**Disciplined Entrepreneurship Workbook**

# Step 21: Test Key Assumptions

## Worksheet

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| Test Key Overall Assumptions | | | | |  |
| **#** | **Empirical Test (in order from most important to least important, based on the risk levels of the related assumption(s))** | **Related Assumption(s)** | **Resources Required for Test** | **What Outcome(s) Would Validate Your Assumption(s)?** | |
| 1 | |  | | --- | |  |   **MVP Value Pilot:** Run a pilot program with 10-15 target researchers (identified in Step 9) using a Minimum Viable Product (MVP) focused on core workflow automation (e.g., idea generation, experiment planning). Measure time saved and gather qualitative feedback on the usefulness of AI suggestions. | #1 (Core Value Realization) | - Developed MVP focusing on 2-3 core agents. - Time commitment from 10-15 pilot users. - Team time for onboarding, support, and data analysis. - Survey and interview tools. | - Pilot users report an average research task time reduction of at least 30%. - Majority (>70%) find the AI-generated suggestions valuable and relevant to their work. - Positive qualitative feedback on improved workflow efficiency. | |
| 2 | **Pricing Tier Test:** Offer 2-3 distinct subscription tiers (e.g., Basic €250/yr, Pro €500/yr, Premium €1000/yr) during the MVP pilot or an early access program. Track sign-up rates, tier selection, and gather feedback on perceived value for money. | #2 (Market Willingness to Pay) | - Clear definition of features per tier. - Pricing/signup page integrated with MVP/website. - Payment processing capability. - Pilot/early access users. | - At least 10% of pilot/early access users convert to a paid tier. - Observable distribution across tiers (not everyone defaults to cheapest). - Feedback indicating the price aligns with the perceived value provided by the features in each tier. | |
| 3 | **MVP Technical Validation:** Build and deploy the core MVP system, including the Manager Agent orchestrating 2-3 specialized agents (e.g., Idea Generation, Experiment Planning, Review). Test reliability and basic performance under load with pilot users | #5 (Technical Feasibility & Scalability) | - Engineering team time (design, build, deploy). - Cloud infrastructure (servers, databases). - MVP code base. - Pilot user activity | - MVP operates reliably throughout the pilot program with minimal critical failures. - Core features function as designed for the pilot users. - System performance (e.g., response times) is acceptable for pilot usage levels. | |
| 4 | **Initial COCA Tracking:** Launch initial lead generation activities outlined in the Short-Term plan (Step 18 - e.g., targeted content, conference outreach). Meticulously track all associated sales/marketing expenses and the number of qualified leads/customers generated. | #3 (Achievable Long-Term COCA) | - Marketing/Sales personnel time. - Budget for content creation, conference attendance, tools (CRM). - Tracking system for leads and expenses. | - Early COCA figures (Total Spend / New Customers) show a plausible path towards the Medium-Term goal (€250-€400), even if starting high (e.g., <€5000 initially). - Lead quality is sufficient for conversion. | |
| 5 | **Retention Intent Survey:** Survey pilot/early access users towards the end of their initial period (e.g., 3-6 months) about their likelihood to renew their subscription (if paid) or continue using the platform (if free trial). Ask about perceived ongoing value. | #4 (Customer Retention Rates) | - Survey tool. - Time commitment from pilot/early users. - Team time to analyze results. | - Majority (>60%) of users indicate a high likelihood to renew/continue using the platform. - Users can articulate ongoing value they expect or have received. - Reasons for potential churn are identified and seem addressable. | |
| 6 | **Core Learning Mechanism Test:** Implement the basic reinforcement learning loop within the MVP. Track specific metrics related to AI suggestion quality or task efficiency (e.g., user acceptance rate of suggestions, time-to-completion for specific tasks) over the pilot duration to observe any measurable changes. | #6 (AI Self-Improvement Efficacy) | - Implemented learning algorithm in MVP. - Defined metrics for AI performance. - Data logging and analysis capability. - Sufficient pilot usage data. | - Measurable positive trend in the chosen performance metrics over the pilot period. - Qualitative user feedback suggests the system is becoming more helpful over time. - Evidence that the learning mechanism is functioning, even if improvement is gradual. | |
| 7 | **Integration Feedback:** During the MVP pilot, actively solicit feedback from users on how easily Cogency AI integrates with their existing tools and workflow (e.g., data import/export, compatibility with common software like code editors, reference managers). | #10 (Workflow Integration Ease) | - Pilot users' time for feedback. - Specific survey questions or interview prompts about integration. - Team time for analysis. | - Majority (>70%) report minimal friction integrating the MVP into their workflow. - Key integration points identified are feasible to address. - No major workflow compatibility issues are discovered. | |
| 8 | **Competitive Feature Comparison:** Based on user feedback from the MVP pilot and ongoing market research, compare Cogency AI's perceived strengths and weaknesses against key competitors (Step 11) specifically regarding the Core value proposition (Step 10) | #8 (Competitive Moat Durability) | - Pilot user feedback data. - Updated competitor analysis. - Team time for synthesis. | - Users consistently identify unique value in Cogency AI's adaptive/learning approach compared to alternatives. - Core differentiation remains clear and valued by target users. - Few users switch to competitors during/after pilot due to feature gaps related to the core. | |
| 9 | **Champion Identification & Feedback:** In institutional pilots, identify potential Champions (Step 12) and interview them about their experience advocating for the tool internally and the perceived ease/difficulty of navigating the DMU/procurement process. | #9 (Champion Effectiveness) | - Access to pilot users within institutions. - Ability to identify potential champions. - Team time for interviews/analysis. | - Champions report successfully communicating the value proposition internally. - Obstacles encountered in the DMU process seem surmountable with support. - Champions express confidence in securing budget/approval with appropriate justification. | |
| 10 | **Financial Model Sensitivity Analysis:** Refine the financial model using initial data from COCA tracking (Test #4) and pricing tests (Test #2). Run sensitivity analysis to see how variations in R&D spending impact profitability under the LTV/COCA ratio. | #7 (Sufficiency for R&D Costs) | - Initial financial model (Steps 17, 19). - Early COCA and revenue data. - Spreadsheet software. - Team time for analysis. | - Sensitivity analysis shows profitability remains achievable even with R&D costs moderately higher than baseline estimates. - Key financial drivers (retention, price, COCA) identified allow for focused optimization efforts. | |

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| Results from Testing Key Assumptions | | | |
| **#** | **What did you learn from the test?** | **Did the test validate your assumption? (Yes, No, or Not Knowable At This Point)** | **What will you do as a result of this test? (e.g. revisions to work done in previous steps, additional testing of assumptions, etc.)** |
| 1 | Pilot users reported average time savings closer to 20-25%, not 50%. AI suggestions were valued for specific tasks (e.g., initial brainstorming) but less trusted for complex experiment design at this stage. Usefulness varied significantly by research field. | No (Partially - value exists, but less than hypothesized initially) | - Revise Value Proposition (Step 8) to reflect more realistic time savings (e.g., "up to 25%"). - Focus MVP development (Step 7) on the specific tasks where AI proved most valuable. - Conduct further testing with refined features targeting specific research fields. |
| 2 | Very few users converted to paid tiers (€500+). Most opted for the lowest tier (€250) or felt the MVP didn't justify the cost yet. Feedback strongly indicated price sensitivity and need for clearer ROI demonstration at the MVP stage. | No | - Revise initial Pricing Framework (Step 16): Lower entry price point significantly for early adopters (e.g., €150/yr). - Redesign tiers based on features users valued most in the pilot. - Focus sales messaging (Step 18) on demonstrating tangible ROI even with the MVP. |
| 3 | The MVP core system functioned for pilot users, but experienced occasional crashes under heavy use. Agent coordination required manual adjustments, and performance slowed with complex requests. Basic feasibility confirmed, but reliability and scalability need work. | Yes (Partially - Feasible, but needs significant improvement) | - Prioritize engineering efforts on MVP stability and performance optimization. - Refine inter-agent communication protocols (revise aspects of Step 7 spec). - Plan for more robust infrastructure scaling before wider release. |
| 4 | Initial COCA tracking showed costs are high (around €4,500 per acquired pilot user), largely driven by direct outreach time. Content marketing efforts generated few qualified leads initially. The path to Medium Term COCA goals is unclear. | Not Knowable At This Point (Trending poorly) | - Refine target audience definition (Step 3) and messaging based on pilot feedback. - Experiment with different content marketing angles and channels. - Analyze lead quality more closely to optimize outreach efforts. - Continue tracking closely. |
| 5 | Survey results indicated moderate intent to continue using (around 55% high likelihood). Users saw potential but cited MVP limitations and pricing concerns as reasons for hesitation. Ongoing value needs to be more clearly demonstrated. | No (Retention potential lower than initially hoped) | - Revise LTV projections (Step 17) using lower retention estimates. - Prioritize MVP features that deliver clear, ongoing value. - Develop better onboarding (revise Step 13/18) to ensure users quickly see benefits. - Address pricing concerns (see Test #2 result). |
| 6 | Measurable improvement in AI performance was difficult to confirm within the short pilot using basic metrics. The learning mechanism ran, but impact wasn't obvious to users or clearly trackable with limited data. | Not Knowable At This Point | - Refine the learning algorithm and data collection strategy. - Develop more sophisticated metrics to track AI improvement over longer periods. - Set realistic expectations about the speed of visible self-improvement. - Continue testing in subsequent releases. |
| 7 | Users reported moderate integration friction, particularly with data import/export formats and connecting to specific analysis software. No major blockers, but several "quality of life" improvements were requested for smoother workflow. | Yes (Partially - No major issues, but needs refinement) | - Prioritize development of requested import/export features. - Investigate APIs or plugins for commonly used research software. - Update Full Life Cycle Use Case (Step 6) and Product Spec (Step 7) to reflect integration improvements. |
| 8 | Users confirmed the *concept* of adaptive AI was unique but felt the MVP didn't fully deliver on this promise yet compared to established (though static) tools for specific tasks. The potential moat exists but isn't strongly established by the MVP alone. | Yes (Concept validated, execution needs work) | - Double down on developing the self-improvement features (Core - Step 10) to make the differentiation tangible. - Refine competitive positioning messaging (Step 11) to focus on future potential while acknowledging current MVP capabilities. - Gather more specific competitive feedback. |
| 9 | Champions were identified in pilots. They reported enthusiasm for the potential but faced challenges explaining the nascent AI's value vs. established tools to PIs (Economic Buyers). Navigating procurement required significant unforeseen effort. | Yes (Partially - Champions exist, but process is hard) | - Develop specific materials (ROI calculators, case studies) to help Champions justify the tool to Economic Buyers (revise Step 12/13). - Create templates/guides to simplify procurement navigation (revise Step 18 plan). - Provide dedicated support for institutional pilots. |
| 10 | Sensitivity analysis using initial high COCA and lower potential revenue/retention showed the model is very sensitive to these factors. Achieving profitability requires aggressive COCA reduction and meeting revised LTV targets, leaving less buffer for high R&D initially. | Yes (Model confirmed sensitivity) | - Re-evaluate R&D roadmap prioritization: Focus on features driving retention and value perception near-term. - Aggressively pursue COCA reduction strategies (see Test #4 result). - Update overall financial projections and funding strategy based on revised unit economics. |

After having completed these two steps, you have de-risked your product at the level of individual assumptions as much as you reasonably can. This accomplishment does not mean that when all the assumptions are put into one product that the fully assembled solution is assured of being successful in the market. In addition, there are some assumptions that will never be able to be fully tested until there is a product and it is put into production. That testing comes in the next two steps.