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AI Applications in Supply Chain Operations Training Course

31 October – 4 November 2027
Muscat

AI Applications in Supply Chain Operations Training Course

Ref: 74_1879 **Date:** 31 October – 4 November 2027 **Location:** Muscat **Fees:** 6500 GBP

AI Applications in Supply Chain Operations is a 1-week training course for supply chain, logistics and warehouse managers, demand planners and procurement analysts, in which participants build a supply chain AI deployment plan for one network. Volatile demand, longer lead times and frequent disruption now punish slow planning cycles, while machine learning can sense shifts days earlier than monthly forecasts. The course is delivered by Jupiter Prime Training.

Why AI Applications in Supply Chain Operations Matters Now

Three forces are reshaping supply chain operations. Customers in retail, fast-moving consumer goods and industrial spares expect shorter delivery promises; supplier networks face port congestion, geopolitical shocks and weather disruption; and finance teams press for lower working capital without more stockouts. Organisations that apply machine learning well sense demand earlier, hold leaner safety stock and reroute shipments before delays bite. Those that do not end up with excess stock in one warehouse and empty shelves in another. Model oversight follows ISO/IEC 42001 AI management systems and the NIST AI Risk Management Framework NIST AI RMF.

Who Gains Most from AI Applications in Supply Chain Operations

- Managers who own demand plans, statistical forecasts and sales and operations planning
- Managers responsible for inventory policy, safety stock and service levels
- Managers who run warehouses, picking operations and automation investments
- Managers who plan transport, routes, carriers and delivery promises
- Analysts who monitor supplier performance, sourcing risk and spend

An organisation gains most when its planning, warehousing, transport and procurement managers attend together, because a forecast change ripples through stock, labour, trucks and supplier orders within days.

AI Applications in Supply Chain Operations Capabilities

Participants leave able to judge where machine learning shortens the gap between a demand signal and a physical response across plan, source, store and deliver.

- Assess forecast accuracy and bias of statistical versus machine learning demand models — demand planning leads
- Calculate safety stock and reorder points from probabilistic forecasts — inventory and finance managers
- Design warehouse slotting and pick-path improvements with automation options — warehouse operations heads
- Apply route optimisation and estimated time of arrival prediction to delivery networks — transport planners
- Build supplier risk scores from delivery, financial and news signals — procurement and category managers
- Specify control tower alerts and escalation rules — supply chain directors

Key AI Applications in Supply Chain Operations Terms

- Demand sensing — short-horizon forecasting that uses recent orders, point-of-sale and external signals to adjust plans within days.
- Safety stock — inventory held above expected demand to protect service levels against forecast error and supply delays.
- Bullwhip effect — the growing swing in orders upstream in a supply chain caused by small changes in end demand.
- Supply chain control tower — a shared view of orders, stock and shipments with alerts that trigger coordinated responses.
- Slotting — assigning products to warehouse locations to cut travel time and balance picking workload.
- Estimated time of arrival ETA prediction — using traffic, weather and carrier history to forecast when a shipment will arrive.

AI Applications in Supply Chain Operations Day by Day

Day 1: Supply Chains Under Volatility

- Plan, Source, Make, Deliver Process Map — Where Machine Learning Applies
- Bullwhip Effect and Disruption Patterns — Retail and Industrial Spares Examples
- Supply Chain Data Sources: ERP, WMS and TMS — Integration Choices
- Service Level and Working Capital Trade-Offs — Executive Targets
- Supply Chain AI Maturity Assessment — Readiness and Starting Use Cases

Day 2: Demand Sensing and Inventory Optimisation

- Machine Learning Demand Forecasts Versus Statistical Baselines — Accuracy and Bias
- Demand Sensing From Point-of-Sale and External Signals — Short-Horizon Adjustments
- Probabilistic Safety Stock Calculation — Service Level Targets by SKU
- Multi-Echelon Inventory Optimisation — Stock Placement Across Warehouses
- Sales and Operations Planning With Scenario Models — Consensus Decisions

Day 3: Warehouse and Transport Intelligence

- Slotting Optimisation and Pick-Path Analytics — Travel Time and Labour Use
- Warehouse Automation Options: Robots, Sorters and Vision — Investment Choices
- Labour Demand Forecasting for Warehouses — Shift Planning
- Route Optimisation and Load Building — Fleet Cost and Delivery Windows
- ETA Prediction and Exception Alerts — Customer Delivery Promises

Day 4: Supplier Risk, Control Towers and Oversight

- Supplier Risk Scoring From Delivery, Financial and News Signals — Sourcing Decisions
- Control Tower Dashboards and Alert Rules — Cross-Functional Escalation
- Generative AI for Purchase Orders and Supplier Communication — Buyer Productivity
- Digital Twin of the Distribution Network — Disruption Scenario Testing
- ISO/IEC 42001 and NIST AI RMF — Oversight of Planning and Sourcing Models

Day 5: Practising the Supply Chain AI Deployment Plan

- Use-Case Prioritisation by Service and Working Capital Impact — Shortlist
- Data Readiness Review Across ERP, WMS and TMS — Gaps and Fixes
- Planner and Operator Role Changes — Exception-Based Working
- Benefit Tracking: Forecast Accuracy, Stock Turns and On-Time Delivery — Scorecard
- Supply Chain AI Deployment Plan — Use Cases, Owners, Controls and Waves

Applying AI Applications in Supply Chain Operations After the Course

- Run a forecast value-added comparison between the current statistical forecast and a machine learning model for the top hundred SKUs over the last two quarters.
- Recalculate safety stock for one product family using probabilistic forecasts and present the working capital and service level effect to finance.

AI Applications in Supply Chain Operations Questions FAQ

What are AI applications in supply chain operations, and why do they matter now?

They are machine learning uses in demand sensing, inventory, warehousing, transport and supplier risk. They matter now because volatile demand and frequent disruption punish slow monthly planning while working capital targets keep tightening.

Which roles gain most from AI applications in supply chain operations?

Demand planners, inventory, warehouse and transport managers and procurement analysts gain most. You learn to connect forecasts, stock policy, labour and routing so one demand signal drives a coordinated response.

How do AI applications in supply chain operations differ from a general procurement analytics course?

They cover the physical flow end to end. Instead of spend analysis alone, you work on demand sensing, multi-echelon stock, slotting, route optimisation, ETA prediction and control tower alerts alongside supplier risk.

What do you bring back from AI applications in supply chain operations?

You bring back a deployment plan for one network. It prioritises use cases by service and working capital effect, lists data fixes across ERP, WMS and TMS, and sets a benefit scorecard and rollout waves.

AI Applications in Supply Chain Operations: The Way Forward

The supply chain AI deployment plan first informs whether demand sensing, inventory optimisation or transport analytics goes live in the first wave. Planning, warehouse, transport and procurement managers use it to agree owners and alert rules. After the first quarter, revisit forecast value added and stock turns, because they show whether planners trust the models enough to work by exception.