



# Certified Inventory Optimization Professional

Certified Inventory Optimization Professional (CIOP)  
Based on IMBoK v3.0 from Integrated Institute of  
Supply Chain Management



Instructor Kit for CIOP v3.0 - Proprietary and copyright material of IISCM, a unit of Phyzics Business Consultants Private Limited.



# AGENDA

**Part-1: About CIOP**

**Part-2: CIOP Modules: M1 to M30 & Topics**



# Inventory Management Body of Knowledge



PART-01



v1.0

- 2012
- 12 M



v2.0

- 2019
- 16 M



v3.0

- 2021
- 30 M

# About IMBoK & CIOP



PART-01



Best Practices



Industry



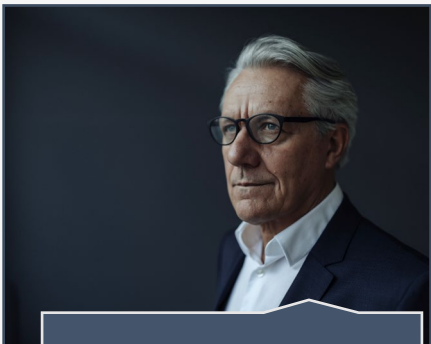
Practical



Global



E-Proctored



Consultants



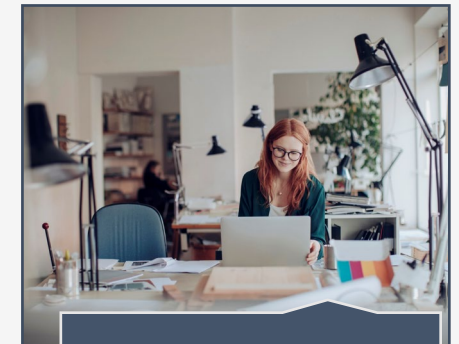
Scenarios



LO Based



Hybrid



Cost Effective

# Inventory Management Body of Knowledge v3.0



PART-01



**[www.CIOP.info](http://www.CIOP.info)**



IMBoK v3.0  
TRAINING  
PREPARATION  
PRACTICE  
EXAMINATION  
**CIOP**  
30M  
LMS  
180Q.3HRS



# INTRODUCTION TO SCM



# M1 – Introduction to SCM



## PART-02

M1-01: Sectors of Economy

M1-02: Business Environment

M1-03: Define Supply Chain

M1-04: Supply Chain Terminologies

M1-05: Supply Chain Stakeholders

M1-06: Factors Responsible for the Pressure on Supply Chain

M1-07: The Three Dimensions of Inventory

M1-08: Evolution of Supply Chain

M1-09: The 20 Key Supply Chain Processes

M1-10: Conformance and Performance Specifications

M1-11: Conflicting Objectives of Stakeholders

M1-12: Supply Chain Objectives

M1-13: Manufacturing Strategy

M1-14: Manufacturing Planning and Control

M1-15: Supply Chain Metrics

M1-16: Introduction to Financial Statements

M1-17: Accounting Equation, Balance Sheet, Income Statement and Cash-Flow Statement

M1-18: Three Entities and Four Flows

M1-19: The Three Levels of Supply Chain

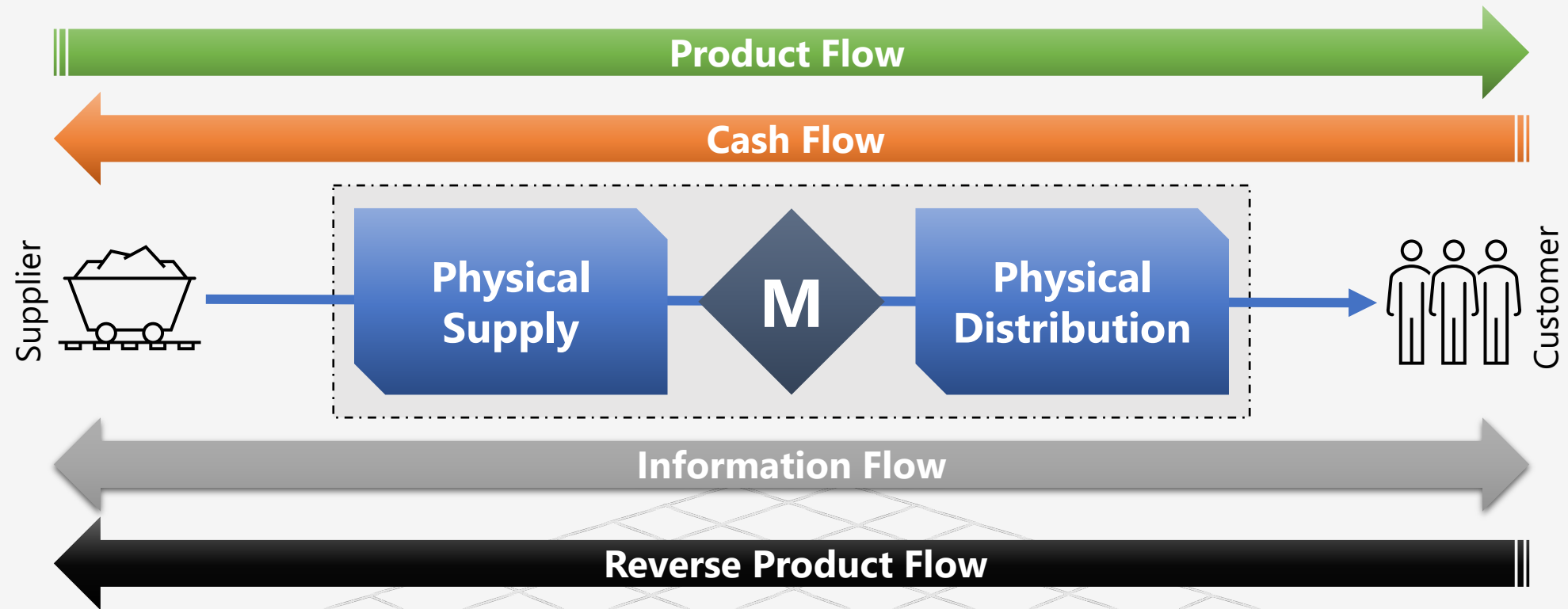
M1-20: Physical Supply and Physical Distribution

M1-21: Enterprise Inventory Policy

# M1-18: Three Entities and Four Flows



PART-02





## M2

# ALL ABOUT INVENTORY







# M2 – All About Inventory



## PART-02

M2-01: Objectives of Inventory Management

M2-02: Types of Inventory

M2-03: Functions of Inventory

M2-04: Nature of Demand

M2-05: Inventory Identification

M2-06: Stakeholders of Inventory

M2-07: Inventory Accuracy

M2-08: Inventory Errors and Causes

M2-09: Inventory Costs

M2-10: Enterprise Inventory Policy

M2-11: Inventory Valuation

M2-12: Inventory Auditing

M2-13: Procedure to Conduct Periodic Inventory Auditing

M2-14: Procedure to Conduct Cycle Counting

M2-15: Establishing a Cycle Counting Policy

# M3 PRODUCTION PLANNING SYSTEM





# M3 – Production Planning System



## PART-02

- M3-01: Ingredients of a Good Planning System
- M3-02: Understand Demand, Priority, Capacity and Resources
- M3-03: Manufacturing Planning and Control Framework
- M3-04: Planning Horizon, Planning Bucket and Planning Frequency

- M3-05: Planning Level and Degree of Detail
- M3-06: Planning Level, Planning Horizon, Planning Bucket and Planning Frequency
- M3-07: Production Planning Strategies



# M4 STRATEGIC BUSINESS PLANNING





## M4 – Strategic Business Planning



### PART-02

M4-01: What is Strategy?

M4-02: Corporate Strategy

M4-03: Strategic Business Planning

M4-04: Why Strategic Business Planning?

M4-05: Strategic Business Planning – SIPOC Diagram

M4-06: Hoshin Planning

M4-07: United Nations Global Compact

M4-08: Balanced Scorecard



# M5 SALES AND OPERATIONS PLANNING







# M5 – Sales and Operations Planning



## PART-02

M5-01: What is Sales & Operations Planning?

M5-02: What is a Product Family?

M5-03: Sales & Operations Planning – SIPOC Diagram

M5-04: Planning Horizon, Planning Bucket and Planning Frequency

M5-05: Institutionalizing S&OP in an Organisation

M5-06: S&OP Steps

M5-07: S&OP Demand Management Activities

M5-08: S&OP Capacity Management Activities

# M6 MASTER SCHEDULING







# M6 – Master Scheduling



## PART-02

M6-01: Master Scheduling

M6-02: Master Scheduling – SIPOC Diagram

M6-03: Planning Horizon, Planning Bucket and Planning Frequency

M6-04: Rough-Cut Capacity Planning (RCCP)

M6-05: Understanding MPS Grid

M6-06: Available to Promise (ATP)

M6-07: Demand Time Fence and Planning Time Fence

M6-08: Frozen Zone, Slushy Zone and Liquid Zone

M6-09: Resolving the Differences between MPS and Capacity

M6-10: Final Assembly Scheduling

# M7

## MATERIAL REQUIREMENTS PLANNING





# M7 – Material Requirements Planning



## PART-02

M7-01: Objectives of MRP

M7-02: Material Requirements Planning – SIPOC Diagram

M7-03: Bill of Materials and Its Uses

M7-04: Types of Bill of Materials

M7-05: Where-Used and Pegging Reports

M7-06: MRP Processes

M7-07: Understanding MRP Grid

M7-08: Capacity Requirements Planning (CRP)

M7-09: Resolving Differences between MRP and CRP



# M8 DEMAND MANAGEMENT

DEMAND MANAGEMENT



# M8 – Demand Management



## PART-02

M8-01: Demand Management and Demand Planning

M8-02: Characteristics of Demand

M8-03: Factors that Influence Demand

M8-04: Distribution Requirements Planning (DRP)



## M9 CAPACITY MANAGEMENT

# CAPACITY BUILDING





# M9 – Capacity Management



## PART-02

M9-01: Capacity Management

M9-02: Capacity Planning

M9-03: Capacity Control

M9-04: Capacity Management Hierarchy

M9-05: Capacity Available and Capacity Required

M9-06: Strategic Resource Planning

M9-07: Resource Planning

M9-08: Rough-Cut Capacity Planning (RCCP)

M9-09: Capacity Requirements Planning (CRP)

M9-10: Capacity Control

M9-11: Calculating Available Capacity



# M10 FORECASTING





# M10 – Forecasting



## PART-02

M10-01: Define Forecasting

M10-02: Principles of Forecasting

M10-03: Qualitative Forecasting

M10-04: Quantitative Forecasting

M10-05: Understanding Seasonality

M10-06: Forecast Error

M10-07: Tracking Forecast

# M11

## PRODUCTION ACTIVITY CONTROL







# M11 – Production Activity Control



PART-02

M11-01: Manufacturing Lead Time

M11-02: Scheduling Techniques

M11-03: Throughput

M11-04: Bottlenecks and Throughput

M11-05: Managing Bottlenecks

M11-06: Input/Output Control

M11-07: Dispatching Rules



# M12 PROCUREMENT





# M12 – Procurement



## PART-02

M12-01: What is Procurement?

M12-02: CIPS Procurement Cycle

M12-03: Stage-1: Understanding the need and developing a high-level specification

M12-04: Stage-2: Market/Commodity and options

M12-05: Stage-3: Develop strategy/plan

M12-06: Stage-4: Pre-procurement, market test and market engagement

M12-07: Stage-5: Develop documentation

M12-08: Stage-6: Supplier Selection to participate in ITT/ RFQ Negotiation

M12-09: Stage-7: Issue ITT-RFQ

M12-10: Stage-8: Bid/tender/quotation evaluation

M12-11: Stage-9: Contract award and implementation

M12-12: Stage-10: Warehouse, logistics and receipt

M12-13: Stage-11: Contract performance review

M12-14: Stage-12: SRM and SCM and development

M12-15: Stage-13: Asset management and lessons learned

# M13

## ORDER QUANTITIES





## M13 – Order Quantities



PART-02

M13-01: Stock-Keeping Unit (SKU)

M13-02: Lot-for-Lot

M13-03: Fixed Order Quantity

M13-04: Period Order Quantity

M13-05: Economic Order Quantity



# M14

## INDEPENDENT DEMAND ORDERING SYSTEMS







# M14 –Independent Demand Ordering Systems



PART-02

M14-01: Order Point System

M14-02: Periodic Review System



# M15 WAREHOUSE MANAGEMENT







# M15 – Warehouse Management



## PART-02

M15-01: Classification of Storage Facilities

M15-02: Warehouse Space Utilisation

M15-03: Functional Design of Warehouses

M15-04: Traditional Role of Warehouses

M15-05: Modern Role of Warehouses

M15-06: Warehouse Automation & Benefits

M15-07: Warehouse Activities

M15-08: Stock Location

M15-09: Order Picking Methods

M15-10: Material Handling Equipment

M15-11: Emergence of 3PL & 4PL



# M16 TRANSPORTATION MANAGEMENT





# M16 –Transportation Management



PART-02

M16-01: Echelons and Nodes

M16-02: Value Density and Packaging Density

M16-03: Modes of Transportation

M16-04: Types of Carriers

M16-05: Transportation Cost Structure



M17

## SUPPLIER RELATIONSHIP MANAGEMENT (SRM)







# M17 – Supplier Relationship Management (SRM)



## PART-02

M17-01: Internal and External Supplier

M17-02: Supplier Relationship Spectrum

M17-03: Supplier Certification

M17-04: Supplier Selection Process

M17-05: Supplier Scorecard

# CUSTOMER RELATIONSHIP MANAGEMENT (CRM)





# M18 – Customer Relationship Management (CRM)



PART-02

M18-01: Define CRM

M18-02: Customer Touch Points Analysis

M18-03: Customer Satisfaction



**M19**

## **INTRODUCTION TO QUALITY**







# M19 – Introduction to Quality



PART-02

M19-01: Introduction to Quality

M19-02: Dimensions of Quality – Product

M19-03: Dimensions of Quality - Service



# M20 INTRODUCTION TO PACKAGING







# M20 – Introduction to Packaging



## PART-02

M20-01: What is Packaging?

M20-02: Packaging Functions

M20-03: Distribution Packaging

M20-04: Packaging Symbols

M20-05: Packaging Machinery

M20-06: Package Printing

M20-07: Types of Packaging

M20-08: Forces on a Package

M20-09: Package Development Process

# M21 INTRODUCTION TO PROCESS





# M21 – Introduction to Process



## PART-02

M21-01: Define Process

M21-02: Three Types of Process

M21-03: Process Mapping

M21-04: Microsoft Visio

M21-05: Benefits of Process

M21-06: Causes of Variation

M21-07: Process Capability

M21-08: Process Control



M22  
LEAN

# LEAN THINKING







## M22 – Lean



### PART-02

M22-01: Introduction to Lean

M22-02: House of Lean

M22-03: 7 Wastes of Lean

M22-04: 5S

M22-05: Visual Management

M22-06: Total Productive Maintenance

M22-07: Just-in-Time Production

M22-08: Jidoka

M22-09: Kaizen

# M23 SIX SIGMA







## M23 – Six Sigma



### PART-02

M23-01: Introduction to Six Sigma

M23-02: Define

M23-03: Measure

M23-04: Analyse

M23-05: Improve

M23-06: Control

M23-07: SIPOC Diagram

M23-08: Data Collection

M23-09: Descriptive Statistics

M23-10: Variation Analysis







## M24 – Total Quality Management

## PART-02

## M24-01: Define Quality

## M24-02: Basic Concepts of TQM

## M24-03: Costs of Failure

## M24-04: Costs of Quality

## M25 THEORY OF CONSTRAINTS

THEORY  
OF  
CONSTRAINTS  
TOC





# M25 –Theory of Constraints



## PART-02

M25-01: Introduction to ToC

M25-02: Drum, Buffer and Rope

M25-03: Identify

M25-04: Exploit

M25-05: Subordinate

M25-06: Elevate

M25-07: Repeat

# M26

## SUPPLY CHAIN TECHNOLOGIES







# M26 – Supply Chain Technologies



## PART-02

M26-01: Impact of Technology on Supply Chain

M26-02: Barcode, RFID and QR Code

M26-03: Put-to-Light and Pick-to-Light

M26-04: Geofencing

M26-05: Control Tower

M26-06: ERP

M26-07: WMS

M26-08: TMS

M26-09: YMS

# M27

## SUPPLY CHAIN TECHNIQUES







# M27 – Supply Chain Techniques



## PART-02

M27-01: Quality Function Deployment

M27-02: Brainstorming

M27-03: Benchmarking

M27-04: Acceptance and Evaluation Criteria

M27-05: Value Stream Mapping

M27-06: Process Mapping

M27-07: Standard Operating Procedure

M27-08: PESTLE Analysis

M27-09: Porter's Five Forces

M27-10: Resource Audit

M27-11: SWOT Analysis

M27-12: Ansoff Matrix

M27-13: Boston Box

M27-14: McKinsey 7S

M27-15: Value Stream Mapping

M27-16: Interview

M27-17: Workshop

M27-18: Observation

M27-19: Shadowing

M27-20: Ethnographic Studies

M27-21: Surveys

M27-22: Sampling

M27-23: Document Analysis

M27-24: Rich Pictures

M27-25: Mind Maps

M27-26: Fishbone Diagram



# M27 – Supply Chain Techniques



## PART-02

M27-27: Stakeholder Wheel

M27-28: PI Grid

M27-29: PDCA

M27-30: RACI Matrix

M27-31: Thomas-Kilmann Model

M27-32: Principled Negotiation

M27-33: Value Chain Analysis

M27-34: Organisation Diagram

M27-35: Activity Diagram

M27-36: BPM

M27-37: Task Analysis

M27-38: Business Rules Analysis

M27-39: Decision Tree

M27-40: Force Field Analysis

M27-41: Cost-Benefit Analysis

M27-42: Risk Analysis

M27-43: Investment Appraisal

M27-44: Business Case

M27-45: 4As Communication Model

M27-46: Scenario

M27-47: Storyboarding

M27-48: Prototyping

M27-49: CRUD Matrix

M27-50: State Machine Diagram

M27-51: Johnson and Scholes's Cultural Web

M27-52: Kurt Lewin's Model





# M27 – Supply Chain Techniques



PART-02

M27-53: SARAH Model

M27-54: Kotter's Approach to Change

M27-55: Kolb Cycle

# M28 INDUSTRY 4.0







## M28 – Industry 4.0



### PART-02

M28-01: What is Industry 4.0?

M28-02: Benefits of Industry 4.0

M28-03: Blockchain

M28-04: Artificial Intelligence

M28-05: Machine Learning

M28-06: Robotic Process Automation

M28-07: Internet of Things

M28-08: Supply Chain and Industry 4.0

# M29 INTERNATIONAL STANDARDS

# ISO







## M29 – International Standards



### PART-02

M29-01: ISO 9000:2015

M29-02: ISO 14000

M29-03: ISO 14001:2015

M29-04: ISO 20400:2017

M29-05: ISO 26000:2010

M29-06: ISO 28000:2007

M29-07: ISO 31000:2018

M29-08: Incoterms 2020

**M30**

## **SUPPLY CHAIN RISK, SAFETY AND SECURITY**







# M30 – Supply Chain Risk, Safety and Security



## PART-02

M30-01: Types of Risks that can Affect Supply Chains

M30-02: Operational Risks in Supply Chains

M30-03: Ethics in Supply Chains

M30-04: Adopting CSR and Sustainability in Supply Chain

M30-05: Risk Mitigation Through Contracts

M30-06: Outsourcing: A Way to Manage Risks

M30-07: Insurance: A Way to Manage Risks

M30-08: BCP: A Way to Manage Risks

M30-09: Mathematics of Managing Risks

M30-10: Risk Register

M30-11: Risk Mitigation Strategies

# Questions & Answers







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