation, market discovery, IP, team building, storytelling, and other topics.

## Why apply to Blueprint?

- Learn about the process of commercializing technology
- Pitch deck practice and feedback from Blueprint mentors and the Engine team
- Access to Tough Tech founders





**Whiteboard** covers the  
three key elements of a  
Tough Tech Venture.

# Thank you!

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