



# Certified in Planning and Inventory Management

Service Design and Project Management for ETO or Improvements





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# Service Design and Project Management for ETO or Improvements

## 1. Engineer-to-Order (ETO) Fundamentals

ETO environments produce highly customized products based on unique customer requirements. Design and engineering precede production, making lead times longer and project management essential. CPIM professionals must understand how ETO integrates design, procurement, and manufacturing under uncertain demand conditions.

## 2. Service Design Principles

Service design focuses on creating efficient, user-centered service processes that meet customer needs while maintaining operational efficiency. It includes defining service flows, touchpoints, and support systems. CPIM learners must know how service design complements product design in delivering total customer value.

## 3. Project Life Cycle in ETO

The project life cycle in ETO includes initiation, planning, design, execution, monitoring, and closure. Each phase involves cross-functional coordination among design, procurement, and production teams. CPIM emphasizes lifecycle control to ensure projects meet time, cost, and quality targets.

## 4. Project Management Frameworks

Frameworks such as **PMBOK**, **Agile**, and **Critical Path Method (CPM)** provide structured approaches to managing ETO projects. CPIM candidates should understand how to apply these methods to schedule tasks, allocate resources, and track progress efficiently.

## **5. Work Breakdown Structure (WBS)**

The WBS decomposes a project into smaller, manageable components, enabling effective scheduling, budgeting, and control. For ETO, it clarifies dependencies between design, procurement, and fabrication tasks. CPIM professionals must use WBS to plan complex, multi-phase projects accurately.

## **6. Critical Path and Scheduling**

Identifying the critical path ensures project managers know which tasks determine total project duration. CPIM emphasizes using Gantt charts and CPM/PERT analysis to manage dependencies, mitigate delays, and maintain project timelines in ETO environments.

## **7. Cross-Functional Collaboration**

ETO projects require tight integration between engineering, purchasing, operations, and quality teams. Collaboration ensures design feasibility, material availability, and manufacturability. CPIM learners should understand how cross-functional coordination reduces lead times and errors in complex custom projects.

## **8. Customer Requirements and Scope Definition**

ETO begins with detailed customer requirement gathering and scope definition. Inaccurate or incomplete specifications lead to costly rework. CPIM professionals must ensure requirements are well-documented, validated, and integrated into design and project planning.

## **9. Configuration Management**

Configuration management ensures that product design, documentation, and changes are controlled and traceable throughout the ETO project. CPIM emphasizes version control, engineering change orders (ECOs), and documentation systems to maintain consistency and compliance.

## **10. Risk Management in ETO Projects**

ETO projects face risks from design changes, supplier delays, and technological challenges. CPIM professionals must identify, analyze, and mitigate risks using tools like risk registers, contingency planning, and sensitivity analysis to ensure project success.

## **11. Resource Planning and Scheduling**

ETO and improvement projects require dynamic resource allocation—skilled labor, equipment, and materials. CPIM learners must apply resource leveling and capacity management techniques to avoid bottlenecks while maintaining flexibility.

## **12. Procurement and Supplier Integration**

ETO projects often involve unique materials or components with long lead times. Early supplier involvement (ESI) ensures material readiness and design compatibility. CPIM candidates should understand supplier collaboration's role in reducing delays and quality issues.

## **13. Cost Estimation and Budget Control**

Accurate cost estimation is vital in ETO due to variability in design and production. CPIM professionals must apply

activity-based costing (ABC) and earned value management (EVM) to track costs, manage budgets, and assess financial performance throughout the project.

#### **14. Quality Planning and Assurance**

Quality in ETO depends on design validation, supplier quality control, and process audits. CPIM emphasizes embedding quality through **Design for Manufacturability (DFM)**, **FMEA**, and continuous inspection checkpoints to ensure compliance with customer and regulatory standards.

#### **15. Change Control and Engineering Revisions**

ETO projects often involve design or scope changes during execution. A structured **change control process** ensures that revisions are evaluated for impact on cost, schedule, and resources before implementation. CPIM professionals must master formal change management techniques.

#### **16. Continuous Improvement Projects**

Improvement projects focus on optimizing processes using **Lean, Six Sigma, and Kaizen**. CPIM learners should understand how to define improvement goals, analyze root causes, and implement solutions using DMAIC or PDCA frameworks for sustained gains.

#### **17. Performance Measurement and KPIs**

Key performance indicators (KPIs) for ETO projects include on-time delivery, budget adherence, design accuracy, and customer satisfaction. CPIM emphasizes using metrics to evaluate performance, identify bottlenecks, and guide corrective actions across project stages.

## **18. Communication and Stakeholder Management**

ETO and improvement projects involve multiple stakeholders—customers, engineers, suppliers, and management. Clear, structured communication ensures alignment and transparency. CPIM candidates should know how to use communication matrices, status reports, and stakeholder mapping for effective engagement.

## **19. Knowledge Management and Lessons Learned**

Capturing lessons learned from ETO and service design projects builds organizational learning. CPIM emphasizes post-project reviews and knowledge repositories to improve future project execution, standardization, and innovation.

## **20. Digital Tools and Project Integration**

Modern ETO and service design rely on digital integration—**PLM (Product Lifecycle Management), ERP, and project management software** like MS Project or Primavera. CPIM professionals must understand how these tools enhance collaboration, traceability, and real-time decision-making.

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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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