

AI + Program Director Practitioner

Program Detailed Curriculum



Executive Summary

The AI+ Program Director Practitioner certification equips leaders with the skills to design, implement, and oversee AI-driven initiatives across organizational functions. This program provides strategic expertise in AI governance, project planning, ethical deployment, and cross-functional coordination. Participants learn to align AI solutions with business goals, manage multidisciplinary teams, and ensure responsible, compliant AI adoption. By mastering both technical foundations and executive-level decision-making, certified professionals can drive innovation, optimize operations, and guide their organizations through successful AI transformation.

Prerequisites for the AI+ Program Director Practitioner Course:

- **AI Fundamentals:** Basic AI/ML concepts and terminology familiarity.
- **Project Management:** Experience managing projects, timelines, and stakeholders
- **Business Strategy:** Understanding of business strategy and KPI-driven decision-making.
- **Governance & Compliance:** Working knowledge of data privacy, risk, and compliance.
- **Leadership & Change:** Comfort with cross-functional leadership and change management.

Module 1

Foundations of AI for Program Strategy – Introduction

1.1 Understanding of AI, ML, and Deep Learning

- **Introduce AI, Machine Learning, and Deep Learning :** Core definitions of AI, ML, and DL, including distinctions, relationships, and where each fits in real-world systems. Relevance for program leadership emphasized through practical examples and decision-oriented interpretation.
- **Discuss How AI Learns from Data to Automate Decision-Making:** The learning pipeline behind AI decision-making, covering data collection, preprocessing, training, testing, and deployment. Real examples such as churn prediction, fraud detection, and healthcare support illustrate automation value.

1.2 AI Lifecycle & Real-World Applications

- **Overview of AI Project Lifecycle: Data Collection, Model Training, Deployment:** A practical overview of lifecycle stages from raw data to deployed models. Program oversight considerations, such as alignment to business goals, validation readiness, and monitoring for performance drift included.
- **Example: AI in Healthcare Triage Systems (Improving Patient Care, Reducing Wait Times):** A real-world healthcare triage scenario showing symptom analysis, urgency classification, and workflow prioritization. Benefits across wait-time reduction, resource optimization, and improved consistency in initial patient assessment.

1.3 Societal Impact of AI

- **Discuss AI's Role in Societal Challenges: Global Development, Sustainability:** AI-driven impact across sustainability and global development, including energy optimization, climate modeling, precision agriculture, and improved access to education and healthcare in underserved regions.
- **Showcase Cross-Industry Applications of AI:** Cross-industry transformation enabled by AI across healthcare, finance, retail, manufacturing, transportation, and energy. Common value themes include automation, personalization, predictive analytics, and smarter decision workflows.

1.4 Use Case: Triage System (AI for Emergency Services)

- An emergency-services triage use case centered on real-time symptom intake, risk scoring, and prioritization. Operational outcomes include faster routing, improved accuracy, scalable deployment, and reduced workload bottlenecks.

1.5 Case Study: Retail Recommendation System (Personalizing Customer Experience)

- A large-scale retail personalization case illustrating behavior-driven recommendations and continuous feedback loops. Business outcomes include improved engagement, higher conversions, stronger retention, and scalable real-time suggestions.

1.6 Hands-on: Use Teachable Machine to Build a Simple AI Classifier

- A guided Teachable Machine activity focused on building an image classifier without coding. Learning outcomes include dataset preparation, labeling discipline, accuracy interpretation, misclassification review, and data-quality awareness.

Module 2

Identifying AI Opportunities & Use Cases

2.1 Introduce AI Strategy Alignment Frameworks: AI Canvas, Value vs Feasibility Matrix

- Explain how AI Canvas structures problem, data, model, metrics, stakeholders, and deployment, while Value vs Feasibility Matrix ranks initiatives by impact and practicality, ensuring AI projects align with business strategy.

2.2 Discuss Signs that a Process May Benefit from AI: Repetitive Tasks, Data-Rich Environments, Personalization Needs

- Identify AI opportunities by spotting repetitive manual work, environments generating large datasets, and situations needing personalization. Show how automation, predictive insights, and tailored recommendations improve efficiency, accuracy, and customer outcomes.

2.3 Prioritization Techniques: Weighted Scoring, Risk-Adjusted ROI

- Teach weighted scoring by selecting criteria, assigning weights, scoring projects, and ranking totals. Introduce risk-adjusted ROI to compare returns after accounting for uncertainty, enabling smarter, defensible AI investment choices.

2.4 Use-Case: Financial AI – Fraud Detection Systems

- Describe how machine learning detects anomalies in transactions using historical fraud patterns and real-time signals. Emphasize reduced false alerts, faster intervention, adaptability to evolving threats, and improved security and trust.

2.5 Case Study: AI-Driven Project Management System for Program Directors

- Present an AI project-management scenario where predictive analytics and automated resource allocation improve utilization, reduce delays, and strengthen decisions. Highlight measurable gains in productivity, on-time delivery, and workflow transparency.

2.6 Hands-on: Use Trello to Prioritize AI Opportunities within a Given Scenario

- Guide learners to build a Trello board, create use-case cards, define evaluation checklists, score initiatives, apply weights, label priorities, and move cards by status—practicing structured decision-making and stakeholder collaboration.

Module 3

Governance & Ethics in AI

3.1 Responsible AI Principles

- **Explain Fairness, Accountability & Transparency in AI:** Define Fairness, Accountability, and Transparency (FAT) and explain why they form the core of Responsible AI. Explore how each principle supports ethical outcomes, stakeholder trust, regulatory compliance, and governance.
- **Introduce Governance Models & Regulations (EU AI Act, NIST):** Introduce AI governance models and regulations, focusing on EU AI Act and NIST AI RMF. Explain risk-based classification, compliance expectations, documentation duties, and practical risk management to operationalize Responsible AI.

3.2 AI Bias & Risk Mitigation

- **Sources of Bias in AI: Data, Algorithms, Human Oversight:** Examine sources of AI bias including data imbalance, sampling issues, proxy variables, algorithmic bias, and human decision bias. Show how bias accumulates across lifecycle stages and impacts real-world outcomes.
- **Techniques for Mitigating Bias: Diverse Datasets, Bias Testing, Human-in-the-Loop:** Teach bias mitigation using diverse datasets, fairness metrics, bias testing, model constraints, and human-in-the-loop controls. Cover audits, monitoring cycles, documentation, and governance mechanisms that reduce harm sustainably.

3.3 Use-case: Auditing Bias in AI-Powered Recruitment to Ensure Fair Hiring

- Audit an AI recruitment screening tool for fairness by comparing selection rates, error gaps, and threshold impacts across groups. Identify proxies, mitigate bias, add human review, and document decisions transparently.

3.4 Case Study: Mitigating Algorithmic Bias in Credit Scoring Models to Ensure Fair Lending Practices

- Study biased credit scoring in a bank and apply remediation: feature review, dataset rebalancing, fairness constraints, and human oversight. Validate improvements using before-after metrics and continuous monitoring processes.

3.5 Hands-on: Use Google's What-If Tool in Google Colab to Evaluate Model Fairness and Bias

- Use Google's What-If Tool to explore predictions by demographic slices, test counterfactual changes, run threshold sweeps, and interpret fairness metrics. Produce a short governance recommendation memo for leadership.

Module 4

AI Project Lifecycle & Integration

4.1 AI Project Planning & CRISP-DM

- **Discuss the CRISP-DM Methodology:** Problem Definition, Data Preparation, Modeling, Evaluation: CRISP-DM provides a structured lifecycle for AI projects, guiding teams through defining problems, preparing data, building models, and evaluating outcomes to ensure accuracy, fairness, business alignment, and iterative improvement across all project phases.

4.2 Integration: Build vs Buy vs Partner

- **Criteria for Choosing Between Custom-Built AI Solutions, Off-the-Shelf Models, and Vendor Partnerships:** This section explains how organizations evaluate customization, cost, scalability, governance, data control, expertise, and time-to-market to choose appropriately between building AI in-house, purchasing ready solutions, or partnering with specialized AI vendors.

4.3 AI Project Management Tools

- **Introduce Project Management Tools like Jira and Asana for Managing AI Project Timelines, Tasks, and Resources:** Jira and Asana streamline AI project coordination by organizing tasks, automating workflows, tracking metrics, enabling cross-functional collaboration, and ensuring alignment with CRISP-DM milestones, fairness reviews, compliance checks, and deployment progress across teams.

4.4 Use Cases: AI for Predictive Maintenance

- Predictive maintenance use cases demonstrate how KNIME, Orange, and Google's no-code ecosystem enable organizations to analyze sensor data, generate risk predictions, visualize machine health, reduce downtime, and empower non-technical teams with accessible AI tools.

4.5 Tool-Based Hands-on Activity: Simulate an AI Project in Asana, Creating Task Lists and Sprints to Outline the AI Project Lifecycle

- Learners practice structuring an AI project in Asana by creating lifecycle-based sections, assigning tasks, defining priorities, tracking dependencies, visualizing workflows, and managing progress from data preparation to deployment, mimicking real-world AI program oversight.

Module 5

Data Strategy & Infrastructure for AI

5.1 Data Governance & Quality

- **Discuss the Importance of Data Governance, Stewardship, and Data Quality Management:** Strong governance, stewardship, and quality management ensure AI systems rely on accurate, compliant, secure, and consistently maintained data. These practices reduce bias, improve reliability, support regulatory requirements, and enable trustworthy AI decision-making across the enterprise.

5.2 Setting Up Data Pipelines for AI

- **Overview of Building and Managing Data Pipelines Using Cloud Platforms like AWS or Azure:** Cloud-based pipelines automate data ingestion, transformation, storage, and delivery for AI. AWS and Azure streamline scalable workflows, ensure governance, support real-time processing, and integrate seamlessly with machine learning environments for continuous, dependable model training.

5.3 Sensitive Data Management

- **Discuss Privacy-by-Design, Anonymization, and Federated Learning for Managing Sensitive Data in AI Systems:** Privacy-by-design embeds protection into system architecture, anonymization removes identifiable attributes, and federated learning enables decentralized model training. Together, they safeguard sensitive data while enabling compliant, secure, and collaborative AI development across regulated industries.

5.4 Use Case: Retail Inventory System: AI-driven Restocking and Demand Prediction

- AI-driven demand forecasting analyzes sales trends, customer behavior, supplier timelines, and external factors to automate restocking. This improves accuracy, reduces waste, increases availability, enhances operational efficiency, and supports data-driven retail inventory optimization.

5.5 Case Study: Healthcare Data Security: Managing Patient Privacy in AI-Based Healthcare Systems

- A privacy-preserving AI approach using federated learning, anonymization, and privacy-by-design enables hospitals to train accurate models without exposing patient data, ensuring HIPAA/GDPR compliance, improving model performance, and strengthening multi-site healthcare collaboration.

5.6 Tool-Based Hands-on Activity: Set Up a Simple Airbyte Cloud Pipeline for AI Data Integration

- Learners build a no-code data pipeline using Airbyte Cloud to ingest CSV data, sync it into Google Sheets, and automate updates—demonstrating real-time data flow, transformation, and accessibility for AI-driven analysis and reporting.

Module 6

AI Integration — Build vs Buy vs Partner

6.1 Evaluating AI Solutions

- **Evaluate When to Build Custom AI Models, Buy Off-the-Shelf Solutions, or Partner with AI Vendors:** This subheading explores strategic decision-making for selecting AI integration paths by comparing customization needs, costs, scalability, talent requirements, data sensitivity, and time-to-market, helping organizations choose the most effective and sustainable AI adoption approach.

6.2 Vendor Evaluation & Management

- **Use Evaluation Scorecards to Assess Vendor Proposals Based on Accuracy, Scalability, Cost, and Support:** Learners apply structured scorecards to objectively compare AI vendors, weighting accuracy, scalability, cost, and support to identify optimal solutions. This framework ensures transparent, data-driven selection aligned with business priorities and long-term integration needs.

6.3 Use Case: AI Vendor Selection: Choosing Predictive Maintenance Solutions for a Manufacturing Plant

- This subheading examines evaluating predictive maintenance vendors by testing algorithm accuracy, integration readiness, scalability, and cost. Learners compare proposals using weighted scoring to select the most efficient and future-ready AI vendor for industrial operations.

6.4 Tool-Based Hands-on Activity: Use a Vendor Selection Template to Evaluate AI Vendors for a Use Case

- Learners build a Google Sheets scorecard, assign weights, score vendors, calculate totals, and rank options. The exercise reinforces objective vendor comparison, procurement decision-making, and structured evaluation for real-world AI solution selection.

Module 7

AI Risk Management & Compliance

7.1 Regulatory Frameworks

- **Overview of AI Regulatory Frameworks:** EU AI Act, GDPR, NIST AI RMF: This subheading introduces major global AI regulations, explaining how each framework governs risk classification, privacy, transparency, and accountability, ensuring organizations deploy AI systems ethically, safely, and in compliance with evolving legal and governance standards.

7.2 Bias Detection & Mitigation

- **Discuss the Detection and Mitigation of Bias Across Different Stages of AI Deployment:** Learners examine how bias emerges in data, modeling, evaluation, and deployment, applying fairness metrics, bias audits, and mitigation techniques to ensure equitable, accountable AI systems that perform reliably across demographic groups throughout the lifecycle.

7.3 Use Case: Facial Recognition Bias: Examining Bias in Law Enforcement Systems

- This subheading explores how biased facial recognition harms marginalized groups, analyzing dataset imbalance, algorithmic disparities, governance gaps, and mitigation strategies to ensure law enforcement AI remains transparent, fair, accurate, and ethically deployed.

7.4 Case Study: AI in Finance: Ensuring Compliance with Financial Regulations in AI Deployments

- Learners review a real banking case requiring transparency, fairness, and auditability. They assess bias reduction, explainability tools, and regulatory alignment strategies essential for deploying compliant, trustworthy AI systems in highly regulated financial environments.

7.5 Tool-Based Hands-on Activity: Bias Testing & Fairness Evaluation Using KNIME and PAIR Facets Explorer

- Participants train a simple model, generate predictions, and visualize subgroup disparities using no-code tools, learning to detect, interpret, and respond to fairness gaps essential for responsible AI oversight and compliance assurance.

Module 8

AI Tools & Techniques for Project Management

8.1 AI Project Management Tools

- **Introduce Tools for Managing AI Projects:** Trello, Monday.com, Asana, Jira: Learners explore how these platforms support AI workflows by organizing tasks, tracking model iterations, visualizing dependencies, automating updates, and enhancing cross-functional collaboration throughout the AI lifecycle for structured, transparent, and efficient project execution.

8.2 Data Management Tools

- **Explore Data Management Tools like AWS, Azure, and Google Cloud for Hosting and Managing AI Data:** This subheading examines cloud platforms enabling scalable data storage, transformation, governance, and integration with machine learning workflows, ensuring AI teams manage large datasets securely, reliably, and efficiently from ingestion to model deployment.

8.3 Case Study & Use Case

- **Case Study:** AI Workflow Management: Using Project Management Tools for AI Deployment in the Retail Sector: Learners analyze how structured workflows, cross-team visibility, automated task tracking, and standardized templates accelerate AI deployment in retail, improving alignment, reducing delays, and ensuring models integrate effectively across merchandising, data, and operations teams.
- **Use Case:** AI Workflow Management: Using Project Management Tools for AI Deployment in Retail Sector: This subheading demonstrates how tools like Asana streamline AI deployment steps—data preparation, modeling, validation, and monitoring—reducing bottlenecks, enhancing communication, and ensuring synchronized execution across technical and business stakeholders in retail environments.

8.4 Tool-Based Hands-on Activity: Use Asana to Simulate Project Timelines, Setting Up Tasks and Milestones for an AI Initiative

- Learners create lifecycle-based sections, tasks, subtasks, dependencies, and milestones in Asana, practicing real-world AI project coordination while visualizing progress through timelines, dashboards, and workload views to strengthen project management competency.

Module 9

Leadership in AI

9.1 Leading AI Teams & Change Management

- **Leadership Strategies for Managing AI Projects and Driving AI Adoption Across Teams:** This subheading covers leadership approaches for guiding cross-functional AI teams, managing uncertainty, fostering innovation, building responsible AI practices, overcoming resistance, and aligning business and technical goals to ensure successful, organization-wide AI adoption and transformation.

9.2 Managing Stakeholders & Communication

- **Best Practices for Communicating AI Progress to Stakeholders and Executives:** Learners explore structured reporting, tailored messaging, dashboard-based updates, AI storytelling, risk transparency, and communication cadences that help leaders translate technical progress into business value, strengthen trust, and drive alignment among diverse stakeholder groups.

9.3 Use Case: AI in Manufacturing: Leading AI Implementation in a Large-Scale Manufacturing Operation

- This subheading highlights leadership responsibilities in coordinating predictive maintenance AI initiatives across plants, orchestrating cross-functional teams, managing change, communicating value, mitigating risks, and ensuring measurable operational improvements in complex manufacturing environments.

9.4 Tool-Based Hands-on Activity: Use Miro to Map Stakeholder Communication Strategies and Identify Key Influencers

- Learners build a Miro stakeholder map, analyze influence-interest levels, define communication needs, identify key influencers, and design targeted communication strategies to support transparent, effective, organization-wide AI adoption and leadership-driven change management.

Module 10

Scaling AI Initiatives

10.1 From Pilot to Full-Scale Deployment

- **Discuss the Challenges of Scaling AI Projects from Pilot to Enterprise-Wide Deployment:** This subheading explores complexities in scaling AI—data volume growth, legacy integration, performance demands, governance requirements, organizational readiness, and continuous monitoring—ensuring leaders understand obstacles and strategies essential for successful enterprise-wide expansion.

10.2 Organizational Maturity Models for AI:

- **Explore AI Maturity Models to Assess Readiness for Scaling AI Projects:** Learners examine maturity frameworks assessing data readiness, governance, infrastructure, talent, and leadership alignment, enabling organizations to identify capability gaps, evaluate AI adoption stages, and build structured roadmaps for scaling AI solutions effectively and sustainably.

10.3 Use Case: Scaling AI in Retail: Scaling AI-Driven Recommendations from One Store to a Global Chain

- This subheading analyzes how retailers expand personalized recommendation systems by addressing data integration, infrastructure scalability, compliance, and user experience consistency, demonstrating the operational, technical, and business impacts of global AI deployment.

10.4 Tool-Based Hands-on Activity: Create a Scaling Roadmap Using Lucidchart, Outlining Key Steps in Scaling AI Initiatives

- Learners design a Lucid chart roadmap visualizing milestones, dependencies, infrastructure upgrades, governance steps, change management actions, and monitoring processes, reinforcing structured planning required to scale AI initiatives across diverse regions and business units.

Module 11

Future Trends in AI

11.1 Emerging AI Technologies

- **Explore New Developments in Generative AI, Edge AI, Multi-Agent Systems, and AI Governance Tools:** This subheading introduces next-generation AI innovations transforming enterprise operations—creative generative models, real-time edge intelligence, collaborative multi-agent automation, and governance frameworks ensuring transparency, safety, compliance, and responsible adoption across rapidly evolving AI ecosystems.

11.2 Use Case / Case Study: AI in Autonomous Vehicles: The Future of AI in Self-Driving Cars

- **Use Case: AI in Autonomous Vehicles: The Future of AI in Self-Driving Cars:** Learners examine how AI powers perception, prediction, navigation, and real-time decision-making in autonomous vehicles, enabling safer transport, efficient logistics, adaptive routing, pedestrian detection, and large-scale fleet optimization across complex, dynamic environments.
- **Case Study: AI in Autonomous Vehicles: The Future of AI in Self-Driving Cars:** These case studies demonstrate how advanced perception, sensor fusion, predictive risk intelligence, and governance frameworks significantly improve autonomous vehicle safety, routing, efficiency, and regulatory readiness through real-time decision-making, continuous learning, and multi-agent optimization.

11.3 Tool-Based Hands-on Activity: Explore Hugging Face’s Transformers for NLP and TensorFlow for Deep Learning Applications

- Participants perform no-code sentiment analysis, prototype deep-learning classifiers, compare text and image sentiment models, and gain practical exposure to modern AI tooling, reinforcing foundational skills for evaluating and experimenting with emerging AI applications.

Module 12

Capstone Project & Presentation

12.1 Capstone Project Overview

- **Teams will develop an AI strategy proposal for a chosen organization or sector:** Learners design a comprehensive AI strategy applying all modules—opportunity identification, governance, data readiness, modeling, vendor evaluation, scaling, and ethical compliance—producing an executive-ready proposal supported by structured templates and real-world frameworks.

12.2 Presentation & Feedback: Participants present their capstone project to peers and instructors for feedback

- Participants deliver structured AI strategy presentations, demonstrate tool usage, defend decisions, and receive peer and instructor feedback, strengthening communication, leadership, stakeholder engagement, and real-world readiness through evaluation rubrics and constructive critique processes.

12.3 Final Review & Certification - Method, Process, and Feedback Mechanism

- Learners undergo final assessment on business alignment, technical rigor, governance quality, feasibility, and presentation clarity, integrating feedback to refine their proposal and demonstrate readiness for AI program leadership and certification completion.