Certified in Planning and Inventory Management

Quality Planning and Assurance/Control

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Quality Planning and Assurance/Control

1. Principles of Quality Management

Quality management focuses on meeting customer requirements consistently through structured planning, control, and continuous improvement. Key principles include customer focus, leadership, engagement of people, process approach, evidence-based decision making, and relationship management. CPIM professionals must understand how these principles shape operational excellence, reduce waste, and improve reliability. Quality management affects forecasting accuracy, production planning, supplier relationships, and inventory performance.

2. Quality Planning

Quality planning determines the standards, specifications, inspection points, and procedures needed to ensure product conformance. It includes establishing quality objectives, defining measurement metrics, identifying key process controls, and integrating quality into product design and workflow. CPIM candidates must understand how quality planning aligns with capacity planning, BOM accuracy, routing design, and supplier qualification processes to prevent defects rather than detect them.

3. Quality Assurance (QA)

Quality assurance focuses on process-oriented activities that ensure quality is built into each step of production or service delivery. It includes audits, documented procedures, training, and adherence to standard operating practices. CPIM professionals must understand how QA influences

manufacturing stability, reduces variability, and ensures compliance. QA helps prevent quality failures by designing robust processes that consistently produce desired outcomes.

4. Quality Control (QC)

Quality control is the operational inspection and testing of products to verify conformity to requirements. QC activities include sampling, measurement, testing, control charts, and defect documentation. CPIM professionals must understand how QC integrates with production operations, process flow, and corrective actions. QC ensures that nonconforming products are detected early, reducing scrap, rework, and customer complaints.

5. Total Quality Management (TQM)

TQM is a cultural and organizational approach that drives continuous improvement across all functions. It emphasizes customer focus, process improvement, employee participation, and long-term thinking. CPIM learners should understand how TQM influences strategic planning, standardization, and cross-functional collaboration. TQM empowers employees at all levels to identify issues and improve quality naturally within their daily work.

6. Six Sigma Methodology

Six Sigma is a data-driven approach used to reduce variation and defects. It uses DMAIC (Define, Measure, Analyze, Improve, Control) for existing processes and DMADV for new designs. CPIM candidates must understand how Six Sigma tools—such as process mapping, regression analysis, hypothesis testing, and capability studies—support

operational excellence. Six Sigma improves throughput, reduces errors, and enhances reliability.

7. Statistical Process Control (SPC)
SPC uses control charts to monitor process behavior and detect abnormal variation. It helps distinguish between common-cause and special-cause variation. CPIM professionals must understand different chart types (X-bar, R-chart, p-chart, c-chart) and how to interpret control limits. SPC provides early warning signals, enabling corrective action before defects occur.

8. Process Capability Analysis
Process capability (Cp, Cpk, Pp, Ppk) measures how well a process produces output within specification limits. Capability indices help planners determine if processes are stable, predictable, and capable of meeting customer requirements. Understanding capability informs decisions about equipment upgrades, operator training, and process standardization. CPIM candidates use capability analysis to ensure production lines support quality and planning objectives.

9. Failure Modes and Effects Analysis (FMEA)
FMEA is a systematic tool used to identify potential failure modes, their causes, and their impacts. It quantifies risk using severity, occurrence, and detection ratings to calculate a Risk Priority Number (RPN). CPIM professionals use FMEA during product design, process planning, and continuous improvement initiatives to proactively eliminate risk and improve reliability.

10. Root Cause Analysis and Corrective Actions
Root cause analysis identifies underlying causes of problems using tools such as 5 Whys, fishbone diagrams, Pareto charts, and fault-tree analysis. Corrective actions permanently address root causes, while preventive actions stop issues before they occur. CPIM candidates must understand how RCA supports quality improvement and protects production stability.

11. Supplier Quality Management
Supplier quality affects incoming materials, production stability, and final product quality. Supplier quality management includes qualification, audits, incoming inspection, scorecards, corrective actions, and collaborative improvement. CPIM professionals must understand how supplier performance influences inventory accuracy, lead times, and planning reliability. Strong supplier relationships enhance overall supply chain quality.

12. Incoming, In-Process, and Final Inspection
Quality inspection occurs at three major points: receiving, during production, and before shipping. CPIM learners must understand inspection sampling plans (AQL), material certification, test protocols, and disposition of nonconforming goods. Effective inspection prevents defective materials from entering production, reduces rework, and improves customer satisfaction.

13. Cost of Quality (COQ)
COQ categorizes costs into prevention, appraisal, internal failure, and external failure. CPIM candidates must understand how investments in prevention and appraisal

reduce costly failures such as scrap, rework, returns, warranty claims, and customer dissatisfaction. COQ is essential for budgeting, performance measurement, and strategic decision-making.

14. ISO 9001 and Quality Management Standards
ISO 9001 provides internationally recognized requirements for quality management systems (QMS). CPIM learners must understand how standardization supports documentation, consistency, process control, and customer assurance. Certification improves reliability, reduces risk, and enhances supplier credibility across global supply chains.

15. Continuous Improvement (CI) and Kaizen
Continuous improvement is the process of making incremental, ongoing enhancements to processes, quality, and productivity. Kaizen emphasizes small, regular improvements involving employees at all levels. CPIM professionals must understand how CI supports waste reduction, improved flow, and problem prevention. CI is a foundational component of Lean and TQM.

16. Quality Function Deployment (QFD)
QFD translates customer requirements into technical specifications using tools like the “House of Quality.” CPIM candidates must understand how QFD aligns product design, materials, processes, and quality controls with customer expectations. It improves communication across engineering, production, and supply chain functions.

17. Nonconformance Management
Nonconforming materials and products must be identified, segregated, and dispositioned properly—either rework, repair, return to supplier, or scrap. CPIM professionals must understand NCR documentation, Material Review Board (MRB) processes, and corrective action workflows. Effective nonconformance management protects inventory integrity and production stability.

18. Documentation and Standard Operating Procedures (SOPs)
Quality assurance depends on clear, controlled documentation—SOPs, work instructions, checklists, inspection criteria, and training records. Proper documentation ensures process consistency, reduces operator error, and supports auditing. CPIM candidates must understand document control principles, version control, and training validation.

19. Measurement Systems Analysis (MSA)
MSA evaluates measurement instruments, methods, and operators to ensure accuracy and reliability. Common tools include Gage R&R studies, bias analysis, linearity, and stability assessments. Poor measurement systems can lead to false conclusions about process performance. CPIM professionals need MSA to ensure quality decisions are based on trustworthy data.

20. Risk-Based Thinking and Quality Decision Making
Modern quality management emphasizes risk identification, mitigation, and monitoring. CPIM candidates must understand how risk-based thinking influences process

design, supplier management, contingency planning, and control strategy development. This approach reduces variability, prevents failures, and ensures robust planning.

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Micro-Learning Programs in Supply Chain Management & Procurement

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Micro-Learning Programs in Supply Chain Management

1. Fundamentals of Supply Chain Management
2. Supply Chain Planning and Optimization
3. Demand Forecasting Techniques
4. Inventory Control and Management
5. Distribution and Logistics Strategy
6. Warehouse Layout and Operations Efficiency
7. Supply Chain Risk Management
8. Supply Chain Performance Metrics (KPIs)
9. Lean Supply Chain Practices
10. Agile and Responsive Supply Chains
11. Sales and Operations Planning (S&OP)
12. Supply Chain Network Design
13. Supply Chain Digital Transformation
14. AI and Data Analytics in Supply Chain
15. Supply Chain Sustainability and Green Logistics
16. Reverse Logistics and Returns Management
17. Supply Chain Collaboration and Integration
18. Supplier Relationship Management in SCM
19. Global Supply Chain Strategy
20. Transportation Management Systems (TMS)
21. Inventory Optimization Models
22. Demand-Driven MRP (DDMRP) Concepts
23. Blockchain Applications in Supply Chain
24. Supply Chain Cost Reduction Techniques
25. SCOR Model and Process Improvement

Micro-Learning Programs in Supply Chain Management …

26. Capacity Planning and Resource Allocation
27. Managing Supply Chain Disruptions
28. End-to-End Supply Chain Visibility
29. Cold Chain Logistics Management
30. Supply Chain Compliance and Ethics
31. Import–Export Procedures and Documentation
32. Managing Third-Party Logistics (3PL) Providers
33. Supply Chain Collaboration Technologies
34. Production Planning and Scheduling
35. Strategic Supply Chain Design Using Case Studies
36. Circular Economy in Supply Chain
37. Vendor-Managed Inventory (VMI)
38. Transportation Optimization Techniques
39. E-Commerce Supply Chain Models
40. Omni-Channel Fulfillment Strategies
41. Warehouse Automation and Robotics
42. SCOR DS Roadmap for Supply Chain Excellence
43. Customer-Centric Supply Chain Strategies
44. Supply Chain Finance and Working Capital Management
45. Supply Chain Data Visualization Using Power BI
46. Strategic Sourcing in Supply Chain Context
47. Supply Chain Benchmarking and Best Practices
48. Integrated Business Planning (IBP)
49. Supply Chain in Crisis Management and Recovery
50. Future Trends and Technologies in Supply Chain

Micro-Learning Programs in Procurement

1. Fundamentals of Procurement Management
2. Strategic Sourcing and Category Management
3. Supplier Selection and Evaluation
4. Contract Management Essentials
5. Cost and Price Analysis in Procurement
6. Negotiation Strategies for Procurement Professionals
7. E-Procurement and Digital Tools
8. Procurement Planning and Budgeting
9. Risk Management in Procurement
10. Supplier Relationship and Performance Management
11. Sustainable and Ethical Procurement
12. Total Cost of Ownership (TCO) Analysis
13. Make-or-Buy Decision Frameworks
14. Procurement Policies and Governance
15. Procurement in Public vs. Private Sectors
16. Procurement Audit and Compliance
17. Procurement Data Analytics and Reporting
18. Procurement Scorecards and KPIs
19. Strategic Supplier Partnerships
20. Category Strategy Development
21. Managing Global and Offshore Procurement
22. Negotiation Simulation Workshop
23. Contract Law for Procurement Managers
24. Cost Reduction Strategies in Procurement
25. Supplier Risk Assessment Models

Micro-Learning Programs in Procurement …

26. Procurement Process Mapping and Improvement
27. Procurement Automation and AI Applications
28. Managing Procurement Teams Effectively
29. Procurement Ethics and Transparency
30. Procurement in the Digital Supply Chain
31. Vendor Consolidation Strategies
32. Spend Analysis and Optimization
33. Demand Forecasting for Procurement
34. E-Auction and Reverse Bidding Techniques
35. Inventory and Procurement Alignment
36. Procurement in Project-Based Organizations
37. Supplier Onboarding and Development
38. Procurement Market Intelligence
39. Measuring Supplier Innovation
40. Procurement in Times of Supply Disruption
41. Cross-Functional Collaboration in Procurement
42. Writing Effective RFPs, RFQs, and RFIs
43. Contract Negotiation Best Practices
44. Green Procurement and Circular Economy
45. Legal Aspects of Procurement Contracts
46. Performance-Based Contracting
47. Procurement Leadership and Strategic Influence
48. Cost Avoidance and Value Creation in Procurement
49. Managing Procurement with Power BI Dashboards
50. Future Skills and Trends in Procurement

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