NEXTWAVE TECHNOLOGIES

# Technical Due Diligence Checklist for Deep-Tech Investors

A Comprehensive Evaluation of Emerging Technologies Before Startup

# Contents

01

# Purpose and Overview

# Purpose of This Checklist

**Objective**

Evaluate technology reality, scalability, cost to maturity, team capability, and execution risks.

02

# Technology Reality Check — Is the Tech Real?

# Core Technology Verification

01

## Key Areas

Clear explanation of core algorithms/models
Coherent architecture diagrams
Working prototype/demo with backed performance data
Engineering choices aligned with feasibility

02

## Red Flags

Vague explanations or “black box” claims
No reproducible demo
Architecture inconsistent with performance claims

# Innovation Depth

01

## Key Areas

Non-trivial, hard-to-replicate innovation
Deep domain knowledge
Validated or peer-reviewed science/tech
Clear link between innovation and product advantage

02

## Red Flags

Surface-level tech repackaged as deep tech
Heavy reliance on open-source without differentiation
Over-curated demo outputs

# Technology-to-Claim Alignment

## Key Areas

Claims match actual implementation
Acknowledge technical limits
Benchmarks consistent with known constraints
Clear feasibility boundaries communicated

## Red Flags

Metrics defy physical/compute limits
Missing validation steps
Claims change depending on audience

# 03

# Feasibility & Scalability Assessment

# Performance & Bottlenecks

01

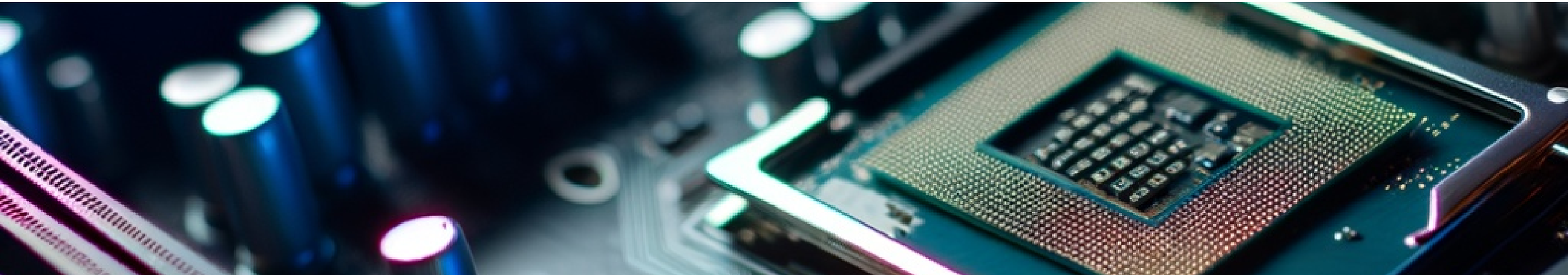
## Key Areas

Throughput and latency measured
Understanding of CPU/GPU/I/O hot paths
Documented scaling model
Predictable resource costs and known data limits

02

## Red Flags

Performance collapses under scale
Dependency on non-scalable hardware
Unrealistic assumptions about costs



# Architecture Scalability

01

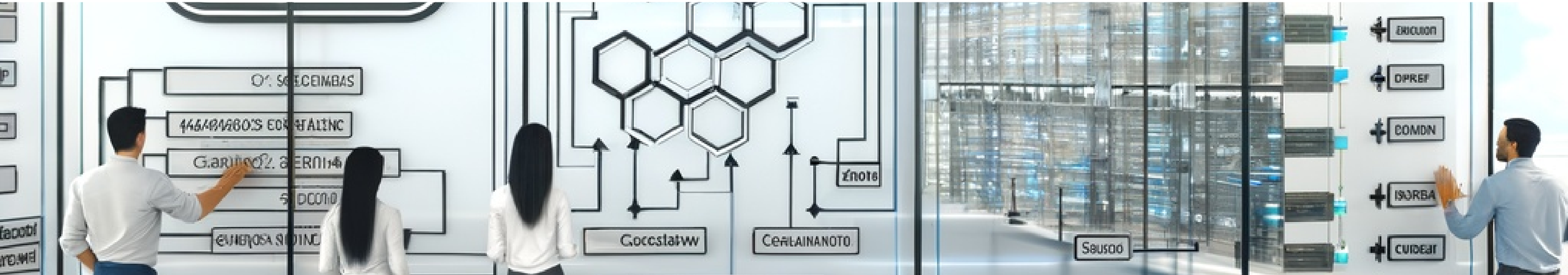
## Key Areas

Modular, maintainable design
Realistic cloud/infrastructure plan
Storage/bandwidth growth considered
Single points of failure identified

02

## Red Flags

Fragile handmade pipelines
“Will scale later” claims without plan
Architecture unsuitable for target markets



# Productization Feasibility

## Key Areas

Known transition path from prototype to production
Defined production performance targets
Mapped integration constraints
QA/validation strategies in place

## Red Flags

Research code claimed production-ready
No testing infrastructure
Unclear productization route

04

# Engineering Quality & Technical Maturity

# Code & Engineering Practices

01

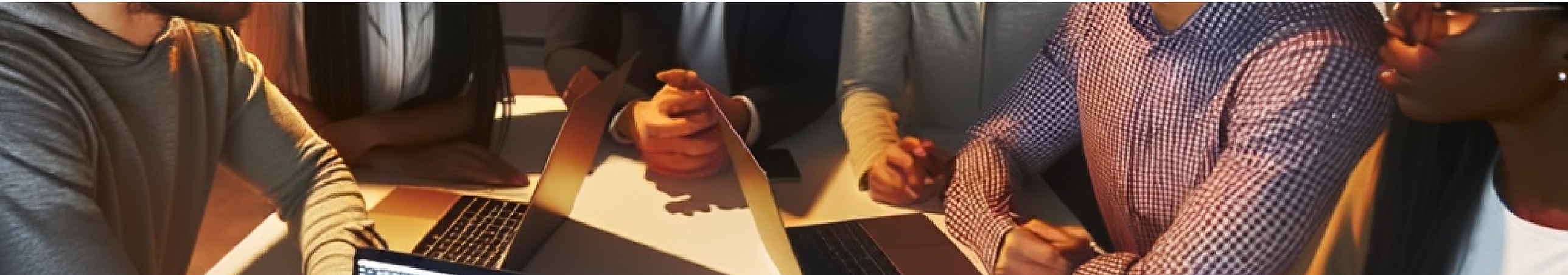
## Key Areas

Acceptable code quality for stage
Documentation available (architecture level)
Proper version control
Basic CI/CD in place or planned

02

## Red Flags

Code runs only on founder’s laptop
No reproducibility, tests, or logs



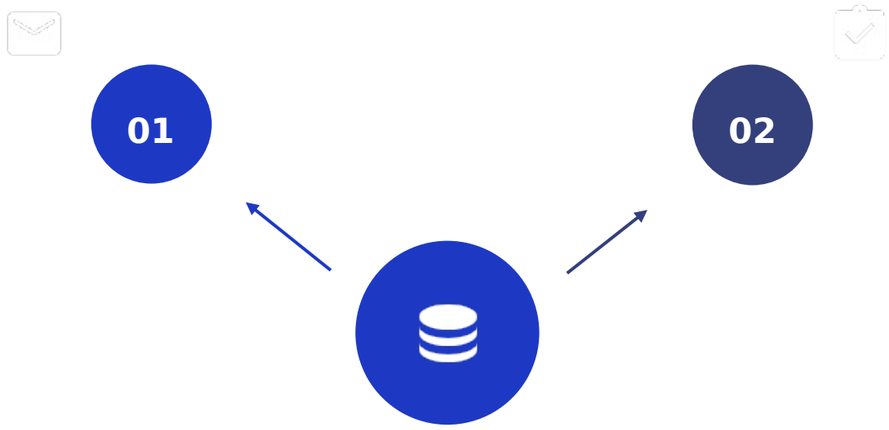
# Technical Debts & Risks

## Key Areas

Acknowledged technical debts
Clear refactoring plans
Identified high-risk dependencies

## Red Flags

Claims of zero technical debt
Critical modules owned by single person without backup



# Security, Safety & Reliability

## Red Flags

Security considered only “later”
Unsafe handling of sensitive data

## Key Areas

Basic security model implemented
Compliance with data regulations
Predictable failover behavior
Documented safety-critical elements

05

# Team Capability & Execution Ability

# Founding Team Technical Strength

01

### Key Areas

Relevant domain expertise
Proven complex tech delivery
Realistic about development challenges

02

### Red Flags

No senior engineer in deep-tech startup
CTO functioning as junior developer

# Team Composition & Gaps

## Key Areas

Key skills covered (algorithms, systems, product)
Realistic hiring plan
Delivery history matches roadmap

01

## Red Flags

Critical roles unfilled without plan
Unrealistic timelines vs team velocity

02

# Execution Culture

## Key Areas

Early risk communication
Documented technical decisions
Engineering priorities aligned with business

## Red Flags

Culture of overpromising
Frequent pivots without clear reasons

06

# IP, Defensibility & Ownership

# IP Landscape

## Key Areas

Patents filed or patentable claims
Clear technical moat
Real innovation-based advantage

## Red Flags

“We’ll patent it later” attitude
Value from open-source or standard components only

# IP Ownership & Licensing

### Key Areas

Clear code ownership
No contamination from incompatible licenses
Employment contracts assign IP

### Red Flags

Contractors wrote core IP
Missing IP assignment clauses
Unlicensed dependencies

07

# Structured Risk Map (Score 1–5)

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01

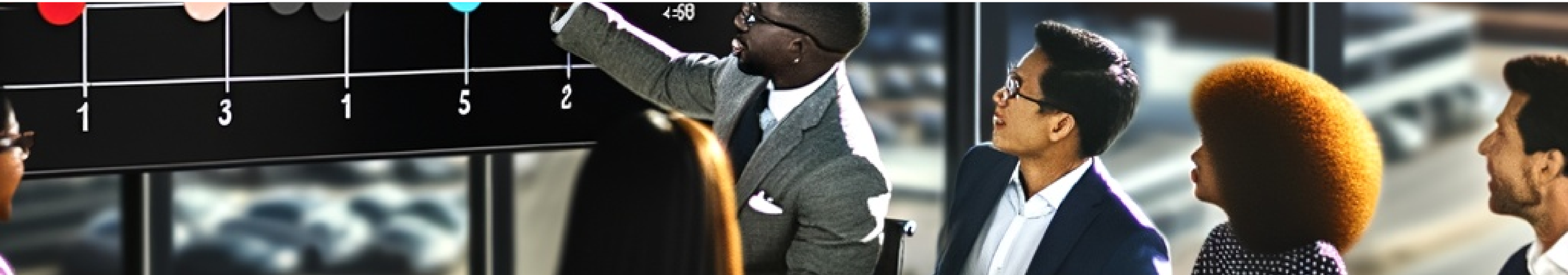
### Risk Categories

Technical feasibility, scalability, team capability
Execution, architecture, productization risk
IP & defensibility risk

02

### Scoring Guide

1–2: Acceptable risk
3: Manageable with mitigation
4: Significant concern, needs conditions
5: Major blocker



# 08

# Confidence Indicators

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## Strong Indicators

Validated architecture and engineering competence
Honest limitations discussion
Realistic roadmap and timelines
IP with real technical depth

## Weak Indicators

Overly optimistic claims
Prototype manually held together
Lack of testing/documentation
Roadmap inconsistent with resources

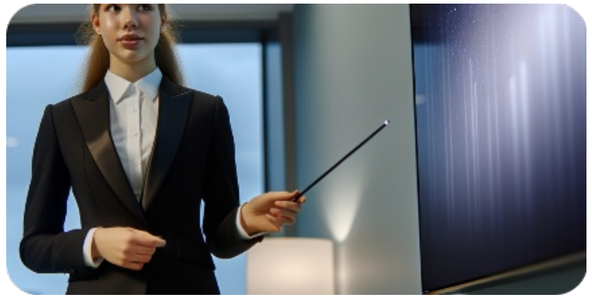
# 09

# Summary Assessment & Investment Recommend ation

# Summary Assessment & Investment Recommendation

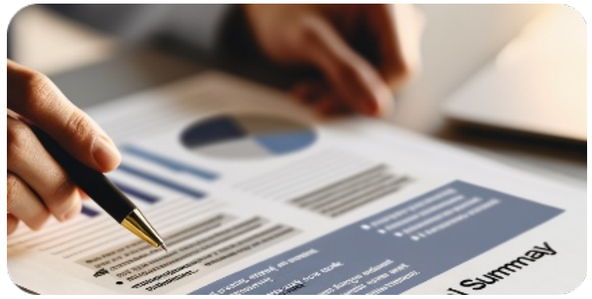
## Key Strengths

Bullet summary of validated strengths



## Key Risks

Bullet summary of serious concerns



## Conditions for Investment

Required fixes before funding approval

## Recommended Next Steps

Independent technical review
Architecture audit
Performance profiling
IP verification
Roadmap rework

## Final Recommendation

Investment Ready
Invest with Conditions
Not Investment-Ready (Technical Grounds)

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# About NEXTWave

# About NEXTWave

## Company Overview

We help deep-tech teams turn ideas into competitive products, and we help investors understand the true depth, feasibility, and risks behind the technologies they evaluate. Our role is to bring clarity, realism, and senior engineering expertise wherever it is missing.

- Independent senior-level technical due diligence for deep-tech investors
- Expertise in imaging, AI, real-time systems, high-performance software, advanced algorithms
- Provides evidence-based clarity, fast intelligence, risk reduction, independent claim verification, and post-investment oversight

### Our Mission

To bridge the gap between ambitious technology and real-world impact for builders and investors alike.

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# Thanks