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1.0 - Smart Steps for SERAF-based Investment Thesis

Okay, let's focus on generating specific and creative AI prompt examples for the Curen case study, aligning with the Seraf methodology structure and covering financials/milestones. We'll incorporate details from the Curen PDF and the recent search findings about Curen, Professor Murtomäki, the copper redox flow battery technology, and the market.

Here are examples demonstrating how students can use different AI tools creatively at various stages:

Seraf Methodology Sections:

1. **Company Overview & Description**
    - **Goal:** Quickly synthesize the core concept.
    - **Tool Suggestion:** Gemini/GPT-4o (for synthesis and summarization).
    - **Creative Prompt Example:** "Synthesize a concise 2-paragraph company description for Curen, an Aalto University pre-business spinout founded in 2023. Based on the provided PDF and search results, highlight its copper redox flow battery technology, the problem of grid-scale energy storage it addresses, its key differentiators (sustainability, scalability, potential low LCOS using secondary copper), and its current stage (pre-business, seeking funding, developing 5kW prototype)."
2. **Investment Thesis**
    - **Goal:** Articulate the core value proposition and potential return pathway.
    - **Tool Suggestion:** Gemini/GPT-4o (for analysis and structured argument generation).

- **Creative Prompt Example:** "Draft an initial investment thesis for Curen. Frame it considering the growing grid-scale storage market need driven by renewables, Curen's potential cost/sustainability advantages over lithium/vanadium, and its origin from Aalto's electrochemical research led by Prof. Murtomäki. Speculate on a likely exit pathway (e.g., acquisition by utility/energy tech player vs. IPO) and potential timeframe, acknowledging its early (pre-business) stage. Is this likely high-risk/high-reward or lower-risk/modest return?"

3. **What Needs To Be Believed (WNTBB)**
    - **Goal:** Identify critical assumptions underpinning the investment thesis.
    - **Tool Suggestion:** Groq (for rapid brainstorming) or Gemini/GPT-4o (for structured analysis).
    - **Creative Prompt Example:** "Analyze the Curen opportunity (pre-business copper flow battery startup) and brainstorm the top 5-7 critical 'What Needs To Be Believed' factors for investment success. Focus beyond the obvious (e.g., 'technology works'). Consider assumptions about: scaling the tech from prototype to commercial scale, achieving the target LCOS of ~€50/MWh, securing manufacturing partnerships, navigating competition from established players like Sumitomo or Invinity, ability to raise significant future funding rounds, and the team's capability to transition from research to commercial execution."
4. **Failure Risk**
    - **Goal:** Proactively identify potential pitfalls.
    - **Tool Suggestion:** Perplexity (for researching common startup failure modes in the sector) combined with Gemini/GPT-4o (for applying findings to Curen).
    - **Prompt Strategy:**
        - *Step 1 (Perplexity):* "What are the most common failure risks for early-stage hardware startups in the grid-scale energy storage sector, particularly those based on novel battery chemistries?"
        - *Step 2 (Gemini/GPT-4o):* "Based on the common risks identified for energy storage hardware startups (like funding gaps, scaling

manufacturing, technical hurdles, slow customer adoption, competitor responses) and Curen's specific profile (pre-business, novel copper chemistry, university spinout), identify and elaborate on the top 5 most significant failure risks specific to Curen's success."

5. **Leadership/Team** (Requires more info than available, but prompts can target *types* of analysis)
    - **Goal:** Assess team capabilities beyond technical expertise.
    - **Tool Suggestion:** Gemini/GPT-4o (for analysis and identifying gaps) + Perplexity (for background research on individuals if names were known).
    - **Creative Prompt Example (Hypothetical Team):** "Assume Curen's team consists of Prof. Murtomäki (technical lead), a former research assistant (prototype development), and a business development lead with 5 years experience at a utility. Analyze this hypothetical team's strengths and weaknesses for scaling Curen. Identify key expertise gaps (e.g., manufacturing scale-up, project finance, regulatory navigation, large-scale sales) that need to be filled via hiring or advisors. What key questions would you ask the team to assess their execution capability?" *(Note: Students need to recognize when AI needs more input data)*
6. **Technology / IP / Roadmap**
    - **Goal:** Understand technical differentiation and future development.
    - **Tool Suggestion:** Gemini/GPT-4o (for analysis and synthesis) + Perplexity (for patent/publication exploration).
    - **Prompt Strategy:**
        - *Step 1 (Perplexity):* "Analyze the claims and significance of Curen's patents (e.g., US10128519, EP3117476, WO2024184590A1) related to copper redox flow batteries. What specific technical advantages or novel aspects do they appear to protect?"
        - *Step 2 (Gemini/GPT-4o):* "Based on Curen's stated goal of creating simpler, sustainable, scalable copper batteries with low LCOS and the identified IP, draft a plausible high-level technology roadmap for the next 3-5 years. Include key milestones like: completing the 5kW/25kWh prototype, validating performance & LCOS targets,

developing MW-scale demonstration projects, establishing manufacturing processes, and potential next-gen chemistry improvements."

7. **Customer Need / Go-To-Market (GTM)**
    - **Goal:** Define target customers and market entry strategy.
    - **Tool Suggestion:** Groq (for brainstorming GTM options) + Gemini/GPT-4o (for developing a structured plan).
    - **Creative Prompt Example:** "Brainstorm potential initial target customer segments and GTM strategies for Curen's copper flow battery, considering its strengths (long duration 4-12h, sustainability, potential low cost) and weaknesses (pre-business, unproven at scale). Evaluate options like: partnering with renewable developers, targeting microgrids, working with utilities for grid ancillary services. For the most promising initial segment, outline key GTM steps, potential channel partners, and sales cycle considerations."
8. **Uniqueness / Competition**
    - **Goal:** Assess competitive positioning.
    - **Tool Suggestion:** Perplexity (for competitor research) + Gemini/GPT-4o (for comparative analysis).
    - **Prompt Strategy:**
        - *Step 1 (Perplexity):* "Identify key competitors to Curen in the redox flow battery market (e.g., Invinity, Sumitomo, CellCube) and other relevant long-duration storage technologies (e.g., other flow batteries, compressed air, gravity storage). Summarize their core technology, target duration, market traction, and funding."
        - *Step 2 (Gemini/GPT-4o):* "Create a competitive positioning matrix comparing Curen to 3-4 key competitors identified (e.g., Invinity (Vanadium), ESS Inc (Iron Flow), Form Energy (Iron-Air)). Use axes like 'Estimated LCOS' (€/MWh) and 'Sustainability/Material Availability'. Based on Curen's claims (low LCOS ~€50/MWh, uses secondary copper, sustainable), position it and analyze its unique selling proposition and potential vulnerabilities."

9. **Market Size & Opportunity**
    - **Goal:** Quantify the addressable market.
    - **Tool Suggestion:** Perplexity (for finding market reports/data) + Gemini/GPT-4o (for TAM/SAM/SOM estimation).
    - **Creative Prompt Example:** "Using recent market data (e.g., global redox flow market at $245M in 2023, growing at 16.1% CAGR; broader long-duration storage needs), estimate the Total Addressable Market (TAM), Serviceable Addressable Market (SAM), and Serviceable Obtainable Market (SOM) for Curen over the next 5-10 years. Clearly state your assumptions for narrowing down the market (e.g., focusing initially on specific durations (4-12h), geographic regions like Europe, or specific applications like renewable integration)."
10. **Financials / Funding / Projections** (Requires assumptions)
    - **Goal:** Develop plausible financial forecasts and funding needs.
    - **Tool Suggestion:** Gemini/GPT-4o (for generating projection structures and performing calculations based on assumptions).
    - **Creative Prompt Example:** "Assume Curen is seeking €2M in seed funding [similar magnitude to VCIC example] to complete its 5kW prototype, hire 3 key engineers/business staff, and secure initial pilot agreements over the next 18 months. Create a plausible high-level 5-year financial projection (Revenue, COGS, OpEx, Funding Needs) based on the following assumptions: Year 1-2 focus on R&D/pilots (minimal revenue), Year 3 first commercial 100kW system sale at €X/kWh, scale to 5MW total sales by Year 5. Model key OpEx drivers (R&D, S&M, G&A). Estimate the required Series A funding amount in Year 2/3 based on the projected cash burn." *(Note: Students must provide the core assumptions)*
11. **Milestone Generation**
    - **Goal:** Define key steps to de-risk the venture and achieve goals.
    - **Tool Suggestion:** Gemini/GPT-4o (for structuring milestones).
    - **Creative Prompt Example:** "Based on Curen's stage (pre-business, seeking seed funding) and the technical/commercial goals implied

(prototype completion, LCOS validation, market entry), generate a list of key milestones for the first 18 months post-seed funding. Categorize them into Technology/Product, Commercial/Sales, Team, and Funding. Ensure milestones are SMART (Specific, Measurable, Achievable, Relevant, Time-bound)." (e.g., "Q2 Post-Funding: Complete assembly of 5kW/25kWh prototype system"; "Q4 Post-Funding: Secure Letter of Intent for first pilot project").

12. **Exit Strategy**
    - **Goal:** Identify potential acquirers and exit rationale.
    - **Tool Suggestion:** Perplexity (for identifying potential acquirers) + Gemini/GPT-4o (for structuring the exit narrative).
    - **Prompt Strategy:**
        - *Step 1 (Perplexity):* "Identify potential strategic acquirers for a company like Curen (copper flow batteries for grid storage). Consider categories like major energy utilities, renewable energy developers, existing battery manufacturers (e.g., Sumitomo), and diversified industrial/electrical engineering firms active in energy transition."
        - *Step 2 (Gemini/GPT-4o):* "Based on the potential acquirer list and Curen's technology/market focus, outline the most plausible exit scenarios (e.g., acquisition in 5-7 years). For the top 2-3 potential acquirer types, explain the strategic rationale for acquisition (e.g., Utility acquiring low-cost storage tech; Battery major acquiring novel chemistry IP). What key milestones would Curen need to achieve to become an attractive acquisition target?"
13. **Deal Terms** (Connects to valuation & risk)
    - **Goal:** Understand how terms impact returns and align interests.
    - **Tool Suggestion:** Gemini/GPT-4o (for explaining term implications).
    - **Creative Prompt Example:** "Explain the typical purpose and investor implications of key seed-stage term sheet clauses like: 1x non-participating liquidation preference, broad-based weighted average anti-dilution, pro-rata rights, and a standard board structure (e.g., 1 founder, 1 lead investor, 1 independent). How might these terms be adjusted based

on Curen's perceived risk profile (early stage, hardware, competitive market) versus its potential upside (large market, differentiated tech)?"

Key Reminders for Students:

- **AI is a Co-Pilot:** AI drafts initial analyses, generates ideas, processes data, but students must critically evaluate, refine, validate assumptions, and add strategic insight.
- **Garbage In, Garbage Out:** The quality of AI output depends heavily on the quality and specificity of the prompts and the input data provided.
- **Iterative Process:** Use AI outputs as starting points. Refine prompts based on initial results, cross-reference information from different tools/sources, and build upon previous steps.
- **Tool Specialization:** Encourage switching tools based on the task (e.g., Perplexity for targeted research, Groq for speed/brainstorming, Gemini/GPT-4o for nuanced analysis and generation).

Let me know which section you'd like to dive into deeper or refine further!