

QUICK REFERENCE GUIDE

VERSION

11.0

SCOR[®]

SUPPLY CHAIN OPERATIONS REFERENCE MODEL



SCOR Processes

The Supply Chain Operations Reference (SCOR®) model describes the business activities associated with all phases of satisfying a customer's demand. The model itself is organized around the six primary management processes of Plan, Source, Make, Deliver, Return and Enable. Using these process building blocks, the SCOR model can be used to describe supply chains that are very simple or very complex using a common set of definitions across disparate industries. Today public and private organizations and companies around the world use the model as a foundation for global and site-specific supply chain improvement projects.

SCOR spans all customer interactions (quote to cash), all physical material transactions (procure to payment, including equipment, supplies, spare parts, bulk product, software, etc.) and all market interactions (manufacturing, from the understanding of aggregate demand to the fulfillment of each order).

The model is designed and maintained to support supply chains of various complexities and across multiple industries. The model focuses on three process levels and does not attempt to prescribe how a particular organization should conduct its business or tailor its systems or information flow.

People—Supply Chain Skills

The people section introduced in SCOR 10.0 provides a means for managing talent in the supply chain by incorporating a standard for describing the expertise required to perform tasks and manage processes. The SCOR skills management complements the existing process, metrics, and practice reference components by aligning people and their skills to the processes.

A Skill in SCOR is the capacity to deliver predetermined results with minimal input of time and energy, characterized by a standard definition with associated experience, aptitudes, and training.

Experience is the knowledge or ability acquired by observation or active participation, obtained by doing the work in a real life environment, and undergoing different situations that require different actions.

Aptitude is a natural, acquired, learned, or developed ability to perform a certain kind of work at a certain level.

Training develops a skill or type of behavior through instruction.

All people skills are coded with a capital letter H followed by a capital letter representing the element: S for Skills, A for Aptitudes, E for Experience and T for Training. These are followed by a period and a four digit number. Note: The number in the ID is a unique identifier and does NOT indicate any kind of priority, importance, or other meaning.

sP - Plan

sP1 Plan Supply Chain	sP2 Plan Source	sP3 Plan Make	sP4 Plan Deliver	sP5 Plan Return
<p>sP1.1: Identify, Prioritize and Aggregate Supply Chain Requirements</p> <p>sP1.2: Identify, Prioritize and Aggregate Supply Chain Resources</p> <p>sP1.3: Balance Supply Chain Resources with SC Requirements</p> <p>sP1.4: Establish and Communicate Supply Chain Plans</p>	<p>sP2.1: Identify, Prioritize and Aggregate Product Requirements</p> <p>sP2.2: Identify, Assess and Aggregate Product Resources</p> <p>sP2.3: Balance Product Resources with Product Requirements</p> <p>sP2.4: Establish Sourcing Plans</p>	<p>sP3.1: Identify, Prioritize and Aggregate Production Requirements</p> <p>sP3.2: Identify, Assess and Aggregate Production Resources</p> <p>sP3.3: Balance Production Resources with Production Requirements</p> <p>sP3.4: Establish Production Plans</p>	<p>sP4.1: Identify, Prioritize and Aggregate Delivery Requirements</p> <p>sP4.2: Identify, Assess and Aggregate Delivery Resources</p> <p>sP4.3: Balance Delivery Resources and Capabilities with Delivery Requirements</p> <p>sP4.4: Establish Delivery Plans</p>	<p>sP5.1: Assess and Aggregate Return Requirements</p> <p>sP5.2: Identify, Assess and Aggregate Return Resources</p> <p>sP5.3: Balance Return Resources with Return Requirements</p> <p>sP5.4: Establish and Communicate Return Plans</p>

sR - Return

sSR1 Source Return Defective Product	sSR2 Source Return MRO Product	sSR3 Source Return Excess Product	sDR1 Deliver Return Defective Product	sDR2 Deliver Return MRO Product
<p>sSR1.1: Identify Defective Product Condition</p> <p>sSR1.2: Disposition Defective Product</p> <p>sSR1.3: Request Defective Product Return Authorization</p> <p>sSR1.4: Schedule Defective Product Shipment</p> <p>sSR1.5: Return Defective Product</p>	<p>sSR2.1: Identify MRO Product Condition</p> <p>sSR2.2: Disposition MRO Product</p> <p>sSR2.3: Request MRO Return Authorization</p> <p>sSR2.4: Schedule MRO Shipment</p> <p>sSR2.5: Return MRO Product</p>	<p>sSR3.1: Identify Excess Product Condition</p> <p>sSR3.2: Disposition Excess Product</p> <p>sSR3.3: Request Excess Product Return Authorization</p> <p>sSR3.4: Schedule Excess Product Shipment</p> <p>sSR3.5: Return Excess Product</p>	<p>sDR1.1: Authorize Defective Product Return</p> <p>sDR1.2: Schedule Defective Return Receipt</p> <p>sDR1.3: Receive Defective Product (includes verify)</p> <p>sDR1.4: Transfer Defective Product</p>	<p>sDR2.1: Authorize MRO Product Return</p> <p>sDR2.2: Schedule MRO Return Receipt</p> <p>sDR2.3: Receive MRO Product</p> <p>sDR2.4: Transfer MRO Product</p>

sS - Source			sM - Make	
sS1 Source Stocked Product	sS2 Source Make-to-Order Product	sS3 Source Engineer-to-Order Product	sM1 Make-to-Stock	sM2 Make-to-Order
sS1.1: Schedule Product Deliveries sS1.2: Receive Product sS1.3: Verify Product sS1.4: Transfer Product sS1.5: Authorize Supplier Payment	sS2.1: Schedule Product Deliveries sS2.2: Receive Product sS2.3: Verify Product sS2.4: Transfer Product sS2.5: Authorize Supplier Payment	sS3.1: Identify Sources of Supply sS3.2: Select Final Supplier and Negotiate sS3.3: Schedule Product Deliveries sS3.4: Receive Product sS3.5: Verify Product sS3.6: Transfer Product sS3.7: Authorize Supplier Payment	sM1.1: Schedule Production Activities sM1.2: Issue Material sM1.3: Produce and Test sM1.4: Package sM1.5: Stage Product sM1.6: Release Product to Deliver sM1.7: Waste Disposal	sM2.1: Schedule Production Activities sM2.2: Issue Sourced/In-Process Product sM2.3: Produce and Test sM2.4: Package sM2.5: Stage Finished Product sM2.6: Release Finished Product to Deliver sM2.7: Waste Disposal
sE - Enable				
sDR3 Deliver Return Excess Product	sE1 Manage Supply Chain Business Rules	sE2 Manage Supply Chain Performance	sE3 Manage Supply Chain Data and Information	sE4 Manage Supply Chain Human Resources
sDR3.1: Authorize Excess Product Return sDR3.2: Schedule Excess Return Receipt sDR3.3: Receive Excess Product sDR3.4: Transfer Excess Product	sE1.1: Gather Business Rule Requirements sE1.2: Interpret Business Rule Requirement sE1.3: Document Business Rule sE1.4: Communicate Business Rule sE1.5: Release/Publish Business Rule sE1.6: Retire Business Rule	sE2.1: Initiate Reporting sE2.2: Analyze Reports sE2.3: Find Root Causes sE2.4: Prioritize Root Causes sE2.5: Develop Corrective Actions sE2.6: Approve & Launch	sE3.1: Receive Maintenance Request sE3.2: Determine/Scope Work sE3.3: Maintain Content/Code sE3.4: Maintain Access sE3.5: Publish Information sE3.6: Verify Information	sE4.1: Identify Skills/Resource Requirement sE4.2: Identify Available Skills/Resources sE4.3: Match Skills/Resources sE4.4: Determine Hiring/Redeployment sE4.5: Determine Training/Education sE4.6: Approve, Prioritize and Launch

sD - Deliver				
sM3 Engineer-to-Order	sD1 Deliver Stocked Product	sD2 Deliver Make-to-Order Product	sD3 Deliver Engineer-to-Order Product	sD4 Deliver Retail Product
sM3.1: Finalize Production Engineering	sD1.1: Process Inquiry and Quote	sD2.1: Process Inquiry and Quote	sD3.1: Obtain and Respond to RFP/RFQ	sD4.1: Generate Stocking Schedule
sM3.2: Schedule Production Activities	sD1.2: Receive, Enter, and Validate Order	sD2.2: Receive, Configure, Enter and Validate Order	sD3.2: Negotiate and Receive Contract	sD4.2: Receive Product at Store
sM3.3: Issue Sourced/In-Process Product	sD1.3: Reserve Inventory and Determine Delivery Date	sD2.3: Reserve Inventory and Determine Delivery Date	sD3.3: Enter Order, Commit Resources & Launch Program	sD4.3: Pick Product from backroom
sM3.4: Produce and Test	sD1.4: Consolidate Orders	sD2.4: Consolidate Orders	sD3.4: Schedule Installation	sD4.4: Stock Shelf
sM3.5: Package	sD1.5: Build Loads	sD2.5: Build Loads	sD3.5: Build Loads	sD4.5: Fill Shopping Cart
sM3.6: Stage Finished Product	sD1.6: Route Shipments	sD2.6: Route Shipments	sD3.6: Route Shipments	sD4.6: Checkout
sM3.7: Release Product to Deliver	sD1.7: Select Carriers and Rate Shipments	sD2.7: Select Carriers and Rate Shipments	sD3.7: Select Carriers & Rate Shipments	sD4.7: Deliver and/or install
sM3.8: Waste Disposal	sD1.8: Receive Product from Source or Make	sD2.8: Receive Product from Source or Make	sD3.8: Receive Product from Source or Make	
	sD1.9: Pick Product	sD2.9: Pick Product	sD3.9: Pick Product	
	sD1.10: Pack Product	sD2.10: Pack Product	sD3.10: Pack Product	
	sD1.11: Load Vehicle & Generate Shipping Docs	sD2.11: Load Product & Generate Shipping Docs	sD3.11: Load Product & Generate Shipping Docs	
	sD1.12: Ship Product	sD2.12: Ship Product	sD3.12: Ship Product	
	sD1.13: Receive and verify Product by Customer	sD2.13: Receive and verify Product by Customer	sD3.13: Receive and verify Product by Customer	
	sD1.14: Install Product	sD2.14: Install Product	sD3.14: Install Product	
	sD1.15: Invoice	sD2.15: Invoice	sD3.15: Invoice	
sE - Engage				
sE5 Manage Supply Chain Assets	sE6 Manage Supply Chain Contracts	sE7 Manage Supply Chain Network	sE8 Manage Supply Chain Regulatory Compliance	sE9 Manage Supply Chain Risk
sE5.1: Schedule Asset Management Activities	sE6.1: Receive Contract/Contract Updates	sE7.1: Select Scope and Organization	sE8.1: Monitor Regulatory Entities	sE9.1: Establish Context
sE5.2: Take Asset Off-line	sE6.2: Enter and Distribute Contract	sE7.2: Gather Input and Data	sE8.2: Assess Regulatory Publications	sE9.2: Identify Risk Events
sE5.3: Inspect and Troubleshoot	sE6.3: Activate/Archive Contract	sE7.3: Develop Scenarios	sE8.3: Identify Regulatory Deficiencies	sE9.3: Quantify Risks
sE5.4: Install and Configure	sE6.4: Review Contractual Performance	sE7.4: Model/Simulate Scenarios	sE8.4: Define Remediation	sE9.4: Evaluate Risks
sE5.5: Clean, Maintain and Repair	sE6.5: Identify Performance Issues/Opportunities	sE7.5: Project Impact	sE8.5: Verify/Obtain License	sE9.5: Mitigate Risk
sE5.6: Decommission and Dispose	sE6.6: Identify Resolutions/Improvements	sE7.6: Select and Approve	sE8.6: Publish Remediation	
sE5.7: Inspect Maintenance	sE6.7: Select, Prioritize and Distribute Resolutions	sE7.7: Develop Change Program		
sE5.8: Reinstate Asset		sE7.8: Launch Change Program		

SCOR Practices

The SCOR Practices section contains management practices, software solutions, and definitions associated with each process. Companies use practices to identify alternative or desired ways for their supply chains to do business. The practices in SCOR may be a subset of the total practices a company recognizes. APICS Supply Chain Council recommends companies interested in adopting SCOR to adapt SCOR by researching, reviewing and integrating relevant industry practices and company practices (internalization).

SCOR Practices are classified to simplify identification of practices by area of interest:

- Business Process Analysis/Improvement
- Customer Support
- Distribution Management
- Information Management
- Inventory Management
- Manufacturing/Production
- Material Handling
- New Product Introduction
- Order Engineering (ETO)
- Order Management
- People Management (Incl. Training)
- Planning and Forecasting
- Product Life Cycle Management
- Purchasing
- Reverse Logistics
- Risk/Security Management
- Sustainable Supply Chain Management
- Transportation Management
- Warehousing

Special Applications

GreenSCOR

The following strategic environmental metrics allow the SCOR model to be used as a framework for environmental accounting:

- Carbon Emissions (Tons CO₂ Equivalent)
- Air Pollutant Emissions (Tons or kg)
- Liquid Waste Generated (Tons or kg)
- Solid Waste Generated (Tons or kg)
- % Recycled Waste (Percent)

The SCOR framework ties emissions to the originating processes, providing a structure for measuring environmental performance and identifying where performance can be improved. The hierarchical nature of the model allows strategic environmental footprint goals to be translated to specific targets and activities.

SCOR Metrics

Performance Attributes

The performance attributes of a supply chain permit it to be analyzed and evaluated against other supply chains with competing strategies. SCOR identifies five core supply chain performance attributes: Reliability, Responsiveness, Agility, Costs, and Asset Management. Without these characteristics it is difficult to compare an organization that strategically chooses to be the low-cost provider against an organization that chooses to compete on reliability and performance.

Directly associated with the performance attributes are the Level 1 strategic metrics. These Level 1 metrics are the calculations by which an organization can measure how successful it is in achieving its desired positioning within the market space.

Many metrics in the SCOR model are hierarchical, just as the process elements are hierarchical. Level 1 metrics are created from lower level calculations. Level 2 metrics are generally associated with a narrower subset of processes. For example, Delivery Performance is calculated as the total number of products delivered on time and in full based on a commit date. Additionally, metrics (diagnostics) are used to diagnose variations in performance against plan. For example, an organization may wish to examine the correlation between the request date and commit date.

Reliability

RL.1.1 - Perfect Order Fulfillment

RL.2.1 - % of Orders Delivered In Full

RL.3.33 - Delivery Item Accuracy

RL.3.35 - Delivery Quantity Accuracy

RL.2.2 - Delivery Performance to Customer Commit Date

RL.3.32 - Customer Commit Date Achievement Time Customer Receiving

RL.3.34 - Delivery Location Accuracy

RL.2.3 - Documentation Accuracy

RL.3.31 - Compliance Documentation Accuracy

RL.3.43 - Other Required Documentation Accuracy

RL.3.45 - Payment Documentation Accuracy

RL.3.50 - Shipping Documentation Accuracy

RL.2.4 - Perfect Condition

RL.3.12 - % Of Faultless Installations

RL.3.24 - % Orders/Lines Received Damage Free

RL.3.41 - Orders Delivered Damage Free Conformance

RL.3.42 - Orders Delivered Defect Free Conformance

RL.3.55 - Warranty and Returns

Responsiveness

RS.1.1 - Order Fulfillment Cycle Time

RS.2.1 - Source Cycle Time

RS.3.8 - Authorize Supplier Payment Cycle Time

RS.3.35 - Identify Sources of Supply Cycle Time

RS.3.107 - Receive Product Cycle Time

RS.3.122 - Schedule Product Deliveries Cycle Time

RS.3.125 - Select Supplier and Negotiate Cycle Time

RS.3.139 - Transfer Product Cycle Time

RS.3.140 - Verify Product Cycle Time

RS.2.2 - Make Cycle Time

RS.3.33 - Finalize Production Engineering Cycle Time

RS.3.49 - Issue Material Cycle Time

RS.3.101 - Produce and Test Cycle Time

RS.3.114 - Release Finished Product to Deliver
Cycle Time

RS.3.123 - Schedule Production Activities Cycle Time

RS.3.128 - Stage Finished Product Cycle Time

RS.3.142 - Package Cycle Time

RS.2.3 - Deliver Cycle Time

RS.3.16 - Build Loads Cycle Time

RS.3.18 - Consolidate Orders Cycle Time

RS.3.46 - Install Product Cycle Time

RS.3.51 - Load Product & Generate Shipping
Documentation Cycle Time

RS.3.102 - Receive & Verify Product by Customer
Cycle Time

RS.3.110 - Receive Product from Source or Make
Cycle Time

RS.3.111 - Receive, Configure, Enter, & Validate Order
Cycle Time

RS.3.116 - Reserve Resources and Determine Delivery
Date Cycle Time

RS.3.117 - Route Shipments Cycle Time

RS.3.120 - Schedule Installation Cycle Time

RS.3.124 - Select Carriers & Rate Shipments Cycle
Time

RS.3.126 - Ship Product Cycle Time

RS.2.4 - Delivery Retail Cycle Time

RS.3.17 - Checkout Cycle Time

RS.3.32 - Fill Shopping Cart Cycle Time

RS.3.34 - Generate Stocking Schedule Cycle Time

RS.3.97 - Pick Product from Backroom Cycle Time

RS.3.109 - Receive Product at Store Cycle Time

RS.3.129 - Stock Shelf Cycle Time

Agility

AG.1.1 - Upside Supply Chain Flexibility

AG.2.1 - Upside Flexibility (Source)

AG.2.2 - Upside Flexibility (Make)

AG.2.3 - Upside Flexibility (Deliver)

AG.2.4 - Upside Return Flexibility (Source)

AG.2.5 - Upside Return Flexibility (Deliver)

AG.1.2 - Upside Supply Chain Adaptability

AG.2.6 - Upside Adaptability (Source)

AG.2.7 - Upside Adaptability (Make)

AG.2.8 - Upside Adaptability (Deliver)

AG.2.9 - Upside Return Adaptability (Source)

AG.2.10 - Upside Return Adaptability (Deliver)

AG.1.3 - Downside Supply Chain Adaptability

AG.2.11 - Downside Adaptability (Source)

AG.2.12 - Downside Adaptability (Make)

AG.2.13 - Downside Adaptability (Deliver)

AG.1.4 - Overall Value at Risk (VAR)

AG.2.14 - Supplier's/Customer's/ Product's
Risk Rating

AG.2.15 - Value at Risk (Plan)

AG.2.16 - Value at Risk (Source)

AG.2.17 - Value at Risk (Make)

AG.2.18 - Value at Risk (Deliver)

AG.2.19 - Value at Risk (Return)

Cost
CO.1.001 - Total Cost to Serve
CO.2.001 - Planning Cost
CO.3.001 - Planning Labor Cost
CO.3.002 - Planning Automation Cost
CO.3.003 - Planning Property, Plant and Equipment Cost
CO.3.004 - Planning GRC and Overhead Cost
CO.2.002 - Sourcing Cost
CO.3.005 - Sourcing Labor Cost
CO.3.006 - Sourcing Automation Cost
CO.3.007 - Sourcing Property, Plant and Equipment Cost
CO.3.008 - Sourcing GRC, Inventory and Overhead Cost
CO.2.003 - Material Landed Cost
CO.3.009 - Purchased Materials Cost
CO.3.010 - Material Transportation Cost
CO.3.011 - Material Customs, Duties, Taxes and Tariffs Cost
CO.3.012 - Material Risk and Compliance Cost
CO.2.004 - Production Cost
CO.3.014 - Production Labor Cost
CO.3.015 - Production Automation Cost
CO.3.016 - Production Property, Plant and Equipment Cost
CO.3.017 - Production GRC, Inventory and Overhead Cost
CO.2.005 - Order Management Cost
CO.3.018 - Order Management Labor Cost
CO.3.019 - Order Management Automation Cost
CO.3.020 - Order Management Property, Plant and Equipment Cost
CO.3.021 - Order Management GRC and Overhead Cost
CO.2.006 - Fulfillment Cost
CO.3.022 - Transportation Cost
CO.3.023 - Fulfillment Customs, Duties, Taxes and Tariffs Cost
CO.3.024 - Fulfillment Labor Cost
CO.3.025 - Fulfillment Automation Cost
CO.3.026 - Fulfillment Property, Plant and Equipment Cost
CO.3.027 - Fulfillment GRC, Inventory and Overhead Cost
CO.2.007 Returns Cost
CO.3.028 - Discounts and Refunds Cost
CO.3.029 - Disposition Cost
CO.3.030 - Return GRC, Inventory and Overhead Cost
CO.2.008 Cost of Goods Sold

Asset Management Efficiency
AM.1.1 - Cash-to-Cash Cycle Time
AM.2.1 - Days Sales Outstanding
AM.2.2 - Inventory Days of Supply
AM.3.16 - Inventory Days of Supply (Raw Material)
AM.3.17 - Inventory Days of Supply (WIP)
AM.3.23 - Recycle Days of Supply
AM.3.28 - Percentage Defective Inventory
AM.3.37 - Percentage Excess Inventory
AM.3.44 - Percentage Unserviceable MRO Inventory
AM.3.45 - Inventory Days of Supply (Finished Goods)
AM.2.3 - Days Payable Outstanding
AM.1.2 - Return on Supply Chain Fixed Assets
AM.2.4 - Supply Chain Revenue
AM.2.5 - Supply Chain Fixed Assets
AM.3.11 - Fixed Asset Value (Deliver)
AM.3.18 - Fixed Asset Value (Make)
AM.3.20 - Fixed Asset Value (Plan)
AM.3.24 - Fixed Asset Value (Return)
AM.3.27 - Fixed Asset Value (Source)
AM.1.3 - Return on Working Capital
AM.2.6 - Accounts Payable (Payables Outstanding)
AM.2.7 - Accounts Receivable (Sales Outstanding)
AM.2.8 - Inventory

About APICS Supply Chain Council

APICS SCC advances supply chain and operations management and innovation through research, publications, education and talent development. APICS SCC maintains the Supply Chain Reference model (SCOR®), the supply chain management community's most widely accepted framework for evaluation and comparing supply chain activities and performance. APICS SCC is part of APICS, the premier professional association focused on supply chain and operations management.

For more information, visit apics.org/apicsscc.



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