

BLACKTECHSTARTUP EDUCATION

Deep-Tech IP, Freedom to Operate & Commercial Defensibility

Distinguish owning a patentable invention from having freedom to commercialize it, then clean up inventorship, university/employer rights, licenses, trade secrets and third-party dependencies.

Patentability asks whether an invention can qualify for patent protection. Freedom to operate (FTO) asks whether commercial activity may infringe enforceable rights held by others. They are different questions. Deep-tech diligence adds ownership: even excellent IP is weak collateral for the company if a university, former employer, contractor, grant term or joint-development partner can assert rights.

Know what weak and strong look like

READINESS AREA	WEAK / DILIGENCE RISK	STRONG / INVESTOR-READY
Patentability	"No one has patented our exact product."	Prior-art search and counsel strategy address novelty/nonobviousness and claim scope.
FTO	Own patent assumed to permit commercialization.	Product/process features mapped against relevant live third-party claims in target markets.
Inventorship	Founder list copied from company org chart.	Inventorship analyzed by contribution to claimed invention; records support determinations.
Ownership	Company name appears on filing.	Assignments plus employer/university/contractor/grant obligations reviewed.
Trade secrets	Everything confidential by habit.	Specific secrets have access controls, marking, contractual protection and retention plan.

Create an IP asset register

List inventions, applications/patents, software, datasets, trade secrets, know-how, trademarks, licenses-in, licenses-out and third-party dependencies. Show owner, inventor/author, creation date and agreement chain.

Run ownership diligence before scope diligence

Collect founder employment agreements, university policies, sponsored-research agreements, consulting work, invention assignments and joint-development agreements. Resolve who had rights when the work was created.

Separate prior-art searching from FTO

Prior art may include expired patents and nonpatent publications relevant to patentability. FTO focuses on enforceable claims that could cover your commercial product/process in relevant jurisdictions. Use qualified patent counsel for consequential FTO opinions.

Map blocking dependencies

A startup may own core patents but depend on licensed datasets, background IP, open-source software, proprietary materials or a sole supplier's process. Investors evaluate whether those dependencies can be terminated, repriced or transferred after acquisition.

Protect trade secrets operationally

A trade-secret strategy requires reasonable measures: limited access, confidentiality terms, repository controls, offboarding, vendor discipline and evidence that the company treats the information as secret. "We never filed a patent" is not a trade-secret program.

Run the diligence stress test before investors do

Do not rehearse an answer. Rehearse the evidence. Give yourself a short diligence window and try to produce the underlying records without rebuilding the story from memory. A clean result is reproducible, tied to a source system or signed document, and consistent with the numbers elsewhere in the company.

→ **Patentability:** Put the underlying records on screen and prove this standard: Prior-art search and counsel strategy address novelty/nonobviousness and claim scope. If the evidence still

looks like this weak state—"No one has patented our exact product."—record the gap, name an owner and give it a due date instead of explaining it away.

→ **FTO:** Put the underlying records on screen and prove this standard: Product/process features mapped against relevant live third-party claims in target markets. If the evidence still looks like this weak state—Own patent assumed to permit commercialization.—record the gap, name an owner and give it a due date instead of explaining it away.

→ **Inventorship:** Put the underlying records on screen and prove this standard: Inventorship analyzed by contribution to claimed invention; records support determinations. If the evidence still looks like this weak state—Founder list copied from company org chart.—record the gap, name an owner and give it a due date instead of explaining it away.

→ **Ownership:** Put the underlying records on screen and prove this standard: Assignments plus employer/university/contractor/grant obligations reviewed. If the evidence still looks like this weak state—Company name appears on filing.—record the gap, name an owner and give it a due date instead of explaining it away.

→ **Trade secrets:** Put the underlying records on screen and prove this standard: Specific secrets have access controls, marking, contractual protection and retention plan. If the evidence still looks like this weak state—Everything confidential by habit.—record the gap, name an owner and give it a due date instead of explaining it away.

Do the math investors will do

Build a claim-to-product matrix: rows are material product/process elements; columns identify company patent coverage, relevant third-party patent families, license status, design-around status and evidence owner. The purpose is not to produce a false green checkmark—it is to make unresolved FTO questions visible early enough to redesign or license.

Build the evidence investors can verify

✓ IP asset and chain-of-title register

✓ Founder/employee/contractor invention assignments

✓ University/employer/sponsored-research rights review

✓ Prior-art search record and patent strategy memo

✓ FTO issue list or counsel work product as appropriate

✓ License-in/out and third-party dependency schedule

✓ Trade-secret inventory with access/offboarding controls

Questions an investor may ask

? Who owned the invention when it was conceived?

? What is the difference between your patent position and your FTO analysis?

? Which third-party patents are most relevant to commercialization?

? Can a key license terminate on financing or change of control?

? What important know-how is protected only as a trade secret and how?

30-day repair sprint

1 Days 1–5: build IP/third-party asset register.

2 Days 6–10: collect all chain-of-title agreements and prior employment/university obligations.

3 Days 11–15: map core product features to company IP and third-party rights.

4 Days 16–20: engage qualified patent counsel for material gaps.

5 Days 21–25: clean license and trade-secret controls.

6 Days 26–30: create investor-facing IP summary that distinguishes fact, opinion and unresolved risk.

Research behind this guide

Use the primary and authoritative sources below to verify current rules, market conditions and technical guidance. Terms and regulations can change.

USPTO — Patent Basics



USPTO — Patent Pro Bono Program



NVCA — Model Legal Documents



NSF — I-Corps Commercialization Program



Important: This guide is educational information, not individualized legal, tax, investment, employment, security or compliance advice. For decisions with material legal or financial consequences, use a qualified professional who can review your facts.

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