Operation Process Category	Description	Example
1. Execution Management	Concerns directly the organization, the launch and the follow-up of work execution Specific to MOC or shared by several MOCs	Scheduling of production
2. Resources Management	Concerns activities related to resources, but not directly to work orders	Monitoring employee qualifications, follow up of equipment performance, of material obsolescence …; Genealogy, equipment and personnel performance
3. Global Operation Management	Dashboards, performance indicators not directly related to work orders	Activity reports per shift/day/week/year
4. Definition/Synchronisation of Master Data	Concerns maintenance of technical data (Products, resources)	Conception of a new product, involving synchronized processing at management and execution systems level

Manufacturing Operation Management Category	Description
production	activities within Level 3 of a manufacturing facility that coordinate, direct, manage, and track the functions that use raw materials, energy, equipment, personnel, and information to produce products, with the required costs, qualities, quantities, safety, and timeliness
maintenance	activities within Level 3 of a manufacturing facility that coordinate, direct, and track the functions that maintain the equipment, tools, and related assets to ensure their availability for manufacturing and ensure scheduling for reactive, periodic, preventive, or proactive maintenance
quality	activities within Level 3 of a manufacturing facility that coordinate, direct, and track the functions that measure and report on quality
Inventory	activities within Level 3 of a manufacturing facility that coordinate, direct, manage, and track inventory and material movement within manufacturing operations

Manufacturing Operation Category	Operation Generic Activity	Operation Specific Activity	Description
production	Definition Management	Product definition management	Product definition management shall be defined as the collection of activities that manage all of the Level 3 information about the product required for manufacturing, including the product production rules
	Resource Management	Production resource management	Production resource management shall be defined as the collection of activities that manage the information about resources required by production operations. The resources include machines, tools, labor (with specific skill sets), materials, and energy, as defined in the Part 1 object models. Direct control of these resources in order to meet production requirements is performed in other activities, such as production dispatching and production execution management. Management of information about segments of production is also an activity in resource management
	Detail scheduling	Detail Production Scheduling	Detailed production scheduling shall be defined as the collection of activities that take the production schedule and determine the optimal use of local resources to meet the production schedule requirements. This may include ordering the requests for minimal equipment setup or cleaning, merging requests for optimal use of equipment, and splitting requests when required because of batch sizes or limited production rates. Detailed production scheduling takes into account local situations and resource availability
	Dispatching	Production Dispatching	Production dispatching shall be defined as the collection of activities that manage the flow of production by dispatching production to equipment and personnel
	Execution Management	Production Execution Management	Production execution management shall be defined as the collection of activities that direct the performance of work, as specified by the contents of the production dispatch list elements. The production execution management activity includes selecting, starting and moving those units of work (for example lots, sublots, or batches) through the appropriate sequence of operations to physically produce the product. The actual work (manual or automatic) is part of the Level 2 functions
	Data Collection	Production data collection	Production data collection shall be defined as the collection of activities that gather, compile and manage production data for specific work processes or specific production requests. Manufacturing control systems generally deal with process information such as quantities (weight, units, etc.) and associated properties (rates, temperatures, etc.) and with equipment information such as controller, sensor, and actuator statuses. The managed data may include sensor readings, equipment states, event data, operator-entered data, transaction data, operator actions, messages, calculation results from models, and other data of importance in the making of a product. The data collection is inherently time or event based, with time or event data added to give context to the collected information
	Tracking	Production Tracking	Production tracking shall be defined as the collection of activities that prepare the production response for Level 4. This includes summarizing and reporting information about personnel and equipment actually used to produce product, material consumed, material produced, and other relevant production data such as costs and performance analysis results. Production tracking also provides information to detailed production scheduling and Level 4 scheduling activities so schedules can be updated based on current conditions
	Analysis	Production Performance Analysis	Production performance analysis shall be defined as the collection of activities that analyze and report performance information to business systems. This would include analysis of information of production unit cycle times, resource utilization, equipment utilization, equipment performance, procedure efficiencies, and production variability
Maintenance	Definition Management	Maintenance definition management	Maintenance definition management shall be defined as the collection of activities that define, manage, and maintain the information and instructions necessary to complete maintenance tasks
	Resource Management	Maintenance resource management	Maintenance resource management shall be defined as the collection of activities that manage the information about the state of the resources used within the domain of control of maintenance. The managed resources may include maintenance equipment, maintenance tools, personnel (with skill sets), documentation, and material and energy used in maintenance
	Detail scheduling	Detailed maintenance scheduling	Detailed maintenance scheduling shall be defined as the collection of activities that generate a detailed maintenance schedule
	Dispatching	Maintenance dispatching	Maintenance dispatching shall be defined as the collection of activities that assign and send maintenance work orders to the appropriate maintenance resources as identified by the detailed maintenance schedule and maintenance definitions. Dispatching communicates the task to be performed and the resources to be used and may involve the dispatching of work to employees or contractors to perform the work
	Execution Management	Maintenance execution management	Maintenance execution management shall be defined as the collection of activities that direct the performance of maintenance work
	Data Collection	Maintenance data collection	Maintenance data collection shall be defined as the set of activities that summarizes and reports on the information and events related to the disposition of the maintenance work order. Information may include current status, time required, time started, current time, time estimated to completion, actual time, resources used and additional information to present an entire maintenance history for the existing work order and earlier work orders
	Tracking	Maintenance tracking	Maintenance tracking shall be defined as the collection of activities that manage the information about the utilization of resources to perform maintenance activities and the relative effectiveness of the results of the maintenance activity
	Analysis	Maintenance Analysis	Maintenance analysis shall be defined as the collection of activities that examine the personnel, equipment, and material history to identify problem areas or areas for improvement

quality	Definition Management	Quality test definitions Management	Quality test definition management shall be defined as the collection of activities that define and manage personnel qualifications, quality test procedures, and work instructions needed to perform quality tests
	Resource Management	Quality test resource management	Quality test resource management shall be defined as the collection of activities that manage the personnel materials and equipment needed to perform quality tests
	Detail scheduling	Detailed quality test scheduling	Detailed quality test scheduling shall be defined as the collection of activities that plan and schedule resources for quality tasks. Detailed quality test scheduling takes into account local situations and resource availability as well as possible preparations needed for the tests
	Dispatching	Quality test dispatching	Quality test dispatching shall be defined as the collection of activities that assign and send quality work orders to the appropriate resources as identified by the schedule and test definition. Dispatching communicates the test to be run and the resources to be used, and may include sending material to the testing resource for testing
	Execution Management	Quality test execution management	Quality test execution management shall be defined as the collection of activities that direct the performance of testing. Quality test execution management ensures that the correct resources (equipment, materials, and personnel) are used. It also includes the confirmation that the quality test is performed according to the accepted quality standards and that the product can be released (within specified conditions)
	Data Collection	Quality test data collection	Quality test data collection shall be defined as the collection of activities that collect test results and making these results available for other use. The test data may include manually entered data or data coming directly from equipment
	Tracking	Quality test tracking	Quality test tracking shall be defined as the collection of activities that assemble test results into test responses, send the responses, and manage the information about the utilization of resources required to perform tests
	Analysis	Quality performance analysis	Quality performance analysis shall be defined as the collection of activities that analyze quality test results and testing performance in order to determine how to improve product quality. Quality performance analysis includes the analysis of quality variability, quality department cycle times, resource utilization, equipment utilization, and procedure efficiencies. Quality performance analysis is often a continuous business process
Inventory	Definition Management	Inventory definition Management	Inventory definition management shall be defined as the collection of activities that define and manage information about transfer criteria for materials, information about locations where materials may be stored, appropriate range of volume of the storage material, and other material inventory operations constraints that are sent to dispatching or detailed scheduling activities
	Resource Management	Inventory resource management	Inventory resource management shall be defined as the collection of activities that manage resources used in material storage and movement
	Detail scheduling	Detailed inventory scheduling	Detailed inventory scheduling shall be defined as the collection of activities that take inventory requests and generate detailed inventory schedules
	Dispatching	Inventory dispatching	Inventory dispatching shall be defined as the collection of activities that assign and send inventory work orders to the appropriate inventory resources as identified by the inventory schedule and inventory definitions
	Execution Management	Inventory execution management	Inventory execution management shall be defined as the collection of activities that directs the performance of work, as specified by the contents of the inventory dispatch list elements
	Data Collection	Inventory data collection	Inventory data collection shall be defined as the collection of activities that gather and report data on inventory operations and materials manipulated. Figure 27 illustrates some of the interfaces to inventory data collection
	Tracking	Inventory tracking	Inventory tracking shall be defined as the collection of activities that manage information about inventory requests and report on inventory operations. The activities may include reporting on relative transfer efficiencies and utilization of the resources used in inventory. This may include recording the start and end of movements and collecting updates to lot and sublot quantities and locations as they occur
	Analysis	Inventory analysis	Inventory analysis shall be defined as the collection of activities that analyze inventory efficiencies and resource usage in order to improve operations. Inventory analysis may provide information on received material quality and time for use in supplier evaluations, may provide information on waste due to improper storage, or may provide information on movement by location, equipment, or shift

				IT Service Level 1	IT Service Level 2	IT Service Level 3	IT Service Level 4	IT Service Level 5	IT Service Level 6
			Name:						
IT Constraint Type	**UOM**	**Range**	**Description**	**Value**	**Value**	**Value**	**Value**	**Value**	**Value**
Synchronism	-	Sync, Async							
Response Time	Second	-							
Calendar		12M7D24H, 10M5D8H							
Availability		High, Average, Low							
Data Integrity		High, Average, Low							
Environment		Outdoor/Indoor/Office							

ProcessingStyleID	Processin gStyleName	Description
RT	Real Time	Interaction with the process or the operator which directly impacts the production (normally excluded from the field of BPM)
TS	Transactional	Involves data requiring a high level of precision and reliability
ST	Data Storage	Collection, selection, consolidation, validation of information for purposes of later use
KM	Knowledge Management	Shaping of the collected information to facilitate and improve the operations
AN	Analytical	Information Analysis to help in decision-making. Can be coupled with manufacturing process or quality assurance
MD	Modelling and simulation	Asynchronous preparation processes of a principal activity, such as scheduling
CL	Collaborative	Connects independent activities and responsibilities for obtaining a common objective (non-structured)
WF	Workflow	Connects activities in a preset and structured manner

Operation Process Category	Operation Process Class	Description	Operation Tasks Class (H)	Manufacturing Operation Management Categories

						Restrictions				
Operation Activity (Generic / Specific)	**Task Class (H)**	**Description**	**Task Style**	**IT Service Level**	**Physical Level**	**Equipment Class**	**Personnel Class**	**Material Class**	**Segment Class**	**Manufacturing Operation Management Categories**

Equipment Entity (owning equipment)					Operation Process			Restriction			
Enterprise	Site	Area	Work Center	Work Unit	OperationProcessClass	Local comments	PersonResponsible	Equipment	Personnel	Material	Segment