

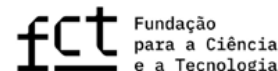
Seasonal School on Advanced Analog and Mixed-Signal (AMS) IC Design 2025

Powered by POEMS - Microelectronics Academy

June 12 - July 31

**7 weeks
9h30 - 17h30**

Technical Sponsors:



By Santander



Introduction to Entrepreneurship

Exploring the Mindset, Impact, and Ecosystem of Innovation

José Epifânio da Franca

Start2Scale | IST

Agenda

▶ What is Entrepreneurship? Why it Matters?

▶ Types of Entrepreneurship

▶ Tech-based Startups

▶ The Entrepreneurial Mindset



▶ Tech-based Entrepreneurial Ecosystems

▶ Incubators & Accelerators

▶ Startup Life Cycle, Milestones and Funding

▶ Your Startup Journey: NewCo Idea

▶ Wrap-up Q&A

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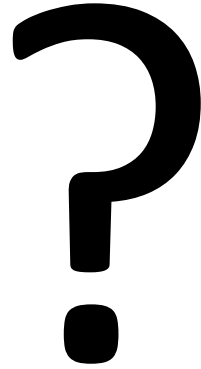
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What is Entrepreneurship and Why It Matters

A foundational perspective on innovation, growth, and societal transformation

What is Entrepreneurship?



What is Entrepreneurship?

- ❖ The pursuit of opportunity beyond resources controlled
- ❖ Creating value through innovation and risk-taking
- ❖ Solving real problems in uncertain environments
- ❖ Can occur in startups, corporations, science, and social sectors
- ❖ Innovation + risk + value creation
- ❖ More than starting a business

Many definitions, you can create your own,
but above all it can be seen as a specific
attitude in life that drives us to the unknown.

Dimensions of Entrepreneurship

- ❖ **Economic:** Business creation, job generation
- ❖ **Technological:** Commercializing R&D through innovation
- ❖ **Social:** Addressing unmet needs (health, education, inclusion)
- ❖ **Cultural:** Promoting initiative, autonomy, and change-making

The one dimension that is the focus of this course is **tech-based entrepreneurship**, normally rooted in high-quality education, often of scientific nature, and which is develop to create global, last-long impact.

Entrepreneurship as a Catalyst

- ❖ **Empowers** individuals to act on ideas
- ❖ **Accelerates** transformation in key sectors
- ❖ **Mobilizes** resources and talent efficiently
- ❖ **Connects** knowledge, capital, and ambition

Can be a national magnet of **deep economic transformation** yielding far reaching impact in social well being, employment fulfilment, wealth creation.

Why is Entrepreneurship Important?

- ❖ Fosters innovation and competitiveness
- ❖ Introduces disruptive innovations
- ❖ Shapes future industries and global competitiveness
- ❖ Drives job creation and GDP
- ❖ Increases global competitiveness of nations
- ❖ Changes the structural paradigm of industries
- ❖ Solves societal challenges (e.g., education, climate)
- ❖ Stems outbound flow of home talent, captures inbound flows of global talent

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Types of Entrepreneurship

There are different types of entrepreneurship, the most common ones being:

- ❖ Opportunity-driven
- ❖ Necessity-driven
- ❖ Social
- ❖ Corporate (Intrapreneurship)
- ❖ Academic / Deep-Tech

The type of entrepreneurship that is the focus of this course is academic/deep-tech based, often opportunity-driven to create global, last-long impact.

What Are Opportunity-Driven Startups?

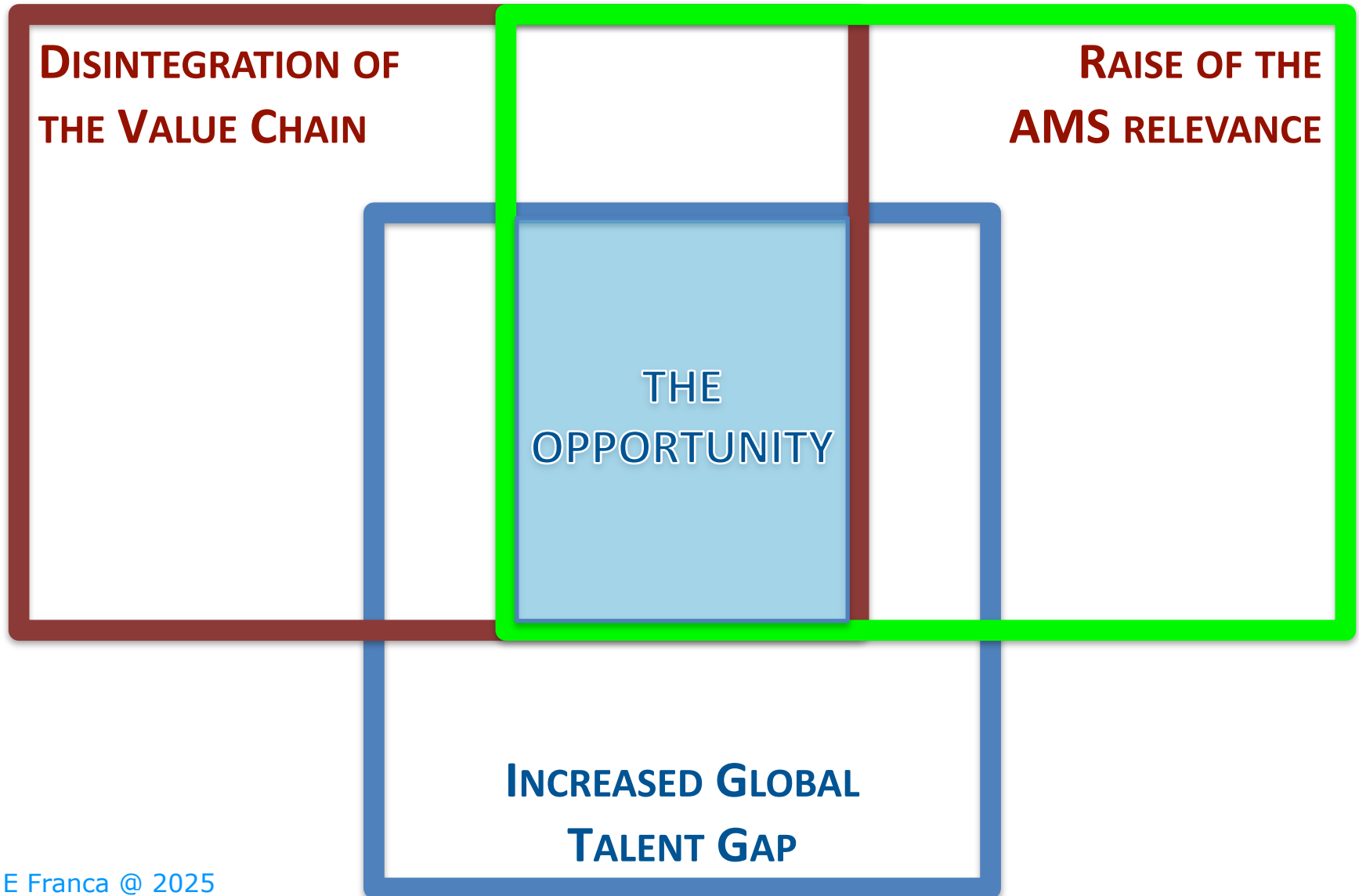
- ❖ Created by choice, not necessity
- ❖ Seize technological or market gaps (the opportunity)
- ❖ Aim for scalability and high growth
- ❖ Often backed by VC or public innovation funding
- ❖ Typical in deep-tech

What Are Opportunity-Driven Startups?

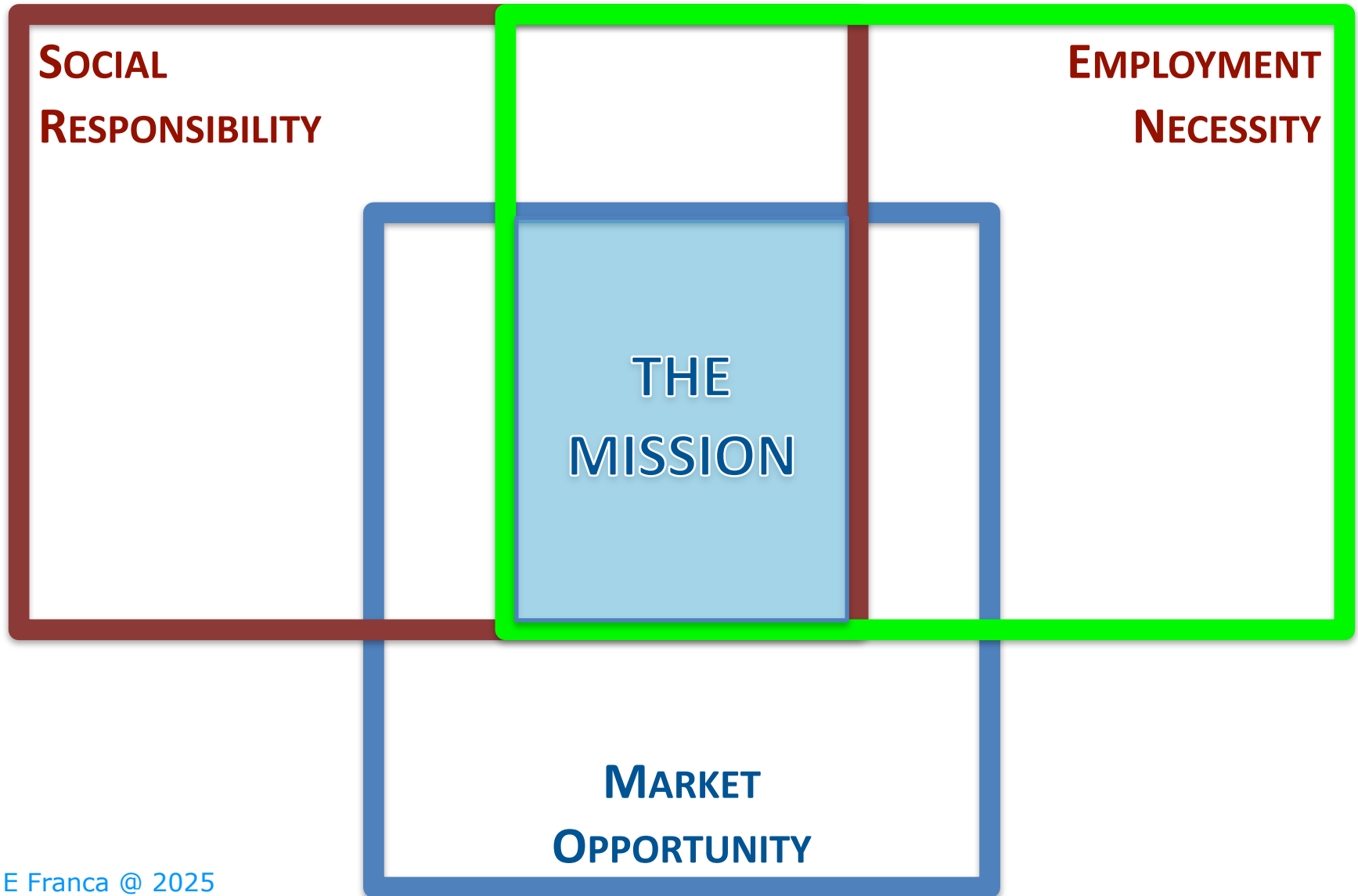
In semiconductors, opportunity-driven startups often emerge in response to:

- ❖ Disintegration of value chains (e.g. Core IP, AMS IP)
- ❖ Emerging tech trends (e.g., IoT, AI, EVs, 5G, others)
- ❖ Shifting supply chains or chip shortages
- ❖ Application-specific demands (edge AI, low-power sensors, etc.)
- ❖ New IP delivery paradigms (e.g. Chiplets for SiP)

The Chipidea Opportunity



The Chipidea Mission



Key Traits of Opportunity-Driven Startups

- ❖ Technological differentiation (IP ownership)
- ❖ Timing aligned with emerging global trends
- ❖ Global ambitions and funding readiness
- ❖ Often spin-offs from academic or research institutions
- ❖ Strong product-market fit orientation

Key Traits of Opportunity-Driven Startups

Trait	Description
High-tech differentiation	Own IP, novel architectures, process innovation
Market-timing sensitivity	Founded during strategic tech shifts
Global ambition	Often born global; looking to scale
Fundraising capability	Attract VC, EIC, or corporate partners
Often academic-rooted	Many originate from research labs

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Tech-based Startups

Exploring the role of
technology-driven ventures in
economic and societal transformation

What Are Tech-Based Startups?

- ❖ Tech-based startups use **highly-qualified knowledge** to address problems and or needs through the creation of new solutions
- ❖ They differ from traditional businesses by being **innovation-led** and often **global from inception**
- ❖ Rely on **technology** as their core differentiator
- ❖ Emerge from **research, engineering**, innovation
- ❖ Aim for **scalability** and **high growth**
- ❖ Common in AI, **semiconductors**, biotech, fintech, IoT

Key Features of Tech-Based Startups

- ❖ **Innovation-centric**: Novel, often IP-protected technologies
- ❖ **Scalable models**: High growth potential with low marginal cost
- ❖ **R&D intensive**: Often linked to academia or labs
- ❖ **Funding dependent**: High capital needs in early stages
- ❖ **Global ambition**: Born to scale internationally

These features define how tech-based startups **operate** and **grow**. They are typically venture-backed and require a strong ecosystem to thrive.

Why Tech-based Startups matter?

Tech-based startups serve as engines of **innovation** and **competitiveness**.

They are crucial to **modern economies**, particularly in sectors like semiconductors, AI, and biotech.

- ❖ Drive productivity and economic growth
- ❖ Create high-value jobs and exports
- ❖ Commercialize research and academic IP
- ❖ Attract venture and public capital
- ❖ Advance national tech sovereignty

Where do Tech-based Startups come from?

Most tech startups originate from **academic** or **corporate** development and research.

Effective ecosystems **translate R&D into commercial impact** through structured support and funding.

- ❖ University research labs and tech transfer offices
- ❖ Corporate R&D spinouts
- ❖ Public research programs (e.g., Horizon Europe, EIC)
- ❖ Entrepreneurial scientists and engineers

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The Entrepreneurial Mindset

Thinking Like a Founder

- ❖ The entrepreneurial mindset is less about having a “business idea” and more about how one **thinks** and **acts**.
- ❖ It's a mindset of **ownership**, **curiosity**, and **grit**.
- ❖ Entrepreneurs don't wait for conditions to be perfect — they **start**, **learn**, and **adapt**.

The Entrepreneurial Mindset

Some Key Attributes

- ❖ **Opportunity-focused** – Sees problems as chances to innovate
- ❖ **Resilient and persistent** – Bounces back from failure, iterates fast
- ❖ **Comfortable with risk and uncertainty** – Makes decisions with limited information
- ❖ **Creative and resourceful** – Solves problems creatively with minimal resources
- ❖ **Action-oriented** – Bias for execution, “done is better than perfect”
- ❖ **Growth-oriented** – Seeks feedback and constantly learns

The Entrepreneurial Mindset

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“ B O U N D L E S S C O N F I D E N C E ”

The Entrepreneurial Mindset is Industry-Agnostic

- ❖ Ample examples around the world show that the entrepreneurial mindset is **industry-agnostic**.
- ❖ From fashion to fintech, founders succeed by navigating uncertainty, challenging norms, and **persisting through setbacks**.
- ❖ In Portugal, a new wave of tech-based founders is increasingly showing this mindset globally.

How Culture Shapes the Entrepreneurial Mindset

- ❖ Entrepreneurship is more likely to thrive in societies that celebrate experimentation, diversity, and **individual initiative**.
- ❖ In Silicon Valley, Tel Aviv, Paris, Berlin, Amsterdam, Helsinki, Tallinn, or increasingly in Lisbon, this cultural mindset **reduces fear of failure** and increases the perception that **anyone can try**.
- ❖ **Education systems**, public policy, and even national identity can play roles — just look at how Estonia built a digital-first entrepreneurial nation.

How Culture Shapes the Entrepreneurial Mindset

- ❖ **Tolerance for failure** – Societies that do not stigmatize failure encourage experimentation
- ❖ **Value placed on innovation and change** – Cultural support for new ideas fuels startup creation
- ❖ **Respect for initiative and autonomy** – Celebrating doers and self-starters boosts risk-taking
- ❖ **Supportive ecosystems** – Media, education, policy, and community amplify entrepreneurial ambition
- ❖ **Role models and success stories** – Seeing local founders succeed inspires new ones

Portugal's Cultural Shift Toward Entrepreneurship

- ❖ **Pre-2010:** Risk-aversion, public sector preference, conservative career paths
- ❖ **Post-2010:** **Portugal Ventures (2012)** disruptive impact on tech-based entrepreneurship
- ❖ Rise of startup hubs (Lisbon, Porto, Coimbra, Braga), media exposure, youth-led innovation
- ❖ Web Summit effect, tech talent, international capital all reinforcing the shift
- ❖ Still evolving: More founder recycling, investor diversity, and tech role models needed

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Tech-based Entrepreneurial Ecosystems

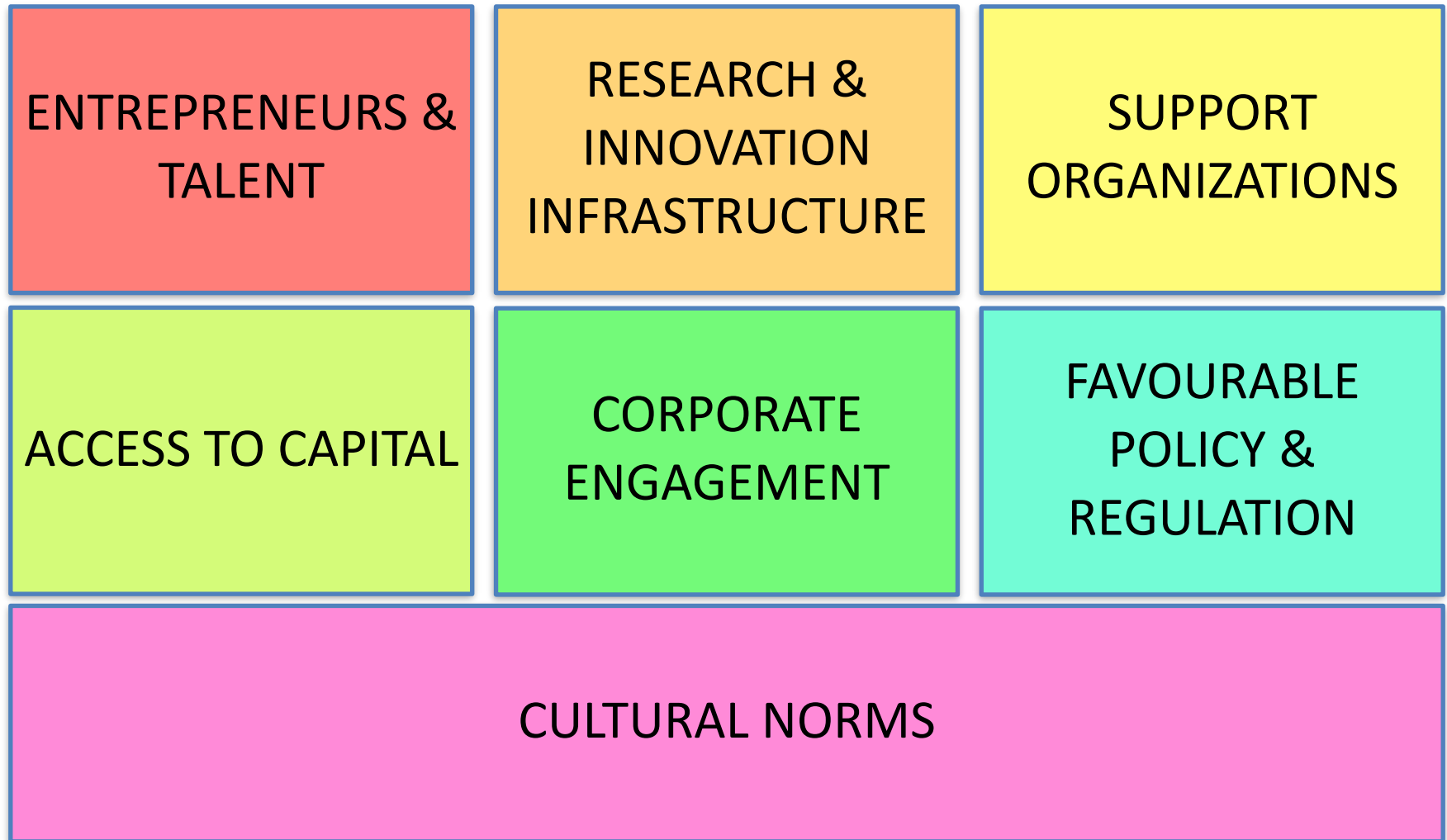
- ❖ *A tech-based entrepreneurial ecosystem* is an environment in which entrepreneurs, engineers, investors, researchers, and support organizations **interact** to turn technological innovation into scalable ventures that drive economic and social value.
- ❖ The ecosystem is focused on **technology-driven innovation**—often involving software, hardware, biotech, AI, semiconductors, etc.
- ❖ It values **scalability**, **intellectual property**, and **R&D-heavy products**.
- ❖ The goal is to turn technological potential into high-growth companies that generate jobs, competitiveness, and societal progress.

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THE POWER OF INTERACTION

Tech-based Entrepreneurial Ecosystems



Key Stakeholders in a Tech-Based Entrepreneurial Ecosystem

Entrepreneurs & Founders

- ❖ The **core drivers** of any ecosystem; take the risk to innovate and build.
- ❖ Early-stage or **serial entrepreneurs** share experience, build culture, and invest back.
- ❖ Often act as mentors and investors in the next generation.

Universities & Research Institutions

- ❖ Source of **talent**, **intellectual property**, and **deep tech research**.
- ❖ Often run entrepreneurship programs, incubators, and tech transfer offices (TTOs).
- ❖ Help build the long-term innovation pipeline.

Key Stakeholders in a Tech-Based Entrepreneurial Ecosystem



Corporate Executives & Strategic Partners

- ❖ Offer **market access**, **validation**, and **scale channels** to startups.
- ❖ Can act as **customers**, **co-development partners**, or **acquirers**.
- ❖ Help shape open innovation culture and bring funding & credibility.



Incubators & Accelerators

- ❖ Provide **early support**: space, mentoring, business model validation, visibility.
- ❖ Focus on **de-risking** early stages and connecting startups to first customers/funding.
- ❖ May be affiliated with universities, governments, corporates, or private ventures.

Key Stakeholders in a Tech-Based Entrepreneurial Ecosystem

Mentors, Advisors & Ecosystem Connectors

- ❖ Experienced professionals who provide **insight, trust, and access**.
- ❖ Critical in bridging knowledge gaps for first-time founders.
- ❖ Help connect the dots between academia, investors, corporates, and government.

Venture Capitalists (VCs), Angels & Institutional Investors

- ❖ Fuel the ecosystem by providing **capital, strategic guidance, and network access**.
- ❖ Often lead governance (boards) and exits (M&A, IPO).
- ❖ Specialized VCs (e.g., biotech, deep tech) are critical for complex tech startups.

Key Stakeholders in a Tech-Based Entrepreneurial Ecosystem



Government & Policy Makers

- ❖ Shape the legal, financial, and immigration environment.
- ❖ Create **tax incentives**, **co-investment schemes**, **grants**, and infrastructure.
- ❖ Can either enable or inhibit risk-taking and innovation.



Media, Events & Community Builders

- ❖ Promote success stories, build **visibility and pride** in entrepreneurship.
- ❖ Organize pitch events, hackathons, demo days.
- ❖ Foster **peer-to-peer learning**, diversity, and inclusion.

Tech-based Entrepreneurial Ecosystems

Your Ranking

ENTREPRENEURS & TALENT 1 3 5	RESEARCH & INNOVATION INFRASTRUCTURE 1 3 5	SUPPORT ORGANIZATIONS 1 3 5
ACCESS TO CAPITAL 1 3 5	CORPORATE ENGAGEMENT 1 3 5	FAVOURABLE POLICY & REGULATION 1 3 5
CULTURAL NORMS 1 3 5		

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Incubators & Accelerators

◆ Incubators

- ❖ Help first-time founders refine ideas
- ❖ Provide legal/accounting/product support
- ❖ Encourage peer learning and perseverance
- ❖ Often linked to **universities**, **municipalities**, or **foundations**

Incubators & Accelerators

◆ Accelerators

- ❖ Compress years of learning into weeks
- ❖ Attract **mentors**, **investors**, and **corporate partners**
- ❖ Push for clarity in product-market fit and scale strategy
- ❖ Typically **private or VC-backed**, though some are public-private hybrids

Incubators & Accelerators



Complementary Effects

- ❖ Many startups **start in incubators** (ideation/prototyping) and **graduate to accelerators** when they are ready for growth.
- ❖ Together, they reduce risk and improve **startup survival rates**, especially in regions with emerging innovation ecosystems.

Incubators vs Accelerators

Core Differences

FEATURE	INCUBATORS	ACCELERATORS
STAGE	Idea/concept stage	Early-stage with MVP or market traction
DURATION	Flexible, often 6–24 months	Fixed-term (typically 3–6 months)
FOCUS	Nurturing the startup, building foundation	Rapid growth and scaling
SUPPORT	Office space, mentoring, network access	Mentorship, investment, demo day
EQUITY TAKEN	Often none or low	Often 5–10% equity in exchange for investment
OUTCOME	Business readiness, prototype, team	Investor-ready pitch, growth metrics

Incubators vs Accelerators

Some Notable Examples Worldwide

YCombinator

TechStars

500 Global

Plug & Play

APX

HAX

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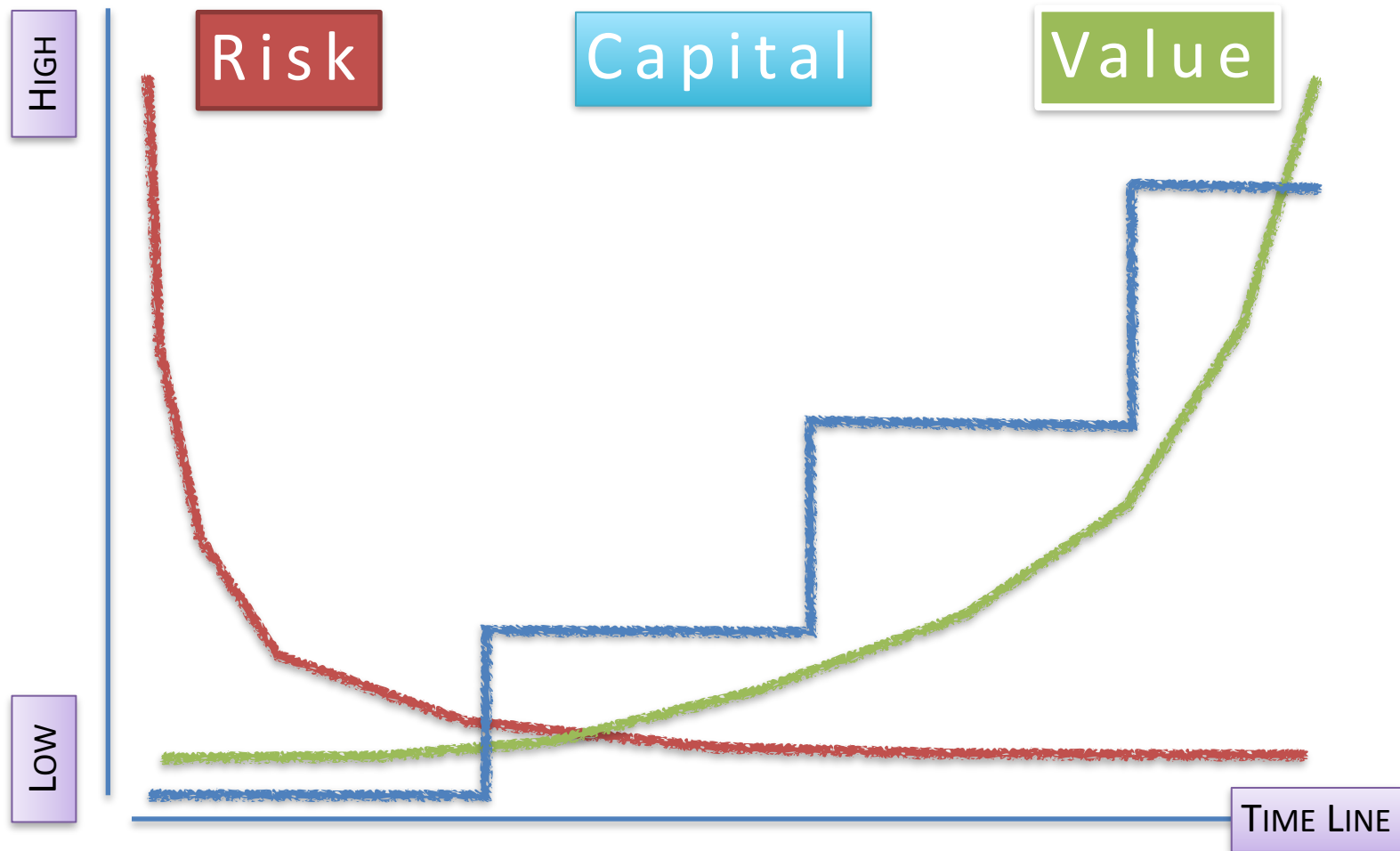
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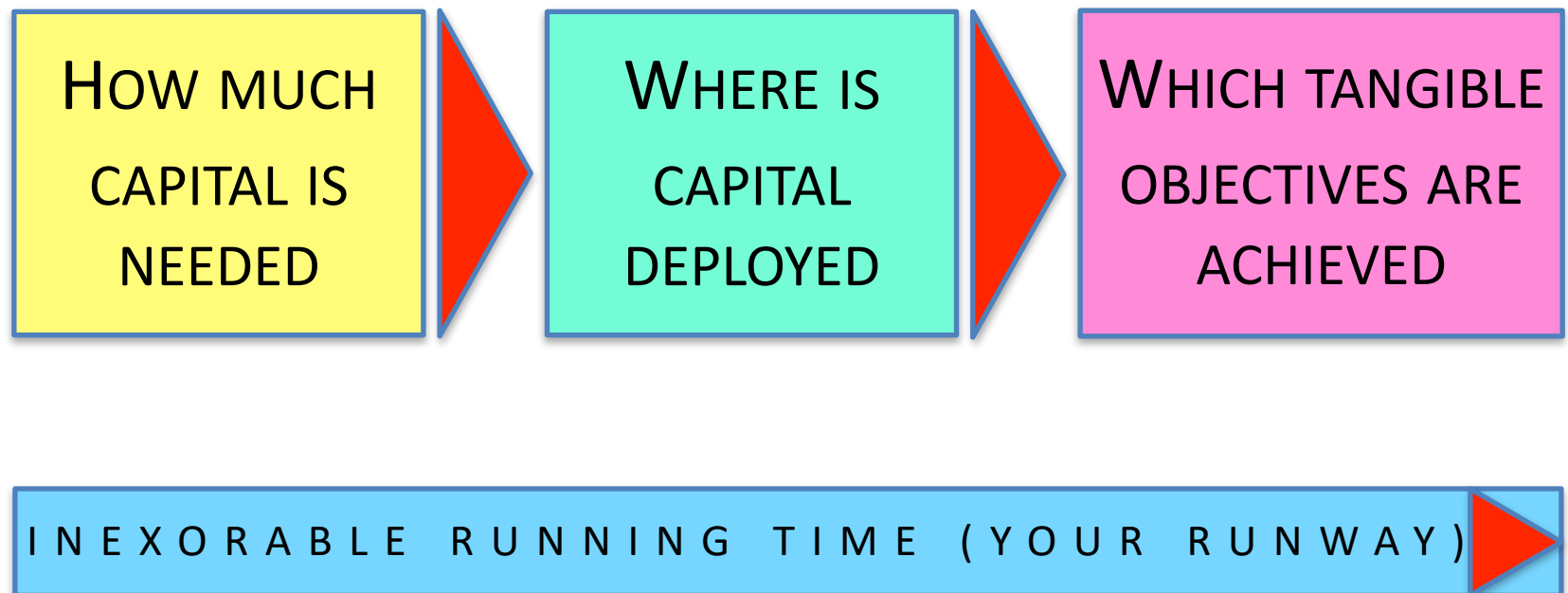
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Startup Life Cycle, Milestones and Funding Needs



The 3 Profiles of a Startup turned successful Company

Startup Life Cycle, Milestones and Funding Needs



All funding rounds follow the same template

Startup Life Cycle, Milestones and Funding Needs

Ideation / Problem-Solution Fit

❖ **Focus:** Identifying a problem and formulating a tech-enabled solution

◆ **Milestones**

- Problem clearly defined
- Preliminary market research
- Value proposition designed
- Co-founding team formation

❖ **Funding**

- ◆ Bootstrapping
- ◆ Grants or competitions (e.g., university, government)
- ◆ Pre-seed from friends/family/angels

❖ **Support:** University incubators, hackathons, ideation labs, others

Startup Life Cycle, Milestones and Funding Needs

Validation / MVP Development

- ❖ **Focus:** Building and testing a minimum viable product (MVP)
- ❖ **Milestones:**
 - ◆ Prototype or MVP launched
 - ◆ Early user feedback and iteration
 - ◆ First hires (often technical/product)
 - ◆ Market validation (small pilots or early users)
- ❖ **Funding:**
 - ◆ Pre-seed or early seed from angel investors
 - ◆ Public R&D grants
- ❖ **Support:** Incubators, technical mentors, early adopters

Startup Life Cycle, Milestones and Funding Needs

Product-Market Fit

❖ **Focus:** Refining the product to meet real customer needs

❖ **Milestones:**

- ◆ Strong user retention and engagement
- ◆ Paying customers (or early recurring revenue)
- ◆ Customer acquisition strategy
- ◆ Go-to-market model shaped

❖ **Funding:**

- ◆ Seed round from angel syndicates or seed VCs
- ◆ Public-private co-investment programs

❖ **Support:** Accelerators, venture studios, early investors

Startup Life Cycle, Milestones and Funding Needs

Early Growth / Go-to-Market Expansion

❖ **Focus:** Scaling operations, marketing, and revenue

❖ **Milestones:**

- ◆ Repeatable sales model and CAC/LTV metrics
- ◆ First international markets (for global startups)
- ◆ Scaled team with key hires (e.g., sales, ops)
- ◆ Product roadmap expansion

❖ **Funding:**

- ◆ Series A (typically €2M–€10M) from VCs
- ◆ Strategic investors or corporate partners

❖ **Support:** VC-backed accelerators, commercial partnerships

Startup Life Cycle, Milestones and Funding Needs

Scale-Up / Growth Stage

❖ **Focus:** Rapid market capture and operational scaling

❖ **Milestones:**

- ◆ Multi-market presence
- ◆ Organizational structure and leadership layers
- ◆ Revenue growth >50% YoY
- ◆ Unit economics validation

❖ **Funding:**

- ◆ Series B/C from growth-stage VCs or PE funds
- ◆ Venture debt or strategic alliances

❖ **Support:** CFO, legal teams, enterprise-level advisors

Startup Life Cycle, Milestones and Funding Needs

Maturity / Exit

- ❖ **Focus:** Consolidation, profitability, or exit
- ❖ **Milestones:**
 - ◆ Clear market position or category leadership
 - ◆ Strong revenue base or path to profitability
 - ◆ Strategic interest (M&A), or IPO readiness
- ❖ **Funding:**
 - ◆ Late-stage funding or acquisition
 - ◆ IPO (in rare cases)
- ❖ **Support:** Investment banks, corporate development teams

Startup Life Cycle, Milestones and Funding Needs

STAGE	TYPICAL ROUND	KEY FUNDERS
Ideation	Bootstrapping	Founders, friends & family, grants
MVP / Validation	Pre-seed / Seed	Angels, micro-VCs, incubators
Product-Market Fit	Seed / Series A	Seed/early-stage VCs, accelerators
Growth	Series A/B	Institutional VCs, corporates
Scale-Up	Series B/C	Growth funds, late-stage VCs
Maturity	Exit / IPO	Acquirers, public markets

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this is your 6-week project



NewCo Idea

slide #1

**what is the problem/need you
are solving**

slide #2

**who might be interested in the
problem**

slide #3

**how do you propose to solve
the problem**

slide #4

**who else has a solution for the
problem**

slide #5

**how good and competitive is
your solution**

slide #6

can you sustain your solution

slide #7

**how are you going to make
money; how much money is
there to be made**

slide #8

**what do you need to make that
money**

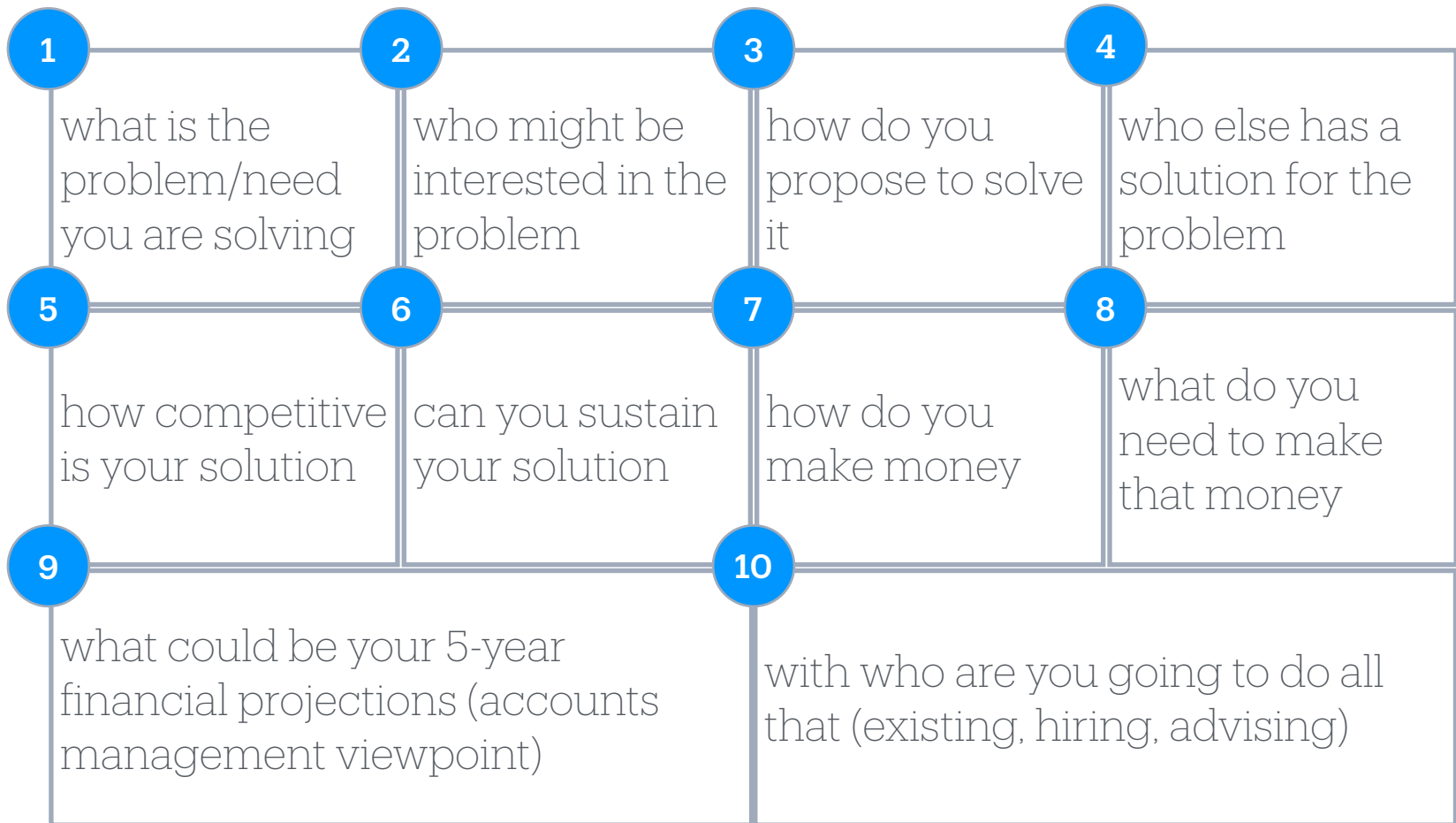
slide #9

**what could be your 5-year
financial projections (cash-
only viewpoint)**

slide #10

**with who are you going to do
all that (founders, key hires,
advisors)**

congratulations!



you are ready to pitch your business plan!

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- ▶ **Wrap-up Q&A**