

40+ Key Questions

That **Every C-Level Executive And Investor** Should Be Able To Answer

Before deploying capital into **industrial biotechnology** and **fermentation projects**.

Here's The Full Framework, Organized Across Four Interrogation Domains:

- Technical Validation
- Unit Economics
- Market Structure
- Risk Architecture



Technical Validation

- **Scale-up behavior & scale-up risks**
 - Has the technology been de-risked beyond the laboratory?
 - Has it been demonstrated at pilot and demonstration scale?
 - What evidence shows, that the performance can be replicated consistently?
 - Engineering skills involved in scaling up evaluation – or just pure scientific skills?
 - What change did appear, when moving from a 10-liters fermenter to 100,000-liters fermentor?
 - Which parameters are most likely to fail at industrial scale?
- **Strain genetic stability over commercial-length runs?**
- **Does the team have the operational scars to execute?**
- **Is there a clear path to industrial production capacity?**
 - Will the production plant be built, outsourced, or licensed?
 - Who owns and operates the manufacturing assets?
 - Are the environmental loads, costs and taxes known? – and the environmental permissions granted?
- **Does management have proven commercialization and scale-up experience?**
 - Has the team successfully commercialized industrial biotechnology before?
 - Do they have experience managing large-scale manufacturing operations and strategic partnerships?

Unit Economics

- Is there a fully-loaded COGS (with DSP (Downstream Stream Processing incl. Spraydrying) included — where most models lie)?
- Has the capital absorption profile with binary risk events been mapped?
- What is the feedstock strategy?
 - What feedstocks are required?
 - How vulnerable is the business model to feedstock price volatility or supply disruptions?
- What capital intensity lies ahead?
 - How much additional capital will be required before positive cash flow?
 - What are the likely sources of future financing?

Market Structure

- How does the incumbent price ceiling vs. realistic yields look like?
- Any named customer relationships available already?
- A specific theory of durable competitive advantage?
- Does the product solve a significant customer problem?
 - Is it merely sustainable, or is it also economically superior?
 - What measurable advantage does it offer over incumbent alternatives?
 - Any legal product approval requirements combined with nutritional, organoleptic, functional application and/or physical/chemical tests that need to be done, documented, verified and (legally) approved prior to commercial launch?
- What evidence exists for market demand?
 - Are there signed offtake agreements, purchase commitments, or strategic partnerships?
 - Who pays, and why will they switch?
- What is the true cost position at commercial scale?
 - What will the cost per kilogram be at 100,000+ tonnes scale?
 - Which assumptions drive the economics most strongly (feedstock, yield, energy, downstream processing)?

Risk Architecture

- Are regulatory classification across all three layers described and mapped (organism, product, facility)?
- Any IP coverage that hold outside the home jurisdiction?
- Any production process approval and permission needed?
- Any product approval needed?
- What intellectual property creates defensibility?
 - Are the competitive advantages based on patents, know-how, strain development, process integration, or scale?
 - How easily could competitors replicate the solution?

Can This **Technology** Create A Sustainable Cost Advantage At Industrial Scale, Not Just A Technical Success In The Laboratory?

Many fermentation ventures succeed scientifically, but fail commercially, because they underestimate scale-up complexity, capital requirements, operational execution, or market adoption.

Investors and executives should focus as much on industrialization and economics as on the underlying biology.

Few can answer all questions, some can answer 75-100% of all the questions!

Click this [booking link](#) for a **30-minute confidential** scale-up diagnostic!
For **C-level operators** and **boards** in industrial biotechnology only!