

THE AI PRECIPICE

An Executive Guide to Balancing AI Innovation and Safety

Board Director and Executive Discovery Toolkit

Toolkit #3

AI Model Stages

Quality Control Questions



INSTRUCTIONS

Toolkit Value

- To equip senior leaders from diverse industries and backgrounds, for-profit or not-for-profit, and all industries to advance their strategy, governance, and risk/compliance measurement systems to achieve value realization from their investments in AI.
- Toolkit #3 provides a set of questions relevant to the life cycle of AI model development to guide working teams to manage their AI projects, practice responsible AI approaches, and balance innovation and safety.
- The risks are high with AI investments: With over 85% of organizations struggling to sustain AI in their organizations, The AI Precipice book offers leaders precise guidance to achieve the value from AI and successfully balance AI innovation and safety.

Starting Gate

Read: ***The AI Precipice: An Executive Guide to Balancing AI Innovation and Safety.***

Toolkit Audience

- Senior Executives (Board Directors, CEOs, and Leadership Teams, AI Solutioning Teams)
- Diverse Industries are explored in this book, i.e., Education, FSI, Government, HealthCare, HighTech, Manufacturing, Pharma, Telecom, etc.
- Small businesses to Large Enterprises, as AI is crucial for all businesses to advance with strong AI foundations for competitive advantage and business survival.
- Content is particularly relevant to private or public organizations, but still has relevance to the not-for-profit sector, especially for government organizations, covered extensively in this book

Toolkit Overview

- This toolkit identifies the AI model development stages and the associated questions that leaders and AI solutioning teams should be answering at each stage of the AI model life cycle, reliability, and ethical considerations.
- By addressing these critical inquiries at each phase – from data collection and preprocessing to model training, evaluation, and deployment – organizations can enhance the integrity of their AI systems and ensure they meet both technical and ethical standards.

Get in Touch

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Table 1.0 – AI Model Stages and AI Quality Control Questions

Stage #	AI model stage	Key quality control questions
1	Problem identification	1. Does the problem align with your strategic objectives? 2. What value is the AI expected to generate? 3. Have diverse stakeholder perspectives been factored into the problem and the proposed solution? 4. Has a full-cost estimate across the full AI solution's lifecycle been conducted? 5. How does the proposed AI solution align with current capabilities and resources?
2	Data collection and processing	1. What form of data will the AI system require, and how will it be sourced? 2. Are privacy laws adhered to during the data collection process? 3. Does the data represent the diverse demographics the model will serve? 4. How is your AI data bias being tested, and if risks are identified, how are these being addressed? 5. Is the data subject to regular quality review checks, leveraging third-party risk review experts?
3	Model development and training	1. Have the appropriate AI model types been thoroughly evaluated for the identified problem and specific requirements? 2. Does the level of explainability of the model match the business's need to interpret and defend the AI's decisions? 3. Are model fairness and bias mitigation considerations integrated into the model training? 4. What measures are applied to test and validate the model's performance, and are they inclusive of responsible AI requirements?
4	Model testing and validation	1. How does the model's performance on the validation dataset compare to the training dataset? 2. Are fairness and bias being evaluated and documented in model validation reports? 3. Are the model's outcomes explainable and transparent to non-technical stakeholders? 4. Is stress testing being performed under diverse and adversarial scenarios to evaluate the model's robustness? 5. Are there robust model versioning controls tracking different model reviews, model research methods, testing outcomes, end users

		involved in controls, forging a robust audit trail of AI model testing and validation practices?
5	Post-deployment monitoring	1. Is the model introduced into production incrementally to test it under production conditions? 2. Is there a robust, real-time monitoring system in place to track the AI system's performance post-deployment? 3. Does the AI monitoring include observability metrics to monitor the AI system's behaviour against acceptable boundary conditions? 4. Have threshold values for performance metrics been set to trigger alerts for potential issues or drifts? 5. Is stakeholder feedback used to continually improve the model and respond to changing user needs or societal norms?
6	Retirement and cataloguing	1. What are the indicators that signal the need for an AI system's retirement or replacement? 2. What are the financial or operational implications of maintaining the existing AI system versus retiring it? 3. Are there established protocols for the safe decommissioning of AI systems, ensuring data privacy and compliance with regulations?