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COURSE BROCHURE

AI Supply Chain Digital Twin and Scenario Planning Course

21 – 25 March 2027
Muscat

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Registered in the United Kingdom and Saudi Arabia

AI Supply Chain Digital Twin and Scenario Planning Course

Ref: 105_2654 **Date:** 21 – 25 March 2027 **Location:** Muscat **Fees:** 6500 GBP

AI Supply Chain Digital Twin and Scenario Planning is a 1-week training course for supply chain planners, logistics and operations managers, ending with one work product: a digital twin scenario playbook that sets out how their network responds to a port closure, a demand spike or a lost carrier. Shocks now arrive faster than annual network studies can absorb. Jupiter Prime Training runs this course.

Why AI Supply Chain Digital Twin and Scenario Planning Matter Now

Three pressures meet in network design: boards asking how the business would cope with a canal blockage or plant fire, finance asking whether a second warehouse earns its cost, and vendors offering virtual network replicas. A distributor that can rehearse a disruption on a simulated network moves stock and capacity before customers notice; one that cannot learns the answer at the same time as its customers. The course draws on the NIST AI Risk Management Framework AI RMF to test how far simulated results can be trusted, and ISO/IEC 42001 to assign ownership of each model.

Who Gains Most from AI Supply Chain Digital Twin and Scenario Planning

- Network planners who decide where warehouses, cross-docks and buffer stocks sit
- Logistics leads who choose lanes, modes and carrier capacity
- Operations managers who balance plant and depot throughput
- Business continuity coordinators who prepare responses to disruption
- Analysts who maintain network master data and simulation inputs

A network design group that sends a planner, a logistics lead and a continuity coordinator together gains most, because each scenario cuts across all three.

AI Supply Chain Digital Twin and Scenario Planning Capabilities

Each outcome turns a what-if question into a tested answer the network owner can act on.

- Specify the nodes, lanes and constraints a network twin must hold — the analyst building it
- Calibrate a simulated network against actual flows — the planner deciding whether to trust it
- Design a scenario library of shocks and demand swings — the continuity coordinator preparing responses
- Calculate service, cost and stock outcomes across scenarios — the operations director comparing options
- Weigh a second warehouse or extra buffer against resilience gained — the finance partner approving capital
- Communicate scenario results as clear trade-off charts — the executive team choosing a response

Key AI Supply Chain Digital Twin and Scenario Planning Terms

- Digital twin — a virtual replica of a physical network, fed with recent data, used to test decisions.
- Discrete-event simulation — modelling a network as a sequence of arrivals, loads and dispatches over time.
- Monte Carlo simulation — running a model many times with random inputs to see the spread of possible outcomes.
- Scenario library — a maintained set of defined shocks and demand patterns used to stress-test the network.
- Model calibration — adjusting inputs until outputs match historical performance closely enough to trust.
- Time to recover — how long a network takes to return to normal service after a disruption.

AI Supply Chain Digital Twin and Scenario Planning Day by Day

Day 1: Networks Under Shock

- Network Map of Nodes, Lanes and Constraints — Scope of the Twin
- Disruption History Review — Port Closures, Plant Outages and Carrier Failures
- Time to Recover and Time to Survive Measures — Exposure by Site
- Digital Twin Maturity Levels — Static Model, Connected Replica or Live Twin
- Network Master Data Checklist — Lead Times, Capacities and Costs

Day 2: Building and Calibrating the Twin

- Discrete-Event Simulation Logic — Arrivals, Queues and Dispatch Rules
- Machine Learning Demand Inputs — Feeding Forecast Ranges into the Twin
- Model Calibration Against Historical Flows — Acceptable Error Bands
- Monte Carlo Runs and Output Distributions — Reading the Spread
- NIST AI RMF Measure Function — Documenting How Far Results Hold

Day 3: Designing What-If Scenarios

- Scenario Library Design — Supply Shocks, Demand Surges and Cost Swings
- Stress Tests for Single-Source Components — Alternative Supplier Activation
- Capacity Shock Scenarios for Warehouses and Fleets — Overflow Choices
- Demand Spike Scenarios for Seasonal Peaks — Pre-Build and Allocation
- AI-Generated Scenario Narratives — Briefing Non-Technical Decision Makers

Day 4: Turning Scenarios into Decisions

- Service, Cost and Stock Trade-Off Charts — Comparing Response Options
- Buffer Stock and Second-Site Investment Cases — Resilience Versus Cost
- Carrier and Mode Switching Rules — Pre-Agreed Triggers
- Prescriptive Optimisation Inside the Twin — Recommended Network Moves
- ISO/IEC 42001 Model Ownership — Who Maintains and Signs Off the Twin

Day 5: Practising the Digital Twin Scenario Playbook

- Applying Calibration to a Consumer Goods Distribution Network — Trust Threshold
- Applying a Port Closure Scenario to a Petrochemical Export Chain — Response Plan
- Applying a Demand Spike Scenario to a Pharmaceutical Cold Chain — Allocation Rules
- Scenario Results Briefing to the Executive Team — Choosing a Response
- Digital Twin Scenario Playbook — Triggers, Responses and Owners

Applying AI Supply Chain Digital Twin and Scenario Planning After the Course

- Map the nodes, lanes and capacities of one regional network and note missing master data.
- Run one disruption scenario and present the recovery time to operations leaders.

AI Supply Chain Digital Twin and Scenario Planning Questions FAQ

What is AI Supply Chain Digital Twin and Scenario Planning and why does it matter now?

AI Supply Chain Digital Twin and Scenario Planning is the use of a virtual replica of a supply network to test decisions and disruptions before they happen. It matters now because shocks arrive faster than annual network studies can respond.

Which roles gain most from AI Supply Chain Digital Twin and Scenario Planning?

Network planners, logistics leads, operations managers and continuity coordinators gain most. Each owns part of the response when a site, lane or supplier fails.

How does AI Supply Chain Digital Twin and Scenario Planning training differ from a general supply chain AI course?

It centres on simulation and what-if scenarios rather than day-to-day forecasting or procurement. The one week go to building, calibrating and stress-testing a network model and turning results into response rules.

What do you bring back from AI Supply Chain Digital Twin and Scenario Planning?

You bring back a scenario playbook for your network: defined shocks, simulated outcomes, triggers and named owners for each response.

AI Supply Chain Digital Twin and Scenario Planning: The Way Forward

The digital twin scenario playbook is the starting point. Its first decision is which disruption to rehearse first, and network planners use it with continuity coordinators and the operations director. After the first real disruption, revisit the calibration: comparing what the twin predicted with what happened shows where the model needs better inputs.