

Building Agentic AI Workflows with Cloudera AI



Course Overview

Course Type
Instructor-led training

Level
Intermediate

Duration
2 days

Platform
Cloudera AI

Topics Covered

- **Agentic AI** fundamentals and Cloudera Agent Studio **workflow design**
- Enterprise data preparation using **CDW, Hue, Hive, and Parquet**
- **Multi-agent orchestration** with roles, goals, tasks, tools, and Manager Agents
- External tool integration with **Web Search, Web Scraper, Slack, Gmail, APIs, and custom tools**
- **MCP server creation, registration,** and enterprise data access using **Iceberg MCP**
- Real-world workflows for **banking personalization, telecom retention, AI research delivery, Air-quality investigation**
- Retail, Healthcare & Smart City**

About this training

This 2-day instructor-led course provides a hands-on introduction to building enterprise-ready Agentic AI workflows using Cloudera AI and Agent Studio. Participants will prepare enterprise datasets, build multi-agent workflows, integrate tools and MCP servers, and implement real-world use cases across banking, telecom, AI research, idea generation, and environmental intelligence.

Business Value

Organizations are rapidly adopting Generative AI and agentic workflows to automate business processes, connect enterprise data with intelligent systems, and improve decision-making. This course helps teams move beyond simple prompt-based AI by building practical multi-agent workflows using Cloudera Agent Studio.

Key benefits include:

- Accelerate enterprise AI adoption with low-code agent development
- Integrate AI workflows with enterprise data using CDW and MCP
- Automate research, reporting, recommendations, and investigation workflows
- Improve operational efficiency through multi-agent orchestration
- Build real-world AI solutions across finance, telecom, reporting, and environmental intelligence use cases

What Skills You Will Gain

By the end of this training, participants will be able to:

- Prepare enterprise datasets using CDW, Hue, Hive, and Parquet
- Build and orchestrate multi-agent workflows in Agent Studio
- Configure agents with tools, roles, goals, and task workflows
- Integrate external services such as APIs, Slack, Gmail, and Web tools
- Build and register MCP servers for enterprise data access
- Test, deploy, and monitor real-world agentic AI solutions across multiple business use cases

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Enterprise Use Cases

Financial Services: SmartBank AI

- Builds an MCP-powered banking personalization workflow that analyzes customer, transaction, product, and market data to deliver context-aware financial recommendations.

Telecommunications: SmartTel AI

- Builds a telecom retention workflow that detects churn signals from subscriber and usage data and recommends personalized offers or loyalty actions.

Business Process Automation: AI News Research and Delivery

- Automates research, summarization, and business update delivery through multi-agent workflows integrated with Slack and Gmail.

Environmental Intelligence: Air Quality Investigator

- Builds a custom-tool-driven investigator workflow that retrieves geospatial, weather, and air-quality data to generate actionable environmental insights.

AI Innovation and Ideation

- Uses agentic workflows to analyze business problems, generate solution ideas, and propose monetization strategies.

Retail: SmartRetail AI

- Builds a retail intelligence and optimization workflow that monitors inventory and sales patterns, predicts demand fluctuations, detects supply chain risks, and recommends personalized customer engagement and pricing strategies.

Healthcare: CliniqAI

- Builds an intelligent clinical handover workflow that processes patient admission and vitals data, prioritizes high-risk cases, detects medication safety concerns, and generates structured clinical summaries and actionable shift handover reports for healthcare teams

Smart City: TrafficSense AI

- Builds a real-time urban mobility intelligence system that analyzes traffic, weather, air quality, and road closures across city districts to deliver instant peak-hour mobility insights from a single natural language query.

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Foundation Lab: Data Preparation for Analysis

- Create enterprise datasets in Cloudera Data Warehouse using Hue, Hive, SQL, and Parquet tables.
- Prepare banking, retail and telecom data required for later Agent Studio and MCP-based use cases.

Introduction to AI Agent & Agent Studio

- Evolution to Agentic Systems.
- Agentic Systems Architecture
- The Journey to Agent Adoption
- Architecture & Tech of Agent studio
- Hands on lab: Create Agents, tools using Agent studio

Automating AI News Research and Delivery Using Multi-Agent Architecture

- Build a multi-agent news research workflow using Manager, Search, Scraper, and Slack agents.
- Automate information discovery, summarization, and real-time delivery to Slack.

AI Idea Generation Workflow

- Build a task-based workflow that analyzes a topic, identifies problems, and generates solution ideas.
- Use agents to support business ideation, strategy, and monetization planning.

Multi-Agent AI Workflow for News Research and Email Delivery

- Create an end-to-end workflow for web research, insight analysis, and professional email reporting.
- Integrate Web Search, Web Scraper, and Gmail SMTP tools for automated email delivery.

Build Your First MCP Server

- Create a Python-based MCP server with calculator tools such as add and multiply.
- Register and test the MCP server inside Cloudera Agent Studio.

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08 — SmartBank AI: Intelligent Personalization with Agentic AI

- Builds an MCP-powered banking personalization workflow that analyzes customer profiles, transaction history, product offerings, and market data using the Iceberg MCP Server.
- Four specialist agents — Customer Intelligence, Behavioral Intelligence, Product Intelligence, and Market Intelligence — collaborate under a conversational Manager Agent.
- Detects cross-sell and upsell opportunities, identifies churn risk signals, and recommends context-aware financial products from live enterprise Iceberg tables.

Air Quality Investigator System with Agentic AI

- Builds a custom-tool-based sequential workflow that retrieves geospatial, weather, and air-quality data using five coordinated agents and custom Python tools.
- Uses OpenAQ API (requires student-registered free key) for PM2.5, PM10, NO2, SO2, and O3 data; combines weather and AQI data to generate structured environmental insights and health recommendations.

Telecommunications: SmartTel AI — Intelligent Customer Retention with Agentic AI

- Builds a telecom retention workflow that detects churn signals from subscriber profiles, usage history, product offers, and competitor market data via Iceberg MCP.
- Specialist agents analyse usage drops, plan mismatches, and sentiment patterns to recommend personalised loyalty offers or escalation actions.

Retail: SmartRetail AI — Intelligent Supply Chain & Customer Experience

- Builds a retail intelligence workflow using five Iceberg tables (inventory, sales_transactions, supplier_data, customer_profiles, product_catalog) with five parallel specialist agents.
- Monitors live stock levels, forecasts demand by category, flags high-risk suppliers by delivery rate and rejection ratio, and recommends cross-sell actions from customer loyalty and purchase history.
- Market Trend agent scrapes competitor deals using a custom web scraper tool; Manager Agent synthesises all five results into a unified retail health advisory.

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Healthcare: CliniqAI — Intelligent Patient Flow & Clinical Decision Support

- Builds a sequential pipeline workflow (no Manager Agent) where five agents chain outputs in strict order: Patient Intake → Triage Assessment → Drug Safety Check → Clinical Diagnosis → Report Generation.
- Patient CSV uploaded via Agent Studio {Attachments}; triage agent scores every patient P1–P4 using Manchester Triage System rules; drug safety agent calls the live FDA OpenFDA API for adverse event detection
- Report writer agent uses the built-in Cloudera PDF Tool to produce a downloadable Clinical Summary Report with Executive Summary, Triage Table, Drug Alerts, Patient Summaries, and Recommended Actions

Smart City: TrafficSense AI — Urban Mobility Intelligence with Agentic AI

- Builds a parallel fan-out workflow where four agents — Weather Impact, Geocoding, Air Quality Mobility, and Road Network — are dispatched simultaneously by a conversational Manager Agent.
- Geocoding agent uses Nominatim; Weather agent calls OpenMeteo; AQI agent calls OpenMeteo Air Quality API and generates cycling/walking advisories; Road Network agent calls TomTom Traffic Flow API.
- TomTom requires a free-tier API key (2,500 requests/day) entered in Agent Studio UserParameters — teaching students paid API key management; confirmed real output: Marina 40/49 km/h with road closure detected.