Practice Bank — Exercises

The drills that turn reading into doing. Every exercise has a number (like `D01-E1`); the answers live in answer-keys.md under the same number. Work the problem first — the answer key is for checking, not for peeking.

> **How to use this bank.** The doctrine teaches the concepts; these exercises force you to *do* the discipline. Do them on paper, a whiteboard, or a plain document — no software required (that is the stack-agnostic rule, doctrine/08). Work with the Ravonics case and the worked exemplar open. Where an exercise says "a real solicitation," use a **published, closed** RFP or NOFO from SAM.gov or Grants.gov — never a live one.
>
> **Difficulty tags:** recall · apply · decide · build. A good study plan mixes all four.

Part A — Doctrine drills (D01–D08)

Doctrine 01 — Where the Money Lives

- **D01-E1** *Recall.* Name the three main kinds of federal money. In one sentence each, say what the government is doing in each case.
- **D01-E2** *Apply.* Ravonics is a HUBZone-certified small business in Ravenswood, WV, with UEI `YCBDVKN1A9G7`, CAGE `20DS8`, and four NAICS codes. A NOFO appears on Grants.gov for a community health study that Ravonics has no capability to perform. Which of Ravonics's identifiers is *not* the problem here — and which two checks would a smart capture lead run before declining?
- **D01-E3** *Decide.* You read a solicitation that says it is open only to "small businesses in the HUBZone program." Ravonics is HUBZone-certified but has not updated its SAM registration in two years. Decide: can it compete? What is the first thing to verify, and why does this matter more than the company's technical capability?

Doctrine 02 — RFPs, NOFOs, and Solicitations

- **D02-E1** *Recall.* List the six questions every solicitation answers. Which one does a winning proposal get written to, and why?
- **D02-E2** *Apply.* You are given an RFP. In the 15-minute scan you find the statement of work (Section C), the evaluation criteria (Section M), and the deadline. Where would you look to find: (a) the page limits and format rules, (b) the exact submission portal, (c) the relative weight of past performance vs. price? Name the section for each.
- **D02-E3** *Decide.* An RFP has a submission deadline of Friday at 5:00 PM. Your team plans to submit at 4:30 PM Friday. The capture lead

moves the internal deadline to Wednesday. Defend the lead's decision — and identify the "third deadline" the doctrine warns about.

Doctrine 03 — The Pursuit Pipeline

- **D03-E1** *Recall.* Draw the pursuit pipeline from memory and name each stage's one-line job.
- **D03-E2** *Apply.* Classify each activity below by pipeline stage (sense, qualify, score, pursue, design, audit, submit, deliver, learn): (a) a capture manager reads a new forecast on an agency website; (b) a review team reads a draft proposal against the evaluation criteria; (c) a project team ships a milestone to the customer; (d) a win/loss meeting updates the pWin factors.
- **D03-E3** *Decide.* A small firm is asked to respond to three solicitations at once. Its capture lead says "we'll take all three; volume means more chances." Use the pipeline and the gate concept to argue why this is a dangerous plan — and what the alternative is.

Doctrine 04 — Gates and Governance

- **D04-E1** *Recall.* Name the four parts of a gate. Which part is missing when a gate becomes a rubber stamp?
- **D04-E2** *Apply.* Write the criteria for a **bid/no-bid gate** for Ravonics as a five-person firm. Make each criterion answerable "yes" or "no" and state the evidence that would satisfy it.
- **D04-E3** *Decide.* A founder loves an opportunity; the numbers say no-bid. The founder is the owner-with-standing. A compliance officer (owner-with-process) says the pursuit does not meet the published criteria. Who decides, and how should the disagreement be resolved without it becoming a personality contest?

Doctrine 05 — Scoring and Price-to-Win

- **D05-E1** *Recall.* What two numbers make a pursuit score, and why does multiplying them matter? What is price-to-win?
- **D05-E2** *Apply.* Compute the score for two opportunities: (a) a \$200,000 pursuit with pWin 0.60; (b) a \$2,000,000 pursuit with pWin 0.05. Which scores higher? Now set a threshold of \$120,000 and make the gate call for each.
- **D05-E3** *Decide.* Your cost floor for a services contract is \$95/hour. The competitive range you estimate is \$105–\$125/hour. The agency is buying on best value, and the incumbent is well-liked. Recommend a price and justify it as a *position*, not a guess.
- **D05-E4** *Build.* Build a pWin rubric (factors, weights, evidence column) for Ravonics pursuing a small-business set-aside engineering-services contract under NAICS 541330. Score it, compute the composite against a

value you choose, and make the call against a threshold you set in advance.

Doctrine 06 — The ORBITAL Business Structure

- **D06-E1** *Recall.* Name the seven axes and the practical question each one answers.
- **D06-E2** *Apply.* A pursuit has a great objective and a funded budget but no named team and no plan of activities. Which ORBITAL axes are empty, and why does that make the pursuit a wish rather than a plan?
- **D06-E3** *Build.* Take a real, closed solicitation from SAM.gov or Grants.gov and build a one-page ORBITAL for Ravonics (or a firm you choose) — all seven axes, one line minimum each. Which axis was hardest to fill, and what does that tell you about the pursuit?

Doctrine 07 — The Lifecycle: Dream → ORBITAL → World

- **D07-E1** *Recall.* What are the three states of the lifecycle, and what moves a thing from one state to the next?
- **D07-E2** *Apply.* Place Ravonics on the lifecycle. It is a registered firm with HUBZone certification and an STTR partner, and its first ORBITAL (from the worked exemplar) is under way. What state is it in, and what two moves would advance it toward becoming a World?
- **D07-E3** *Decide.* A firm wins one large contract and then stops sensing and qualifying. Explain, using the cosmology loop, why this is a fragile position even though the firm is profitable.

Doctrine 08 — Tools Change, Concepts Don't

- **D08-E1** *Recall.* What are the two layers of this course, and which one do we test on? When a tool changes, what gets updated and what must not change?
- **D08-E2** *Apply.* A new portal replaces SAM.gov's interface next year; a vendor's proposal software changes its templates; an AI tool starts drafting first passes. Which of these changes touches the doctrine? Which touches only the alignment layer? Explain.
- **D08-E3** *Decide.* You interview at a firm that asks, "Have you used our proposal system?" You have not. Write the two-sentence answer that demonstrates you understand the doctrine beneath the tool.

Part B — Shared-core practice (SC)

- **SC-E1** *Apply (money map).* Pick one federal agency. On USAspending.gov, trace one dollar: an appropriation, a solicitation, a past award.

Produce a one-page money map with the three steps labeled. (This is the Week 1–2 assignment.)

- **SC-E2** *Apply (pipeline).* Take any news story about a company winning or losing a federal contract. Place the company's activity on the pipeline and name the gate that most likely decided the outcome.
- **SC-E3** *Build (compliance matrix).* Take a real, closed RFP. Build a compliance matrix with at least eight rows: every "shall" you can find, the section it came from, and where your response would satisfy it. (The worked exemplar's Step 3 is a model.)
- **SC-E4** *Apply (strategy reading).* For the same RFP, write a one-page strategy reading: what does the evaluator actually care about, read from the weights and the adjectives in Section M?
- **SC-E5** *Build (scored pursuit sheet).* Take a real, closed opportunity. Score it factor by factor, state the value, compute the composite, set a threshold, and write a one-paragraph bid/no-bid recommendation. (Model: worked exemplar Steps 2 and 5.)
- **SC-E6** *Apply (lifecycle).* Use the Ravonics case. Where is Ravonics in the lifecycle? What would move it forward, and what does its HUBZone status and research partnership mean for its ORBITALS?

Part C — Track practice (SI / MBA / MPA / CP / ECO / OR)

Strategic Initiative track

- **SI-E1** *Apply.* Write a one-page "doctrine statement" for an organization you care about: the durable concepts it must hold, written so a new hire could apply them without knowing the current software.
- **SI-E2** *Build (portfolio).* Ravonics has a capacity budget of one active pursuit. Rank three candidate opportunities (invent or reuse: an STTR topic, a HUBZone set-aside services contract, a large IDIQ it is eligible for but cannot staff) and recommend a portfolio allocation. Defend the ranking at each gate.
- **SI-E3** *Build (gate charter).* For one pursuit, write out the gate charter: for each gate it will cross (bid/no-bid, threshold, review, readiness), state the trigger, the criteria written in advance, the evidence, and the decision owner.
- **SI-E4** *Build (RICE-weighted portfolio).* Score a five-opportunity portfolio with a RICE-style weighted model and make the bid/no-bid calls. **First, set the weights yourself:** assign each component of RICE (Reach, Impact, Confidence, Effort) a weight between 0.5 and 2.0 that reflects your firm's strategy (1.0 = neutral; >1.0 = a priority the strategy multiplies; <1.0 = deliberately de-weighted), and justify each weight in one sentence. Then for each opportunity compute the

weighted score `(wR·Reach × wI·Impact × wC·Confidence) / (wE·Effort)` using pWin as Confidence, and its `pWin × value` composite. Reconcile the two where they disagree, make a BID / BID WITH CONDITIONS / NO BID call for each against a threshold you set in advance, and write the one-paragraph defense of the two hardest calls. **The human–agent note:** the agent computes; you decide the weights — end with two lines stating which inputs are machine-computed (the arithmetic, the factor scores) and which are human-owned (the weights, the threshold, the final call).

Opportunity	Reach (1–10)	Impact (1–10)	Confidence (0–1)	Effort ($k)
STTR Phase I (INSTAR partner)	3	9	0.77	8
HUBZone set-aside services task	4	7	0.58	6
Large engineering IDIQ (eligible, unstaffable)	9	5	0.30	25
Data-hosting renewal	2	4	0.82	3
New-market entry (no relationship)	7	8	0.18	15

MBA track

- **MBA-E1** *Apply (unit economics).* A pursuit has an estimated value of $800,000, a pWin of 0.45, and an estimated pursuit cost of $30,000. Compute the expected value and the expected return on pursuit spend. Is it rational to continue? At what pWin does it stop being rational?
- **MBA-E2** *Build (price-to-win).* Take a real, closed RFP with a cost structure for a fictional firm. Build the price-to-win: your cost floor, the competitive range you estimate, your recommended price, and the one-paragraph story that justifies it. State whether the evaluation is LPTA or best-value and show how that changed your price.
- **MBA-E3** *Build (flywheel).* Model Ravonics's revenue flywheel over three years: wins → past performance → better pWin → more wins. Show the arithmetic: start with pWin 0.40, add a past-performance factor lift after each delivered win, and show what the portfolio value becomes.

MPA track

- **MPA-E1** *Apply (money flow).* Take one published award on USAspending.gov. Trace it back: which agency, which appropriation context, which program? What does the record reveal — and what does it not show?
- **MPA-E2** *Apply (compliance comparison).* Take a real RFP and a real NOFO. Find the compliance requirements in each (the "shall"s, the certifications). Compare how each document enforces fairness — what do the two rulebooks protect?
- **MPA-E3** *Decide (policy memo).* Write a one-page policy memo evaluating one small-business program (HUBZone, 8(a), WOSB/VOSB, or SBIR/STTR) against its stated purpose. Use the Ravonics case as the concrete object. Argue whether the program is achieving its policy intent.

Company Building track

- **CP-E1** *Build (company-launch skeleton).* Produce the **10-step company-launch artifact** for a fictional launch (or one you invent), mirroring the sprint in company-launch-sprint and using the company-building module as the doctrine source. The artifact walks the new entity from seed to first pursuit: the **World charter** (mission and thesis), the **business entity structure**, the **capability definition and NAICS alignment**, the **market thesis** (where the money lives), the **founding team and resources**, the **launch ORBITAL** (all seven axes), the **first pursuit pipeline** (three to five sensed opportunities scored against a threshold), the **compliance and certification posture**, the **first-year funding and budget model**, and the **cosmology-loop plan** (how a first win re-seeds the next Dream). Grade yourself on whether a founder could run the first quarter off the artifact alone — and name the one axis of the launch ORBITAL that was hardest to fill and what that tells you about the launch.

Pipeline Economics track

- **ECO-E1** *Apply (pipeline forecasting).* A firm holds a weighted pipeline. Compute: (1) the **weighted pipeline value** (Σ pWin $\times$ value across every opportunity); (2) the **expected win count** across the year; (3) the **expected value per pursuit** (pWin $\times$ value $-$ pursuit cost) for each opportunity. Then make the bid decisions under a **capture budget**: with a fixed BP (business-pursuit) budget for the year, which opportunities do you fund, which do you defer, and which do you decline — justified with the expected-value math, not the headline values? Show the arithmetic for every line and state the constraint that changed your answer (the ceiling, the threshold, or capacity). The pipeline-economics module is the doctrine source.

Orals Coaching track

- **OR-E1** *Build (oral-rehearsal protocol).* Run a full oral-rehearsal protocol for a fictional pursuit, scoring per the orals-coaching module. Assign the four presenters and an external observer; freeze the deck; run the full presentation **to a stopwatch**; then run the Q&A round with the observer playing a hostile evaluator from a **Q&A bank** you build from the evaluation factors, the risk register, the price position, and the key-personnel table. After the run, score each presenter and the team against the orals rubric, and produce the **fix list**: every rule broken, every commitment made on stage that the written proposal must back, and the one improvisation to kill before the real oral.

Part D — Integrated practice (INT)

- **INT-E1** *Build (mini-capstone).* Run the full loop from the capstone on one real, closed solicitation: compliance matrix → strategy reading → ORBITAL → score (pWin argued factor by factor) → gate charter → bid/no-bid recommendation with a written defense. The worked exemplar is your model. Produce all five artifacts.
- **INT-E2** *Decide (post-mortem).* After the competition in INT-E1 has run, look up the actual award (published on SAM.gov or Grants.gov / SBIR.gov). Who won, for how much? Update your pWin factors with what the outcome teaches. Write a half-page post-mortem: what did your score get right, and what did it miss?
- **INT-E3** *Decide (machine-output review).* Run the machine-output review drill in human-ai-drills: take a machine-generated first-pass capture artifact — a bid/no-bid memo, a compliance-matrix draft, or a pWin factor score — and review it against the doctrine before it goes to a gate. Produce an **override log**: for every place you changed the machine's output, record what the machine computed, what you changed it to, the evidence or doctrine that justified the change, and whether the override was a *correction* (the machine was wrong) or a *judgment call* (the machine was reasonable; you decided differently). Finish with the two-line division of labor: what the agent computes and what the human owns. The human-ai-collaboration module is the doctrine source for the override discipline.

A note on grading yourself

The answer key gives model answers for the recall and apply exercises. For the **decide** and **build** exercises, there is no single right answer — there are *defensible* ones. Grade yourself against three questions:

1. **Did I use the doctrine?** Is the pipeline, gate, score, or ORBITAL visibly present in my reasoning?
2. **Did I argue with evidence?** Are my pWin factors and price calls backed by stated evidence, not vibes?
3. **Could a skeptic change my mind with a fact?** If not, I have written a position; if yes, I have written a defense.