

# Product Requirements Document

## StudioOS v1

05/30/2025

### 1. Introduction & Purpose

- **Product Name:** StudioOS v1
- **Purpose:** StudioOS v1 is an internal AI-powered automation platform designed to significantly accelerate and enhance the venture ideation, research, validation, and initial planning phases for GoodFutures. It aims to systematically discover, analyze, and outline high-potential venture opportunities aligned with GoodFutures' investment theses (Workforce Development, Empowerment, and Distribution) and its focus on AI's impact on the workforce.
- **Strategic Goal:** To enable GoodFutures to more rapidly and efficiently identify, de-risk, and launch impactful ventures, increasing the studio's capacity and improving the quality of its deal flow and NewCo formation.

### 2. Goals & Objectives (for StudioOS v1)

- Automate at least 70% of the manual effort currently involved in the initial 0-4 week "Idea" and 4-8 week "Validation" phases of a new venture concept.
- Provide a structured and repeatable process for opportunity discovery and initial due diligence.
- Enable both fully automated end-to-end pipeline runs for broad exploration and modular, tool-based usage for specific research tasks by the GoodFutures team.
- Generate comprehensive "Opportunity Packages" for promising venture concepts, including problem validation, market analysis, competitive landscape, initial product outline, and basic financial sizing.
- Incorporate robust "Validation Check Loops" for each major processing step to ensure output quality, accuracy, and alignment with GoodFutures' standards.
- Serve as a learning system, with feedback from the validation loops and team usage informing future improvements to prompts and workflows.

### 3. Target Users

- The GoodFutures core team:
  - Studio Partners / Leadership
  - GF Founders/Entrepreneurs-in-Residence (EIRs)
  - Venture Analysts / Researchers (potentially in the future)

### 4. User Stories / Use Cases (for StudioOS v1)

- As a Studio Partner, I want to initiate a full end-to-end opportunity discovery pipeline focused on a specific sub-theme (e.g., "AI-driven cognitive tutors for

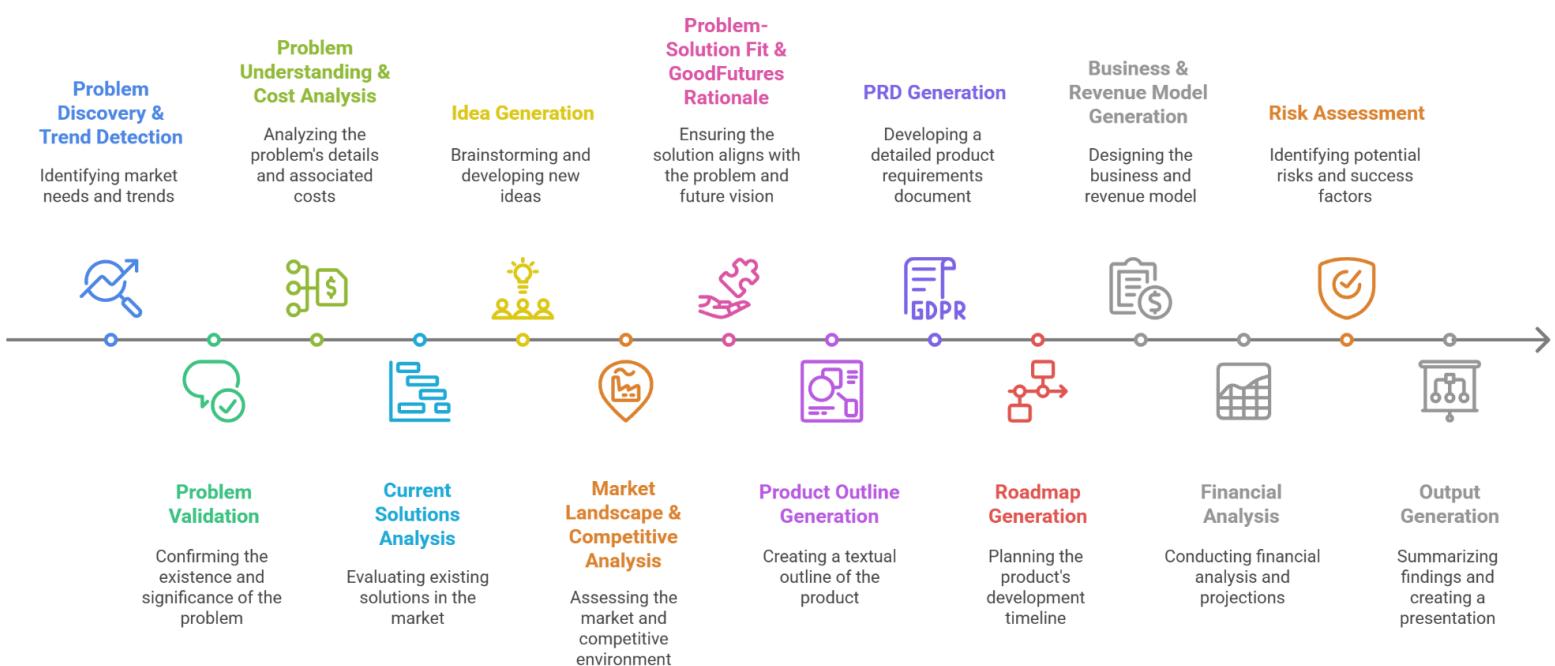
frontline healthcare workers") so that I can receive a detailed "Opportunity Package" for potential ventures.

- As a Venture Analyst, I have identified a specific problem statement. I want to use StudioOS to perform an exhaustive market landscape, competitive analysis and financial analysis for this problem so that I can quickly assess its current solution space and feasibility.
- As a Studio Partner, I want the output from each major step of StudioOS to be critically reviewed by an AI "validation agent" against predefined evolving quality criteria so that I can trust the reliability and depth of the generated insights.
- As a GoodFutures team member, I want to be able to manually override or provide specific inputs at various stages of an automated pipeline (e.g., provide my own list of competitors to analyze) so that I can combine AI automation with human expertise.
- As a GoodFutures team member, I want the StudioOS to generate a concise presentation summarizing a validated venture opportunity so that I can easily share it internally or with potential NewCo founders.

## 5. Product Features (StudioOS v1 Modules within n8n.io)

StudioOS v1 will be architected as a series of interconnected workflows (or "super-workflows") within n8n.io. Each major function below represents a key node or a sub-workflow.

### StudioOS Workflow



## Module 1: Problem Discovery & Trend Detection

- **Description:** Automatically scans various data sources to identify emerging problems, unmet needs, and significant trends within GoodFutures' focus areas (Workforce Development, Empowerment, Distribution), particularly those related to AI's impact.
- **Architecture Outline (n8n):**
  - Nodes for API calls to news aggregators (e.g., NewsAPI with keyword filters), academic paper databases (e.g., arXiv, Semantic Scholar for AI/ML trends), industry reports (if accessible via API or structured web scraping), and potentially social listening tools (for broad theme identification).
  - LLM Node (e.g., Gemini 2.5 Pro, Claude 4) for summarizing, categorizing inputs, and identifying potential problem statements.
- **Input:** Keywords, industry focus (Development, Empowerment, Distribution), date ranges, pre-defined "signals" to look for.
- **Logical Processing/Research:**
  - Collect and aggregate data from configured sources.
  - LLM processes text to identify recurring themes, pain points, future predictions, and explicitly stated problems.
  - Initial filtering based on relevance to GoodFutures' theses.
- **Output:** A ranked list of potential problem statements/areas with source snippets and initial relevance scores.
- **Next Step (Full Automation):** Problem Validation Module.
- **Validation Check Loop:**
  - **Agent Role:** "Problem Relevance Assessor."
  - **Criteria:** Relevance to GoodFutures theses, novelty, scale of potential impact (initial estimate), clarity of the problem statement.
  - **Feedback Mechanism:** If low relevance or unclear, prompts the LLM to refine the problem statement, seek more specific sources, or re-prioritize.

## Module 2: Problem Validation

- **Description:** Validates the existence, scale, and urgency of problems identified in Module 1 (or manually input) using social signals, search trends, and preliminary market indicators.
- **Architecture Outline (n8n):**
  - Nodes for Social Search APIs (e.g., Reddit API for specific subreddits, X/Twitter API for keyword/hashtag search and sentiment analysis – requires careful handling of API terms & costs).

- Web Search Nodes (e.g., Google Search via SerpApi or similar) to find forum discussions, articles, existing complaints.
  - LLM Node for sentiment analysis (if not provided by social APIs), summarization of discussions, and quantification of validation signals (e.g., volume of complaints, negative sentiment score).
- **Input:** Problem statements from Module 1 or user input.
- **Logical Processing/Research:**
  - Search for mentions of the problem on specified social platforms and the broader web.
  - Analyze sentiment and context of discussions.
  - Identify user-generated evidence of the problem (quotes, stories).
  - Look for early indicators of people seeking solutions.
- **Output:** A "Problem Validation Scorecard" for each problem, including:
  - Evidence snippets (anonymized quotes, discussion summaries).
  - Sentiment analysis summary.
  - Estimated volume/frequency of mentions.
  - Links to key sources.
- **Next Step (Full Automation):** Problem Understanding Module.
- **Validation Check Loop:**
  - **Agent Role:** "Social Proof Analyst."
  - **Criteria:** Strength and quality of evidence, diversity of sources, clear indication of user pain, recency of signals.
  - **Feedback Mechanism:** If evidence is weak or anecdotal, directs the module to broaden search terms, try different platforms, or flag the problem as "low validation."

### **Module 3: Problem Understanding & Cost Analysis**

- **Description:** Dives deeper into validated problems to understand their history, origin, root causes, and the tangible/intangible costs associated with them for individuals or businesses.
- **Architecture Outline (n8n):**
  - Deep Research Tool Nodes (e.g., APIs for services like Perplexity, You.com, or custom web scraping for historical articles, industry analysis reports).
  - Web Search Nodes for academic papers, think tank reports.
  - LLM Node for synthesizing research, identifying causal chains, and estimating costs (e.g., "cost of employee turnover due to X," "lost productivity from Y").

- **Input:** Validated problem statements.
- **Logical Processing/Research:**
  - Trace the historical evolution of the problem.
  - Identify key contributing factors and stakeholders.
  - Research existing studies or data points on the economic or social impact of the problem.
  - LLM attempts to build a qualitative or simple quantitative model of the costs.
- **Output:** A "Problem Deep Dive Report" including:
  - Historical context.
  - Root cause analysis (diagram or outline).
  - Estimated cost of the problem (qualitative and quantitative where possible).
  - Affected user segments.
- **Next Step (Full Automation):** Current Solutions Analysis Module.
- **Validation Check Loop:**
  - **Agent Role:** "Root Cause & Impact Auditor."
  - **Criteria:** Depth of historical analysis, logical coherence of root cause explanation, credibility of cost estimations (and clear statement of assumptions if quantitative), clarity on affected populations.
  - **Feedback Mechanism:** If analysis is superficial, prompts for deeper research into specific aspects, alternative causal explanations, or more robust data for cost impact.

## Module 4: Current Solutions Analysis

- **Description:** Identifies and analyzes how individuals and organizations are currently attempting to solve the validated problem (existing products, services, workarounds, internal tools).
- **Architecture Outline (n8n):**
  - Web Search Nodes (targeted searches for "solutions for X," "tools for Y," "alternatives to Z").
  - Connectors to CB Insights / Crunchbase (if feasible and cost-effective for v1, otherwise manual input or more general web search).
  - Social Search Nodes (for discussions about existing solutions, their pros/cons).
  - LLM Node for categorizing solutions, summarizing user feedback on them, and identifying gaps.

- **Input:** Validated problem statements and understanding from Module 3.

- **Logical Processing/Research:**

- Identify direct and indirect competitors/solutions.
- Gather information on their features, pricing, target audience.
- Find user reviews, discussions, and sentiment about these existing solutions.
- LLM identifies common complaints, unmet needs, and areas where current solutions fall short.

- **Output:** "Current Solutions Landscape" document:

- List of existing solutions/competitors with brief profiles.
- Summary of their strengths and weaknesses (based on user feedback and feature analysis).
- Identified gaps or opportunities for improvement.

- **Next Step (Full Automation):** Idea Generation Module.

- **Validation Check Loop:**

- **Agent Role:** "Competitive Intelligence Specialist."
- **Criteria:** Comprehensiveness of identified solutions (for v1, focus on readily discoverable ones), accuracy of feature/sentiment summarization, clarity of identified gaps.
- **Feedback Mechanism:** If major known solutions are missed or analysis is shallow, prompts for more targeted searches, deeper analysis of user reviews, or cross-referencing.

## Module 5: Idea Generation

- **Description:** Generates potential product/service ideas to address the identified problem and solution gaps, aligning with GoodFutures' investment theses and core competencies.

- **Architecture Outline (n8n):**

- LLM Node (GPT-4o, Gemini 2.5 Pro, Claude 4 – potentially multiple in parallel for diverse ideas) heavily prompted with:
  - The problem deep dive (from Module 3).
  - The current solutions landscape & gaps (from Module 4).
  - GoodFutures' theses (Development, Empowerment, Distribution).
  - Principles of AI co-intelligence, ethical AI, scalability.
  - Instructions to think about innovative business models.

- **Input:** Outputs from Modules 3 and 4.

- **Logical Processing/Research:**

- LLM uses creative reasoning, pattern matching, and "first principles" thinking to brainstorm solutions.
- Ideas are filtered for alignment with GoodFutures' focus.
- Initial high-level feature sets for each promising idea.

- **Output:** A list of 3-5 prioritized "Venture Concepts," each with:

- Concept Name (LLM generated).
- Brief Description (Value Proposition).
- Key Differentiators / Unique Selling Proposition (USP).
- Alignment with GoodFutures Thesis.
- High-level potential features.

- **Next Step (Full Automation):** Market Landscape & Competitive Analysis Module (for the top selected idea).

- **Validation Check Loop:**

- **Agent Role:** "Innovation & Thesis Fit Assessor."
- **Criteria:** Novelty/creativity of ideas, strength of USP, clear alignment with GoodFutures' strategic focus and capabilities, feasibility (initial gut check), potential for impact.
- **Feedback Mechanism:** If ideas are generic, not well-differentiated, or misaligned with theses, prompts the LLM to refine, explore specific angles (e.g., "how could AI uniquely solve this?"), or consider different business models.

## Module 6: Market Landscape & Competitive Analysis (for a specific idea)

- **Description:** Performs an exhaustive market and competitive analysis for a selected Venture Concept from Module 5 (or a user-provided idea).

- **Architecture Outline (n8n):**

- This module heavily leverages similar tools as Module 4 but with a much deeper and broader scope.
- Deep Web Search Nodes.
- CB Insights / Crunchbase / PitchBook connectors (critical for this module; if not full API, then prompts for structured manual searches and data input).
- Academic & Industry Report Search Nodes.
- Social Media monitoring for brand mentions and competitor sentiment.

- LLM Node for synthesizing vast amounts of data into structured competitive profiles, market segmentation, identifying barriers to entry, and historical successes/failures in the space.
- **Input:** A selected Venture Concept (or user-provided idea).
- **Logical Processing/Research:**
  - Identify direct, indirect, and potential future competitors globally and in key geographies.
  - Analyze competitors' products, technology, business models, funding, team, market positioning, strengths, weaknesses.
  - Research past ventures in the space (successes and failures, reasons why).
  - Segment the market and identify target customer profiles.
- **Output:** "Comprehensive Market & Competitive Intelligence Report":
  - Detailed profiles of top 5-10 competitors.
  - SWOT analysis (for the proposed venture concept in context).
  - Market segmentation and sizing (preliminary).
  - Barriers to entry.
  - Analysis of past successes/failures in the domain.
  - Identification of "white space" or unique positioning opportunities.
- **Next Step (Full Automation):** Problem-Solution Fit & GoodFutures Rationale Module.
- **Validation Check Loop:**
  - **Agent Role:** "Market Intelligence & Strategy Auditor."
  - **Criteria:** Depth and breadth of competitive research, accuracy of competitor data (cross-referenced where possible), insightful analysis beyond simple data listing, identification of non-obvious threats or opportunities, realistic assessment of barriers.
  - **Feedback Mechanism:** If analysis is superficial, misses key players (checked against a pre-vetted list or further searches), or lacks strategic insight, prompts for deeper dives into specific competitors, markets, or historical trends.

## Module 7: Problem-Solution Fit & GoodFutures Rationale

- **Description:** Articulates why the chosen venture concept is a strong solution to the problem, why it hasn't been meaningfully solved yet, how it can be tackled better now (especially with AI/new tech), and why GoodFutures is uniquely positioned to build this venture.
- **Architecture Outline (n8n):**

- LLM Node synthesizing all previous outputs (Problem, Current Solutions, Idea, Market Landscape).
- Prompts focus on critical thinking: "What has changed to make this solvable now?", "What was missed by previous attempts?", "How does GoodFutures' network/expertise/StudioOS provide an unfair advantage?".
- **Input:** Outputs from Modules 1-6.
- **Logical Processing/Research:**
  - LLM constructs arguments based on timing (new technologies, market shifts, societal changes).
  - Highlights specific insights or "alpha" GoodFutures might have.
  - Connects the venture concept to GoodFutures' resources, team expertise, and partner network.
- **Output:** "Investment Rationale & GoodFutures Edge" document:
  - Clear articulation of problem-solution fit.
  - Analysis of why previous attempts may have failed or underperformed.
  - Technological or market inflection points enabling success now.
  - Specific GoodFutures advantages (e.g., AI focus, academic ties, faster build time via StudioOS).
  - Alignment with long-term vision.

- **Next Step (Full Automation):** Product Outline Generation Module.

- **Validation Check Loop:**

- **Agent Role:** "Strategic Fit & Unfair Advantage Analyst."
- **Criteria:** Strength and clarity of the "why now?" argument, convincing articulation of GoodFutures' unique advantage, realistic assessment of what makes this attempt different from past failures.
- **Feedback Mechanism:** If rationale is weak, generic, or doesn't leverage GoodFutures' specific strengths, prompts the LLM to refine arguments, identify stronger connections, or re-evaluate the "unfair advantage."

## **Module 8: Product Outline Generation (Textual)**

- **Description:** Generates a detailed textual outline of what the proposed product needs to do to solve the problem effectively, based on the validated idea and market understanding.
- **Architecture Outline (n8n):**
  - LLM Node prompted with the Venture Concept, Problem-Solution Fit, and key insights from competitive analysis (features that work, features that are missing).

- Instructions to define core epics, user stories (high-level), key features, and potential user flows.
- **Input:** Venture Concept, outputs from Modules 6 & 7.
- **Logical Processing/Research:**
  - LLM breaks down the solution into logical components.
  - Prioritizes features based on solving the core problem (MVP thinking).
  - Considers user experience principles in outlining functionality.
- **Output:** "Product Feature Outline":
  - Core value proposition.
  - Target user personas (brief).
  - Key Epics / Themes.
  - List of core Features (with brief descriptions).
  - High-level User Stories (examples).
  - Potential non-functional requirements (e.g., scalability, security if relevant from problem space).

- **Next Step (Full Automation):** PRD Generation Module.

- **Validation Check Loop:**

- **Agent Role:** "MVP & Core Feature Scrutinizer."
- **Criteria:** Clear link between features and problem solved, focus on core MVP requirements, logical structure, completeness (for an initial outline), avoidance of feature creep.
- **Feedback Mechanism:** If the outline is too vague, misses critical functionality for the core problem, or is overly complex for an MVP, prompts the LLM to refine, prioritize, or simplify.

## Module 9: PRD Generation (Meta-Module)

- **Description:** Converts the Product Feature Outline (from Module 8) into a more structured, robust PRD for the proposed venture. (For StudioOS v1, this PRD will still be a detailed textual document, not a fully designed one).
- **Architecture Outline (n8n):**
  - LLM Node using the Product Feature Outline as primary input.
  - Prompted with a standard PRD template/structure (Introduction, Goals, User Stories, Features, Success Metrics, etc.).
  - LLM populates the sections of the PRD.
- **Input:** Product Feature Outline (Module 8), Venture Concept.

- **Logical Processing/Research:**
  - LLM expands on feature descriptions, elaborates on user stories, suggests initial success metrics for the NewCo's product.
  - Fills in other standard PRD sections based on available information.
- **Output:** A "Draft PRD Document" for the NewCo (text-based).
- **Next Step (Full Automation):** Roadmap Generation Module.
- **Validation Check Loop:**
  - **Agent Role:** "PRD Quality & Completeness Checker."
  - **Criteria:** Adherence to PRD structure, clarity, internal consistency, actionable detail for features, measurable success metrics (initial suggestions).
  - **Feedback Mechanism:** If sections are missing, unclear, or lack sufficient detail, prompts the LLM to elaborate, restructure, or add missing components based on the PRD template.

## **Module 10: Roadmap Generation (for NewCo Product)**

- **Description:** Generates a high-level product roadmap (e.g., for MVP, v1, v2 or quarterly) for the proposed venture.
- **Architecture Outline (n8n):**
  - LLM Node using the Draft PRD (Module 9) as input.
  - Prompted to consider dependencies, logical sequencing of features, and phased releases (MVP first).
- **Input:** Draft PRD for NewCo.
- **Logical Processing/Research:**
  - LLM groups features into releases.
  - Estimates relative effort/complexity (very high-level, e.g., S/M/L).
  - Suggests a timeline based on typical early-stage venture development cycles (which StudioOS aims to shorten).
- **Output:** "High-Level Product Roadmap" (e.g., phases, key deliverables per phase, estimated duration for each phase).
- **Next Step (Full Automation):** Business & Revenue Model Generation.
- **Validation Check Loop:**
  - **Agent Role:** "Agile Roadmap & Phasing Strategist."
  - **Criteria:** Logical sequencing, clear MVP focus, realistic phasing (given typical early-stage constraints), alignment with product goals.

- **Feedback Mechanism:** If roadmap is unrealistic, MVP is ill-defined, or dependencies are ignored, prompts LLM to re-prioritize, break down phases differently, or clarify MVP scope.

## Module 11: Business & Revenue Model Generation

- **Description:** Proposes potential business models (e.g., SaaS, marketplace, freemium, usage-based) and revenue streams for the venture concept.
- **Architecture Outline (n8n):**
  - LLM Node prompted with the Venture Concept, target market (from Module 6), competitive landscape (pricing models of competitors).
  - Instructions to consider various standard and innovative models.
- **Input:** Venture Concept, outputs from Modules 6 & 9.
- **Logical Processing/Research:**
  - LLM matches common business models to the product type and market.
  - Analyzes competitor pricing and models for benchmarks.
  - Suggests primary and potential secondary revenue streams.
  - Outlines key assumptions for each model.
- **Output:** "Business & Revenue Model Options" document:
  - 2-3 potential models with pros/cons for each.
  - Key pricing strategy considerations.
  - Potential revenue streams identified.
- **Next Step (Full Automation):** Financial Analysis Module.
- **Validation Check Loop:**
  - **Agent Role:** "Monetization & Business Model Viability Expert."
  - **Criteria:** Suitability of model to product/market, clarity of revenue streams, consideration of value proposition to customer willingness to pay, awareness of competitor models.
  - **Feedback Mechanism:** If models are inappropriate, poorly justified, or revenue streams are unclear, prompts LLM to explore alternatives, strengthen rationale, or provide more detail on pricing.

## Module 12: Financial Analysis (TAM/SAM/SOM & Projections)

- **Description:** Generates a preliminary market sizing (TAM, SAM, SOM) and high-level 36-month revenue projections based on the selected business model.
- **Architecture Outline (n8n):**

- LLM Node for estimation, potentially with Web Search nodes to find market reports or sizing data (or prompts for manual input of key market data points).
  - Excel Modeling Tool Call (or LLM generating spreadsheet formulas/data): To structure the projections. *For v1, this might be a textual outline of the Excel model structure and key drivers.*
- **Input:** Business & Revenue Model, Market Analysis (Module 6), user-provided assumptions (e.g., target customer acquisition rate, pricing points).
- **Logical Processing/Research:**
  - TAM: Estimate total market size.
  - SAM: Estimate serviceable market based on product focus and geography.
  - SOM: Estimate obtainable market share over 3 years (target).
  - Build a simple revenue model: Price x Volume, factoring in growth assumptions, churn (if applicable).
- **Output:** "Financial Overview & Projections":
  - TAM, SAM, SOM estimates with sources/assumptions.
  - Key assumptions for revenue model (pricing, user growth, conversion rates).
  - High-level 36-month revenue projection table (or structure for one).
- **Next Step (Full Automation):** Risk Assessment Module.
- **Validation Check Loop:**
  - **Agent Role:** "Financial Projections & Market Sizing Realist."
  - **Criteria:** Reasonableness of market sizing (and clear statement of top-down/bottom-up approach), logical consistency of revenue projections with business model and market assumptions, transparency of key drivers.
  - **Feedback Mechanism:** If sizing is unfounded, projections are overly aggressive/conservative without justification, or assumptions are hidden, prompts LLM to provide sources, break down calculations, or sanity-check against benchmarks.

## Module 13: Risk Assessment (Success/Failure Factors)

- **Description:** Identifies key reasons why the proposed venture could succeed or fail.
- **Architecture Outline (n8n):**
  - LLM Node synthesizing all previous information.

- Prompted to consider market risks, product risks, execution risks, competitive risks, financial risks.
- **Input:** All preceding module outputs for the Venture Concept.
- **Logical Processing/Research:**
  - LLM brainstorms potential challenges and critical success factors.
  - Categorizes risks and opportunities.
- **Output:** "Key Success Factors & Risk Analysis" document:
  - Top 3-5 reasons for potential success.
  - Top 3-5 potential reasons for failure/key risks.
  - (Optional for v1) Initial mitigation ideas for key risks.
- **Next Step (Full Automation):** Output Generation Module.
- **Validation Check Loop:**
  - **Agent Role:** "Critical Risk & Opportunity Identifier."
  - **Criteria:** Identification of most critical risks (not just generic ones), realistic assessment of success drivers, consideration of both internal and external factors.
  - **Feedback Mechanism:** If risks are too generic, miss obvious threats from market analysis, or success factors are weak, prompts LLM to be more specific, consider specific competitive threats, or focus on execution challenges.

## Module 14: Output Generation (Summary & Presentation)

- **Description:** Generates a concise summary presentation (e.g., outline for a Google Slides / PowerPoint, or a PDF document) and potentially very basic UI mockups (if feasible in v1) for the fully analyzed venture idea.
- **Architecture Outline (n8n):**
  - LLM Node to synthesize all outputs into a compelling narrative and key slides.
  - Presentation/PDF Generation Tool Call (e.g., using APIs like Google Slides API if simple enough, or tools that convert markdown/text to PDF).
  - Image Generation Tool Call (e.g., DALL-E, Midjourney API if available and cost-effective) for conceptual UI mockups or illustrative graphics, based on product descriptions. *This is ambitious for v1 and might be limited to textual descriptions of UIs.*
- **Input:** All module outputs for the Venture Concept.
- **Logical Processing/Research:**

- LLM extracts key information for a standard pitch deck outline (Problem, Solution, Market, Product, Team (placeholder), Business Model, Ask (placeholder)).
- Generates textual content for slides.
- (If UI mockups) LLM provides descriptive prompts to an image generation model.
- **Output:** An "Opportunity Package" containing:
  - All individual module report documents.
  - A consolidated Executive Summary.
  - A draft Pitch Deck Outline (text or basic PDF).
  - (Stretch for v1) Conceptual UI sketches/descriptions.
- **Next Step:** End of pipeline for this venture concept. Review by GoodFutures team.
- **Validation Check Loop:**
  - **Agent Role:** "Clarity & Impact Communicator."
  - **Criteria:** Coherent narrative in summary/presentation, accurate representation of the detailed findings, compelling articulation of the opportunity, professional (though automated) formatting.
  - **Feedback Mechanism:** If summary is unclear, misses key selling points, or presentation structure is illogical, prompts LLM to refine narrative, re-prioritize information, or improve structure.

## 6. Design Considerations (for StudioOS v1 within n8n)

- **User Interface:** The primary interface will be the n8n workflow canvas itself for the GoodFutures team to trigger workflows, monitor progress, and review outputs (which will be text files, JSON, or basic PDFs initially).
- **Modularity:** Workflows must be designed so individual modules can be run independently with manual inputs.
- **Error Handling & Logging:** Robust error handling within n8n for API failures, unexpected outputs, etc. Clear logging of each step's execution and validation feedback.
- **Configuration:** Easy to configure API keys, core assumptions (e.g., GoodFutures theses text), and parameters for each module (e.g., depth of research).

## 7. Release Criteria / Success Metrics (for StudioOS v1)

- **Functional:** All 14 core modules are implemented in n8n and can be run sequentially or individually.

- **Output Quality:** At least 3 end-to-end pipeline runs produce "Opportunity Packages" that the GoodFutures team deems 60-70% complete and usable as a strong foundation for further manual refinement (i.e., significantly reduces manual research time).
- **Validation Loop Effectiveness:** Validation check loops successfully identify and trigger re-runs for at least 50% of outputs initially flagged as subpar by human reviewers, leading to improved quality in the subsequent attempt.
- **Speed:** An end-to-end pipeline run for one concept completes within a predefined timeframe (e.g., 8-12 hours, considering LLM processing times and API limits – TBD).

## 8. Future Considerations / V2 Features

- More sophisticated UI/dashboard for managing StudioOS outside of n8n.
- Direct integration with data visualization tools.
- More advanced financial modeling capabilities.
- Automated generation of more polished UI wireframes or interactive prototypes.
- Learning loop where StudioOS improves its prompts and logic based on the success/failure of ventures it helped identify.
- Integration with internal knowledge base / CRM.
- Team collaboration features within StudioOS.